Environmental Education for a Sustainable Society
Principles and Practice of Environmental Education for School Children

The Seventh UNESCO/Japan Seminar on Environmental Education in Asian-Pacific Region
Feburuary 11-14, 2004 Kesennuma

Japan National Commission for UNESCO
Ministry of Education, Culture, Sports, Science and Technology
Miyagi University of Education

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2004 UNESCO/JAPAN Asia Pacific Environmental Education Research Seminar

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Welcome Speech from President, Miyagi University of Education

Kaoru Yokosuka*

Good morning, ladies and gentlemen. I'm very delighted to take part in the opening ceremony of this Asian- Pacific Environmental Educational Research Seminar. As a representative from one of the sponsoring institutions, I'm glad to extend some words of greetings here.

This seminar is being held in Kesennuma-City, surrounded by plentiful nature, ria-coastline, a saw-rugged coastline and the mountains. Owing to everyone's cooperation, this seminar can be held here. I want to express my gratitude from the bottom of my heart.

This time, UNESCO has worked as the catalyst. According to the 29 member nations of the Asian-Pacific area, this seminar is in effect based on this area's education development plan that has been promoted since 1974. As an environmental educational seminar, it has been held in Tokyo six times. This year, our university has begun to undertake this seminar.

The purpose of this seminar is about the support for school education in the environmental education field. In particular, teacher training is one of the areas highlighted. We hope to have various activities, promote participants' information exchange, grasp the present situation and clarify the DESE (the Decade of ESD). This seminar was originally a meeting for specialists at the beginning. As we consider how to make good use of our work in environmental education and share this information and thinking with the citizens, we decided to open the seminar to the general public for two days from today to tomorrow.

Through this opening seminar and the international environmental education activity in Omose Elementary School, the citizens could have the chance to get some information about environmental education in different countries. Our most precious global environment should be protected. This sponsor, Miyagi University of Education, sincerely hopes that they can understand the importance of environmental education and develop much deeper symbiotic relations.

Miyagi Prefecture is the Japanese birthplace of the non-governmental UNESCO. This international seminar is being held in Kesennuma-City, which has proceeded with environmental educational development in cooperation with our university. Even from this point, it has a big significance.

Finally, I want to say a few words of gratitude to the institutions, which are supporting this seminar and giving us their cooperation with the Ministry of Education, Culture, Sports, Science and Technology, Kesennuma-City, the United Nations University, the Asia-Pacific Cultural Center for UNESCO, Kesennuma UNESCO Association, Omose Elementary School, the citizens of Kesennuma. I hope that this seminar will be held successfully. Thank you very much.

* Miyagi Univ. of Education, Japan

Welcome Remarks

Hiroshi Nagano*

I am very honoured to be here to participate in this seminar, and I want to thank all of you, especially those of you who have in come great distances for helping to enrich the dialogue about this very important topic.

On behalf of the Japanese National Commission for UNESCO, as well as the Ministry of Education, Culture, Sports, Science and Technology (MEXT), I am very pleased to extend my warmest welcome to all the participants here for the opening of this seminar.

This seminar is one of UNESCO's programmes, specifically the Asia and the Pacific Programme of Educational Innovation for Development, abbreviated as APEID. APEID has been implemented since 1974 to help developing countries to improve their ability to promote educational innovation of their own needs. Japan has been one of the most active participating countries of APEID since its inception. In particular, each of the 7 Associated Centres of APEID in Japan annually organizes international seminars on its respective research area, to which it invites experts from Asia and the Pacufic region.

I understand that the Environmental Education Center of the Miyagi University of Education takes the cental role in international cooperation of educational institutions in the community by cooperating APEID as an Associated Centre, and also promoting exchanges among schools in Japan and the United States within the framework of the Frubright Memorial Programme. I would like to express my sincere appreciation to the staff members of Miyagi University of Education who have devoted themselves to the preparation of the workshop,which is its first large event as an Associated Centre.

The main purpose of this seminar on "Environmental Education for a Sustainable Society" is to recognize the current situation of environmental education in Asia and the Pacific region and to discuss environmental education for the future. Environmental education is one of the major fields of Education for Sustainable Development and needs to be promoted further from now on.

As you may know, the World Summit on Sustainable Development in Johannesburg was held in 2002, as ten years had passed since the United Nations Conference on Environment and Development in Rio de Janeiro. This parhaps the most recent large international event concerned with the environment. I accompanied with our Prime Minister Koizumi to attend the Johannesburg Summit, which reconfirmed that international society should cooperate to solve global scale problems such as poverty, human rights, peace and environment, and also to realize sustainable development in each country. Moreover, based on a proposal made by Japan at the Johannesburg Summit, the United Nations General Assembly voted to launch the

* Ministry of Education, Culture, Sports, Sci. & Tech., Japan

"Decade of Education for Sustainable Development" from 2005. Within the General Assenbly's resolution, UNESCO was designated as the lead agency of the Decade.

Nowadays, we often hear the word "Globalization" when economic matters are being discussed. The progress of globalization of today's international society blesses a lot of people with the expansion of economic activities and the free movement of human beings, goods and information. However, on the other hand, we cannot ignore possibilities of serious ploblems such as gaps between the rich and poor, glowing cultural uniformity and clashes among civilizations. Sustainable Development hinges on three comcepts, namely, economic development, social development and environmental protection, and aims for development that meets the needs of the present without compromising the ability of future generations to meet their own needs. That is to say, it aims to construct a society under which people can have hope for the future.

To contribute towards advancing goal, the General Assembly of the Japanese National Commission for UNESCO adopted the proposal for UNESCO concerning the contents of the international implementation scheme for that Decade last July, and sent it to UNESCO. This proposal is based on the philosophy of "Think globally, act locally" and contains several important aspects, including the responsibilities of developing and industrialized countries and the importance of improving the quality of education and teachers.

Countries have to discuss how to promote educational activities for sustainable development based on the international implementation plan of action that will be developed by UNESCO. This seminar is being held in line with such world trends. I expect that we will get fruitful outcomes since the theme of this seminar is in a very timely manner.

Here today, experts from 12 countries in the Asia-Pacific region, including Japan, have joined this seminar. I hope you will bring the experiences, methods, and discussions encountered in this seminar back to your respective countries or areas where you live and share them with the people there. It is also my sincere wish that you will strive to promote not only the trainig teachers concerned with environmental education and the practice of environmental education in schools, but education for sustaniable development, too.

Last but not least, I would like to express my sincere appreciation to the City of Kesennuma, the Kesennuma UNESCO Association and othter related organizations for their supports toward the preparation of this seminar. I hope the seminar will be a great success.

Thank you very much.

Opening Address from Rector, United Nations University

Hans van Ginkel*

It is my great honour and pleasure to be here in Kesennuma and welcome you at this important Seminar. I heard that this is the 7th UNESCO-Japan Seminar on Environmental Education in the Asia-Pacific region, but the first one that is convened by the Miyagi University of Education. It is, indeed, wonderful to come to Kesennuma, one of the smaller, but highly attractive cities in Japan and to see that the city has developed such excellent educational programmes on environmental education, together with Miyagi University of Education and other partners.

Ladies and gentlemen,

To promote education for sustainable development, the United Nations University (UNU) took the lead at the World Summit on Sustainable Development (WSSD) in 2002 to mobilize 11 major global organizations to work on EfSD and jointly sign the Ubuntu Declaration, which creates a major global alliance to promote science and technology courses and teaching throughout educational systems, formal and non-formal, worldwide. I firmly believe that science and technology should play a key role to reorient and strengthen educational curricula for sustainability. Higher education should play an active role especially in training and re-training of school teachers and developing the curricula and stimulating learning materials.

It is also important to recognize that new ethics need to be established to attain sustainable development, contributing to changing lifestyles, for instance, on the basis of the guiding principles and perspectives of the Earth Charter.

As many of you are aware, the United Nations General Assembly adopted in December 2002 the resolution to promote the Decade of Education for Sustainable Development (DESD), from January 2005.

The United Nations University has been undertaking various initiatives on this topic, in particular at the higher education level; including the Global Virtual University, the Asia Pacific Initiative for Sustainable Development. In 2003, the United Nations University started a new programme on education for sustainable development, in which various activities has been undertaken.

As a spear point activity under this programme, we have proposed to generate Regional Centers of Excellence on Education for Sustainable Development (RCEs), to promote education for sustainable development at regional/local levels. At these centers, various potential partners, including school teachers, university professors, researchers, experts in museums, representatives of local governments and business communities, will get together, share their information and experiences, improve their activities and explore possibility for new collaboration. The aim of these centres is to improve

* United Nations University

the exchange of information and the cooperation between researchers, educations and media specialists working in different institutions, at different levels and in different sectors.

In this Seminar, I hope you can share experiences on environmental education and in broader sense education for sustainable development among countries of the Asia-Pacific region, and get ready to start activities for the Decade of Education for Sustainable Development.

Last but not least, I wish to express my sincere appreciation for the organizers for their significant effort to arrange this important Seminar, and hope that all the participants have productive and fruitful outcomes at the end of the Seminar.

I thank you very much for your attention.

Welcoming Speech from Mayor of Kesennuma City

Noboru Suzuki*

Good morning, ladies and gentlemen. I am Noboru Suzuki, the Mayer of Kesennuma City. I am delighted to be here today. I would like to express my congratulations on the UNESCO APEID Seminar being held in Kesennuma City. I would also like to extend my warm welcome to all the guests and visitors to our city that is known as the Sanriku international fishery city in Japan.

I believe that the environmental issues you are going to discuss at this seminar are very important not only in the area of school education, but also for the people in general.

Speaking of our city, marine products are in the center of our key industry. It is based and relies greatly on the plentiful nature we are blessed with. In addition, we enforce various environmental regulations here, and the city has declared itself a "Slow Food" city earlier than any other cities in Japan. Through these activities, we are trying out best to promote our city with the basic key word as "food."

Tomorrow, you will visit Omose Elementary School to observe how international environmental education is carried out in classes. Teaching environment is also a part of our promotion activities.

I hope this seminar will be new driving force to carry out our promotion activities. I also think this is a good opportunity to let more people know about Kesennuma as a city of food and environment.

I hope you can have very productive research and discussions in the following four days. Please don't forget to enjoy the delicious sea food and traditional Japanese dishes as well while you are here. I wish you good health and I hope you will enjoy your stay here during this seminar.

* City of Kessennuma, Japan

Asian-Pacific Environmental Education Research Seminar 2004

Kazuyuki Mikami*

Ladies and gentlemen, I'd like to welcome you here today.

Owing to the support from Kesennuma-City's people and the attendance of our guests like the Rector of the United Nations University, Dr. Hans van Ginkel, the Asian-Pacific Environmental Educational Research Seminar could be held here today. As the representative of UNESCO APEID Seminar Committee, I'd like to say thank you to everyone.

This seminar is in effect a basic part of the APEID Asian Pacific Environmental Education Development Plan. This plan is supported by 29 member nations of Asian Pacific UNESCO with UNESCO having been the catalyst since 1974. This plan is also the seventh program cycle (2002-2007) of APEID activities.

Miyagi University of Education (MUE) is the AC (Associate Center) in Japan of UNESCO. This seminar is also a part of the activities of AC. It is sponsored by Japan's UNESCO committee, MUE, and is also supported by Kesennuma-City and Asia Pacific Cultural Center for UNESCO.

This seminar's theme is "Environmental Education for a Sustainable Society: Principles and Practice of Environmental Education for School Children." We hope to bring together specialists in the field of environmental education to share different activities to support school education. In particular, this support is of pressing importance in the training of teachers. The seminar also encourages information exchange among participants, to grasp the present situation and to clarify the theme of DESD (Decade of Education for Sustainable Development).

This year is the year before DESD (2005-2014), which has been adopted by the United Nations in order to play the central role of Japanese government. As a result, it's a very important period in the preparation stage. It also has special significance to the opening of this seminar related to environmental education.

Those working in the field of environmental education in MUE think that the support of schools from institutions outside school is important. In order to discover an ideal method of support, we convened the International Symposium on Environmental Education 2002 last year in Sendai. At the conclusion of that meeting, we considered what had taken place and used experiences at that time to set this current seminar's theme. In short, what we felt to be particularly important was to collect different activities to support school education by specialists in the field of environmental education, especially those involving the training of teachers. This would also involve information exchange among participants in order to grasp the current situation in this field.

As the Asian Pacific Region is the main area in this seminar, we are glad to invite the specialists from 12 countries including Afghanistan to take part in this seminar. I'm sure that it will help us to deepen understanding in each of those countries and also make us pay attention to details of the different regions and communities. Even within one country, culture and traditions differ from area to area. As a result, it's important that we communicate with each other in an attempt to understand each other. In consideration of this point, we finally chose the northeastern city of Kesennuma as our seminar location.

* Environmental Education Center, Miyagi University of Education, Japan

So, among the many cities in the region, why did we chose Kesennuma-City for this seminar? First, it must be said Kesennuma-City is eager for environmental education. Due to this demand, in the past three years, the Environmental Education Center in MUE had the chance to support Kesennuma-City's Omose Elementary School for their environmental education practice. Kesennuma-City is located at the furthest place point from the center of Miyagi Prefecture, the city of Sendai: it takes two and a half hours to get to reach here from Sendai.

Another significant point involves a particular project in which we are involved with Omose Elementary School. Omose Elementary School, with the direction and support of a Fulbright Memorial Fund, cooperates with Lincoln Elementary School in Wisconsin, USA in a program involving international communication revolving around environmental education. The theme is "the environment of the waterside". We also keep in touch with Professor Paul Williams in University of Wisconsin and share information about how to support the education in each other's elementary schools.

In order to support international education cooperation, institutions of higher education in different countries and regions work in cooperation to support environmental education activities. This cooperation will give us opportunities to see if the EE programs we develop based on our own ideas could be suitable even for other countries, while preventing us from imposing our ideas on the partners in a self righteous way.

This seminar is basically for specialists, but on the first day we will discuss the reports of different nations with simultaneous translation for the public.

We are very lucky to have been able to invite Dr. Hans van Ginkel, the Rector of the United Nations University, to give us a special lecture. Also, we are very happy to have Mr. Tatsuya Ootsuki (the Section Chief of the Elementary and Secondary Education Bureau curriculum at the Ministry of Education, Culture, Sports, Science and Technology) and Ms. Tomoko Shibao (the Section Chief of the UNESCO Asia Culture Centre, which is the cosponsor organization of this seminar) to be our guest speakers.

Tomorrow, the second day of this seminar, we are going to visit Omose Elementary School. First, we will be able to see the practical results in detail in the school which can be a reference point for the specialists' meeting later. The project in Omose Elementary School is also open to the public, so please enjoy it.

On the third and fourth days of this seminar, specialists' meetings will be held in the Kesennuma Kanyo Hotel. These meetings will include teachers and persons concerned with the Board of Education: as a result, the meetings will be characterized by a variety of knowledge and expertise. During this seminar we are also going to talk about the coming ten years, so we are really looking forward to the positive participation of those younger attendees.

To conclude this introduction to the seminar, I would like to say thank you to both the Kesennuma-City Board of Education for their important cooperation and to Kesennuma UNESCO Association for their strong support for this seminar.

Thank you very much.

Country Report: Afghanistan

Mohammad Shafi Sharifi*

1. Background

Afghanistan is an extremely poor, landlocked country, highly dependent on foreign aid, farming and livestock raising and trade with neighboring countries. The population is around 25 million people with an estimate following structure.

Under 15 years : 41.8% (male 5,328,000 ; female 5,122,000)

15-64 years : 55.4%(male 7,208,000; female 6,642,000)

65 years and over : 2.8% (male 360,000 ; female 340,000)

Population growth : 3.38%

Birth rate : 40.63 birth /1000

Death rate :17.15 death/1000

Sex ratio : 1.07 male/female

Within two decades of war and conflict, Afghans society suffered great human and material losses as well as major demographic modification. “War has killed at least a million people, maimed and disabled many more, created an army of orphans and widows, half population into internally displaced persons and refugees, including six million out side of the country “ (UNDP 1993). Eventually in result, almost more than 80% of the governmental institutions and infrastructures either completely collapsed or disfunctioned.

Education is one of those infrastructures that have been largely affected .Afghanistan's education system is in a state of near total poor condition and among the worst in the world. War and disruption of the Afghan society during the last two decades seriously hampered educational development. The education of girls has particularly suffered due to war and the discriminatory policies of the ruling authorities. The majority of teachers are untrained, under qualified and under-paid. The textbooks are outdated and scarce in supply There are serious shortages of teaching materials and other educational facilities. To promote and deliver “Education For All“ national goals and strategies need to be established, human and materials resources mobilized, and innovative methods, including the use of new technologies, considered. The quality and relevance of education and development of shared values, particularly respect for ethnic diversity and a culture of peace, will be crucial for Afghan children and youth. For a society which for more than two decades experienced ethnic and ideological conflict, education and training will be one of the pillars on which to build the future.

* Faculty of Engineering, EE Department, Kabul University, Afghanistan

It is sad to say that more than 95% of the total population are illiterate, more than 65% of the children do not have access to basic education, more than 75 %of the population have no access to safe drinking water, more than 80% of the population are living in a very poor sanitation condition. More than 50% of the students are studying under a tent or in damaged rooms or have no shelter to study in at all. Despite the education system having been destroyed, and almost total lack of resources and teachers salary arrears of over two months in Kabul and more than six months in rural areas, demand for education is surging. For example, thousands of teachers are registering for classes. Parents are eager to return their children to school, From 4.5 million school age children more than 3 million were encouraged by "Back To School" campaign supported by UNICEF to attend to schools.

The return to peace permitted significant achievements in capacity to supply basic inputs. Almost one thousand of new schools constructed, over 2000 schools rehabilitated all over the country since March 2002.

With the restoration of peace and security and establishment of the interim government which followed by the transitional government once again it was an exceptional opportunity. Education system re-establishes and slowly strengthens, with the support of UNESCO, UNICEF and Non Governmental Organization, a number of workshops happened, the curriculum was revised, a number of textbooks developed, specific education polices and guidelines have been developed or being developed, which guarantees the ESD. With no doubt I can say that the role of Japan government is significant, Japanese are assisting Afghan people in education challenges.

2. Education:

2.1 Structure of Education System

Primary education lasts for six years and is compulsory. Student must pass a final examination each year to progress to the next grade. Middle school is at present not compulsory. Students must pass a final examination each year to advance to the next grade. High school is not compulsory. Education in Afghanistan was free in the past as well as its freeness guaranteed in the new constitution.

Level	Type of school	Length of Program	Age level
Primary	Primary school	6 years	6-12
Middle secondary	Middle school	3 years	13-16
Upper secondary	High school	3 years	17-19

For Afghan society that for more than two decades experienced war and conflict and lost its all assets and values, education is essential. For improving the education system, we faces many challenges which is a head. Happily we are not forgotten more than that. UN agencies (UNESCO, UNICEF) and international communities are with us. Their commitment and philosophy are to build the capacities of the war ravaged country related to infrastructure in education. The objectives are to support the government efforts to achieve Education for All, reduce mass illiteracy, contribute to basic education, increase access for girls to education, providing employment opportunities to women as paraprofessional teachers and involve communities in their own socioeconomic development.

2.2 Teacher Education and Training

The prewar teacher education system in Afghanistan was based on a network of 14. year teacher training college in 11 provinces. Late in 1980, six of these colleges were transferred to the ministry of higher education and converted to pedagogical institutes with 4 years programs of study. By 1984, only three teacher training colleges were functioning and after six years of the Taliban, two of these institutions still functioning. but only partly; they have suffered physical destruction and neither has active staff, although several have applied to accept students in 2002. The issue of teacher education and training is a difficult one. On the one hand, rapid expansion of the basic education system will require immediate recruitment and functional training of more than 4,000 new teachers each year; a goal for which the traditional teacher education system is unsuited and which it is wholly incapable of achieving under current circumstances. Simply put, the education system cannot wait 2 or 4 years for new teachers. More over it is not clear that separate facilities with multi year programs are the most effective or efficient means of education teachers. The alternatives of incorporating teacher education into general college or even secondary school programs, coupled with incentive in service training, may be more effective in both the short and long term. These options need to be explored to avoid making large investments in obsolete institutions.

On the other hand, Afghan educators have considerable professional and emotional attachment to the former system, and are strong in favor of rebuilding and restoring the full network of 14 teacher training institutes. MoE will require assistance to conduct a programmatic of the options and to develop both immediate and long term plans to address the shortage of teachers in an efficient way. In the short term, the urgent need for primary and secondary school teachers will require flexible and innovative approaches for rapid deployment, training, and support of teachers who lack traditional qualifications. This is an urgent priority for MoE and external funding agencies to insure that acceptable levels of quality are maintained in a rapidly expanding education system.

In 2003 the government of Afghanistan upgraded teacher training centers to university level for training as many teachers as possible to meet the need of education in coming few years.

2.3 Proposing and Implementation of Projects

Since improving of education system was recognized as a key point for sustainability and as well as stability, Ministry of Education, Ministry of Higher Education with other relevant ministries and departments, with the support UN agencies, USAID, Asian Develop Bank, World Band, Japan government, a number of quick impact projects have been proposed for improvement of education system in Afghanistan. Many of these projects have already been completed and some is going to finish. These projects are in the following areas.

2.3.1 Early childhood development:

Project 1. Young Child Play Kits: To develop a culturally relevant sets of play and learning materials for children between 1-6 years of age growing up in difficult times, and show parents and other caregivers how materials can be used to stimulate their children's motor skills, language thinking and creativity.

Project 2. Child Development Communication Strategy: To enhance early child development by supporting parents in their role as primary caregivers through a series of radio spot and supportive print materials.

Project 3 .Mother and Young Child learning centers: To give the intersecting educational needs of young women especially those whose education was interrupted or never begun-and their young children, a nationwide strategy of maternal and young child learning centers is proposed. To provide young children with stimulating early opportunities while enabling their mothers to participate in a carefully designed basic nonformal education and life skills program.

2.3.2 Basic Education Projects :

Project 1. Education Sector Support Program: To meet the strong demand for education in Afghanistan today (i)strengthening the capacity of Ministry of Education to provide quality primary and secondary education to Afghan children (ii) by supporting MoE in implementing a large back to school campaign aimed at increasing access; (iii) providing materials support for teachers and students, teacher training, and basic upgrading of educational facilities; and (iv) improve the quality of primary and secondary education for all Afghan school children, with a focus on girls and female teachers.

Project 2. Community based Basic Education Rehabilitation: The objective this project is to provide financial support for cost-efficient rehabilitation of the 80% of schools estimated to be in urgent need of repair and for furniture, education supplies, and equipment in these schools.

Project 3. Quality in Service Primary Teacher training: To support the development and immediate implementation of a coordinated, integrated in-service training program for teachers already in service that introduces effective learning and teaching strategies focusing on the quality of students learning.

Project 4. Second Chance Education for Out of School Children, Youth, and Hard. to-reach Population: To develop a framework and coordination mechanism to enable joint action by government and nongovernmental entities to deliver accepted and recognized education to children and youth who have not been enrolled in school, or who have suffered significant interruption in their education.

Project 5 . Primary Curriculum and Learning Materials Development: This project supports MoE's curriculum review and reforms process including the development of a new national curriculum and development of textbooks and other learning materials that implement the new curriculum.

2.3.3 Institutional Strengthening of the Ministry of Education.

Project 1. Policy Development through Stake holder Development Dialogue: To develop a new policy framework, based on social and gender equity, access, and quality, among others.

Project 2. Education Resources Survey: To establish a system and methodology for conducting and analyzing systematic education resources surveys of educational needs and assets in all communities and to initiate data collection, especially on children who never attend school.

Project 3. Institutional Strengthening of the Ministry of Education for School Rehabilitation and Reconstruction: To build capacity in the central MoE and the provinces to carry out efficient planning, coordination, management, implementation, and monitoring of cost-efficient school rehabilitation, construction, and temporary facilities management including provision of school furniture and equipment, and teacher housing as necessary.

Project 4. Capacity Building of Ministry of Education: To support Ministry of Education in building its

institutional and professional capacity at the central, provincial and local levels, with institutional support to communities and schools, and possibly NGOs. The capacity building process is meant to support the smooth and effective implementation of the future education policy and its learning process.

3. How Environmental Education Developed in Afghanistan

"*Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO, Tbilisi Declaration, 1978).*"

In 1979, Ministry of Education of Afghanistan realized that EE is effective and providing students with opportunities to construct their own understanding. For the first time introduced EE through a subject "understanding the nature" in primary schools. At that time it was taught that Environment is only related to nature, wild animals and pollution This subject was mostly affected by Russian and its content was based on Marxism theory. Then in 1988 it was revised and replaced by another subject " Nature" which some how close to concept of EE. This time the content was intended to help students in become aware of hoe they affect their environment and how it affects them.

In December 2002, MoE successfully developed a more comprehensive curriculum with the support of UNICEF, UNISCO, USAID. Increasing access and raising quality in all sub-sectors of education is taken inconsideration. The education curriculum and policy particularly emphasizes the initiation of EE .In a apart of the curriculum we read: "Life skill is a new subject area in the curriculum, aiming at helping students to get familiar with their social, natural and artificial environment and to develop important skills for their personnel, social intellectual and emotional development.

In July 2003 Ministry of Education held Work shop on Curriculum and textbook Development with the support of UNICEF Afghanistan, UNISCO Afghanistan, IBE-UNISCO,DANIDA, Columbia University / Teachers college and French Ministry for foreign affairs. The workshop focused on: How to upgrade the capacity of curriculum and textbook developers; to share experiences on selecting and organizing meaningful learning experiences with experts from other countries.; to draft syllabi several curriculum areas for primary education as models for good practice; to create a basis for a shared curriculum culture and vision of meaningful learning experiences among curriculum developers and education stakeholder.

In 2003, MoE of Afghanistan while developed a new curriculum, based on that more attention was attracted to Science and Technology Education (STE) and EE. Because EE is effective education and is learner centered, providing students with opportunities to construct their own understanding through hands. on, minds-on investigation. Students are engaged in direct experiences and are challenged to use higher order thinking skills. EE supports the development of an active learning community where learners share ideas and expertise. EE recognizes the importance of investigating the environment within the context of human influence, forming an examination of culture, economics, political structure, social equity and natural processes and systems. The main objective of EE is to develop an environmentally literate citizenry. Through EE students or learners:

1. students are engaged in hands. on, active learning that increases their knowledge and awareness about the environment.
2. recognize and explore how experience, feelings, perceptions and attitudes influence environmental issues.
3. understands human processes and system.
4. posses the skills necessary for citizenship.
5. develop a sense of their rights and responsibilities as citizens who are able to weigh varies sides of an environmental issues and make responsible decisions as individual and as members of their community.
6. capable to understand principles and practices of citizenship in a democratic republic.
7. develop critical things, problem solving, and effective decision making skills.

Based on above goals, objectives and importance of EE, MoE developed a textbook. The subject is called "Science, Health and Environment". The teaching of the subject will take place in module schools in the year 2004 from grade 4 to 6. Then will be reviewed and after that will be introduced to all schools. The content of the book covers the following topics:

> For grade 4

- Living thins
  - o Man and the five externals senses
  - o Animals (Domestic and Wild)
  - o Plants and their structure
- Heat and Luminous
- Machines (simple and complicated machines)
- The Earth
- Food (Resources , fruit , cereals , fish , malnutrition)
- Hygiene (Food hygiene, personnel hygiene, cloth hygiene, and domestic hygiene)
- Diseases and prevention
- Environment
  - o Aquatic ecosystem, atmosphere, terrestrial ecosystem
  - o The best use of environment

> For grade 5

- Human body anatomy
- Characteristic of living things(movement, nutrition , respiration , growth and sensitivity of living things)
- Non-Living things
  - o Mater and its physical states
- The weather and Climate
- Solar System
- Sound , Magnet, and electricity
- Micro-organism and parasites
- Drugs and their detrimental

> For grade 6

- Visceral system of human body
- Mater and the types of mater
- Natural resources
- Minerals
- Energy
- Communicable diseases and childhood diseases
- Vaccination
- Drugs and their detrimental
- Science and the society of science

In short words I can summarize the objectives of the courses as:

I. to understand the meaning of the word "Environment"

II. to find how their lives are affected by features and conditions of the various environments.

Addition to that a series of readers and booklets are developed and distributed to teachers and students (e.g. Living and Nonliving things, Living Together, Health Growth of Children, Values of plants and Animals to Human Beings, Population Explosions.)

3.1 Strategies:

Ministry of Education of Afghanistan with the cooperation and collaboration of relevant universities and a number of teacher training institutions are planning to develop:

3.1.1 Guidelines :

One of the prerequisites for having a good environmental education system and launching it is to have good and well designed guideline for the that purpose. So MoE of Afghanistan with having the responsibility as a national lead agency working on that to develop guidelines to supplement environmental education materials with following specifications:

> be accurate and faire in describing environmental issues, problems and conditions.
> be effective and efficient in reflecting the diversity of perspective.
> help the growth and development awareness of the natural environment.
> focus on understanding of environmental conditions and concept.
> care of awareness of attitudes, values, feelings and perceptions at the heart of environmental problems.
> Attention to different scales.
> Insist on skills building which enable learners to prevent environmental problems.
> Emphasis on critical and creative thinking.
> Encourage to apply skills to issues.
> Promote civic responsibilities.
> Encourage learners to use their knowledge and personnel skills as a basis for environmental problem solving and action.
> Promote learning centered education system.

> Instruct different ways of learning.
> Instruct assessment of environment.
> Expand learning environment.
> Connection to learners' daily lives.
> Instruct goals and objectives.
> Be well designed and easy to use.
> To be long life and adoptable.

3.1.2 Development of materials

Ministry of Education in conjunction with and support of UNESCO and UNICEF. on the light of mentioned guidelines is undertaken the compilation and publication of textbooks and magazines for students and teachers which will make the word "environment" more understandable and meaningful. Education materials which will enable the students to map the various levels of their own environment. Education staff that will promote the ability of learners to examine how their lives are affected by the features and conditions of the various environments in which they live. Books in which learners and teachers will find many examples of the human attempts to change the environment to suit the human needs. The education materials being considered to be adoptable and applicable according the age and level.

3.1.3 Workshops and Seminars

With development of the texts book MoE plans to conduct a series of workshops and seminars to initiate the initiate and introduce environmental to all teachers and educators:

1. What Environmental Education is, why it is relevant to our live and how effectively be demonstrated and communicated.
2. How human can live compatibly with nature?
3. Why environmental education is important?
4. How the every body lives could be improved by environmental education.
5. The principles and components of environmental education.
6. How to promote and asses environmental education in Afghanistan.
7. How to increase environmental literacy.
8. How to ensure long term effectiveness and sustainability of EE programs.

4. Constraint and challenges

Despite massive attention was paid in the last two years on education by the government, ministry of education and relevant education institutions, UN agencies, NGOs, we had/have large level of weaknesses and constraints as well. These constraints contributed to not achieve all the goals and objectives were designed. These challenges and constraints are outlined as:

> Lack of environmental education materials.
> Lack of environmental education guidelines and policies.
> Lack of environmental education resources for educators.

- > Lack of necessary expertise and skills to support environmental education.
- > Non-Availability of qualified and trained teaching force especially in environmental education was a major problem identified already. These problems become more acute for the availability of teachers in the rural areas.
- > Non-availability of demonstration materials equipments and tools to arouse students' interest and to create an understanding of environment.
- > Financial constraints to implement the designed projects.

5. Recommendations

Keeping in views the importance of environmental education and the role it can play the following recommendations are proposed:

General Recommendations

- > The MoE, together with its advisers, and relevant education departments and other education institutions should develop specific policies and guidelines to govern the environmental education system in Afghanistan at an early stage of its development to allow all actors in the environmental education system to work toward achieving the same goals and objectives.
- > Particular considerations should be paid to improve knowledge and skills that education professionals need in order to effectively teach about environment and support the goals of sustainable development.
- > Environmental education should be a compulsory subject from school to university.
- > Integrate environmental education for sustainable development in other subjects.
- > Provision of audio/video programs.

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2. Education And Afghan Society in 20th Century

Saiforahman Samadi

3. Afghanistan and Education (Country Report on STE workshop)

Sharifi Mohammad Shafi

4. UNESCO and UNICEF Publications
5. Erfans (Monthly Magazine MoE)
6. Science for Sustainable Development (UNESCO)

Environmental Education for Sustainability in Bangladesh

Masudul Hoq Chowdhury*

Introduction

Bangladesh is located between 20°34´ and 26°88´north latitude and 80°1´ and 92°41´ east longitudes with an area of 143,998 square kilometers and a population of approximately 113 million. It is bordered on the west, north, and east by India, in the southeast by Burma and in the south by the Bay of Bengal. Except for the hilly regions in the north east and south east the whole country consists of low and flat land formed mainly by the great *Gunges* and *Bramaputra* River system.

Bangladesh is faced with rampant poverty, high population density, and an increasing population, recurring natural disasters and dwindling natural resources. It is one of the poorest of the developing countries with a low resource base, a very low land man ration, which is threatened by both natural hazard and anthropogenic mismanagement and overexploitation. The vast majority of the population is amongst the poorest in the world and lives almost exclusively on the natural resource base. However this resource base is under serious threat and environmental planning is necessary to signal any hope for survival with dignity and sustainability.

Development in a developing country like Bangladesh primarily aims to provide its people with enough food and basic shelter. Here the quality of life is not envisaged as the improvement of the quality of the environment. A major threat to the natural environment in Bangladesh originates from its over-use of some of its natural resources for a subsistent livelihood. Bangladesh is a least developed country which is characterized by

- Persistence of poverty at high levels
- Proneness of sudden destitution of substantial number of people due to natural hazards
- Low level of human capability development
- Low per capita income
- Increasing and glaring socio-economic inequality
- Extreme high un-and under employment
- Low-level productivity in agriculture, industry and other sections
- Very limited export base
- Very low land-man ratio

Major Environmental Issues in Bangladesh

Population growth and human activities have an impact on natural environment. Industrialization, overexploitation of natural resources, waste disposal, pollution of land, air and water, unplanned development of infrastructure, loss of biodiversity, all contribute to the deterioration of natural environment and resources in Bangladesh. Most of Bangladesh's tropical forest and almost all flood plains have been affected by human activities that are particularly detrimental to the natural resource base.

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Facts about Environment

- The forest habitat is less than 6% of total land area and is declining rapidly.
- Water extraction upstream in Nepal, India, Bhutan and Tibet greatly reduces dry season water flows.
- Rapid expansion of dry season irrigation for rice cultivation has resulted in the loss of over 50% of the dry season perennial portions of the country. Seasonal drawdown of the water table is also a problem, causing some tube wells to run dry.
- There is lack of effective protection for environmentally critical areas contributing to a reduction in biodiversity.
- There is limited or no participation by local communities in resource use decision making.
- Inadequate information on the status and functioning of critical ecosystem has lead to poor environmental policies.
- Once natural resources are degraded, there is limited opportunity for alternative income activities.
- Public awareness of environmental issues are limited.
- There is a lack of Skilled personnel trained in sustainable management of renewable natural resource.
- The aquatic and floodplain ecosystem continue to be severely degraded. The (perennial) wetland habitats and ecosystem have lost larger water bodies (rivers and canals) due to siltation and landfilling for agriculture and homestead use.
- Massive deforestation has also taken place, with negative consequences for both diversity and production of tropical forest resources.
- Diversity of fish species and fish catch has decreased, reducing the income of the very poor who depend on fish for livelihood.
- Reduction of forest biodiversity and production has negatively affected food, fodder, medicine and shelter for poor people.

Source: www.usaid.gov

Environmental Regulations and Management in Bangladesh

At the official level a Ministry of Environment and Forests and an upgraded Department of Environment (DOF) have been formed. The Environmental Pollution Control Ordinance of 1977, the Environmental Policy of 1992 and the Environmental Conservation Act of 1995 are strong moves towards a quality system of Environmental protection. Bangladesh introduced its first Environmental Policy in May 1992, with the following objectives

1. Maintain ecological balance and the overall development of the country through conservation and improvement of the environment
2. Protect the country from natural disasters
3. Identify and regulate all activities which pollute and degrade the environment
4. Ensure sustainable, long term and environment-friendly use of all natural resources and
5. Remain actively associated with international environmental initiatives to the greatest extent possible.

Environmental Education (EE) in Bangladesh

In order to create awareness of the importance of conservation of the natural environment, action is needed at various levels and in various modes. Among the different levels, are the national policy makers, community leaders, professionals of various disciplines; teachers, students and youth groups; women, cooperators, religious leaders and other special groups;

peasants and so on. In terms of the mode of dissemination, the awareness programs may be a part of the formal educational curriculum; these may also be part of informal programs and delivered through other communication media.

The first environmental policy has the following provisions with regard to education and public awareness.

- Empower people through education by eradicating illiteracy and developing the country
- Create mass awareness regarding environmental conservation and improvement, and sustainable, long term and environmentally sound utilization of all
- Ensure the inclusion and dissemination of environmental knowledge and information in the formal systems of education and media
- Induce spontaneous and direct participation of people in all environmental activities and
- Incorporate environmental issues into all government and non-government training programs and into training programs for industrial and commercial workers.

In pursuit to the provisions of the Environmental Policy in the education sector, the Environmental Action Plan recommended the actions presented in the Table-1.

Sector: Education and Mass Awareness	Implementing Agency
1. The Ministry of Environment and Forest will implement a five-year integrated plan for mass awareness of the environment. The Ministries of Information and of Education will provide support and assistance	• Ministry of Environment and Forest • Ministry of Education • Ministry of Information
2. Curricula related to the environment will be included at all levels of education and in all training programs	• Ministry of Education
3. To create awareness, the participation of Imams (religious teachers), teachers and leaders of all religious, social and voluntary organization will be ensured	• Ministry of Religion • Islamic Foundation • Ministry of Social Welfare • Ministry of Education

Source: Farooque Mohiuddin and S. Hassan Rizwana. (1996)

Environmental Education in Formal Education

The introduction of EE was started in Bangladesh following the Qudrat -i-Khuda Commission Report of 1974, which led to the introduction of new curricula and syllabuses for various stages of school education by 1978. In this new syllabus Environmental Studies was introduced at the primary and secondary stage in place of the earlier science and social studies.

The main principles according to which the syllabus of Environmental Education for the primary stage that was prepared were the following (Sharafuddin:1991)

1. The pupils should be able to observe and know their immediate environment and develop a scientific attitude towards solving their everyday problems
2. The study of separate subjects like Biology, Physics, Chemistry, Geography, Geology, History and Social Studies do not help pupils to learn about the wholeness of the environment, thus an integrated subject would be more useful and
3. Knowledge about the proper use of environmental resources and a sound understanding of how conservation of these resources is essential for the maintenance of human life and civilization.

EE is provided in both formal and non-formal schools. All government and registered non-government schools follow

the national curriculum. NGOs working with the government projects and programs in the educational sector also follow the national curriculum. There are also some NGOs who have their own curriculum.

The subject matter of Environmental Education from Primary to Secondary level of education has the following sequence:

In Grade 1-2 it is taught orally without any prescribed book (a guide book is followed by teacher in all schools). Students are taught about the family environment, food, clothes, shelter, domestic animals, and birds of the surroundings environment. In addition they are also taught about lesson includes living and non-living objects in the local environment, the need for a neat and clean environment and the relationship between health, hygiene and the environment.

In Grade 3-5, the subjects are divided into two parts, Environmental Studies (Science) and Environmental Studies (Society). Environmental Studies (Science) teaches, rudimentary knowledge of the earth, the solar system and the universe, the inanimate and the animate worlds, man and environment, preservation of the environment, food, nutrition and population, agricultural development in Bangladesh, and the various natural resources of Bangladesh. Environmental Studies (Society) teaches about the social environment, region and regional environment, people's lives in different environment, environment and living conditions, change of environment and people's lives. Similar topics are continued in the secondary stage of education.

Higher Education

There are public and private Universities and colleges for higher education in Bangladesh. Many colleges teach Botany and Zoology at the Bachelor level where Ecology is a part of these subjects. Ecology is also included as a topic in a four year Honours course following Grade 12. All the major universities of the country have included ecology as a topic in botany, zoology and geography. At the postgraduate level, Ecology is compulsory in Botany and Zoology departments. There are also courses on Environmental Management and Perception and Resource Management and Environment at the M.Sc. level in different Universities.

There are a number of research organizations in Bangladesh have developed research capabilities in the field of environment. Among these are:

- Bangladesh Agricultural Research Council (BARC),
- Bangladesh Agricultural Research Institute (BARI)
- Bangladesh Rice Research Institute (BRRI)
- Bangladesh Jute Research Institute (BJRI)
- Bangladesh Fisheries Research Institute (BFRI)
- Bangladesh Institute of Development Studies (BIDS)
- Institute of Forestry
- Bangladesh Council of Scientific and Industrial Research (BCSIR)
- Space Research and Remote Sensing Organization (SPARRSO)

Non-formal Education

In Bangladesh, there are several institutions under the aegis of the government which undertake program for rural development. Bangladesh Academy for Rural Development (BARD), Bangladesh Rural Development Board (BRDB), Local Government Engineering Department (LGED), Department of Cooperatives (DOC), and Rural Development Academy (RDA), are all directly involved in rural development. There are some other important government organizations that are

related to rural development these include Bangladesh Small and Cottage Industries (BSCIC), Department of Agricultural Extension (DAE), Bangladesh Agricultural Development Corporation (BADC), Bangladesh Water Development Board (BWDB), Department of Social Services (DSS), Bangladesh Fisheries Development Corporation (BFDC), Department of Youth (DY), Bangladesh Forest Industries Development Corporation (BFIDC), amd Bangladesh Sericulture Board (BSB). These institutions play an important role in sustainable development through which poverty alleviation with environmental concerns can be achieved.

Non-government Organization

NGO activities in regard to the development of self-reliant organizations within the rural poor also have a catalytic role to play in achieving sustainable development. The NGOs are encouraged to undertake program on environmental improvement in various ways. The NGOs have been taking increasing role in creating environmental awareness among the people and organizing various appropriate training programs for the concerned groups has been increasing. NGOs raises awareness about health and nutrition, hygiene, safe drinking water, sustainable farming, sanitation, primary health care, population control, and family planning through group and community action. There are NGOs who have policies and programs with a multi-sectoral and holistic approach to human development and their activities include institution building, human resource development, social development, capital resource development, and environmental development. Some NGOs are also engaged in environmental training and education. NGOs mainly target disadvantaged groups who do not have access to formal education and training institutions. Other target groups include teachers, trainers and other people who have an interest or stake in environmental conservation. NGOs conduct EE through group discussion, non-formal schools, community mobilizations and the mass media. Now a days NGOs are institutions capable of effectively performing development work at the grassroots level in addition they they can also influence the Government and other institutions.

Civil Society Organizations

Various civil society organizations came up with different activity packages aiming at the protection and conservation of environment. Among these are:

- Bangladesh Poribesh Andolon (BAPA) (Environment Movement) aiming to promote public awareness and action for the prevention of environmental degradation, mitigation of pollution and the safe protection of the environment in Bangladesh, and influencing protection of the global environment. BAPA launched vigorous campaigns including demonstrations, rallies and boat processions to protest against pollution of the rivers Buriganga, Turag and Balu; Gulshan-Baridhara lake, Baragram and Ashulia water bodies. The protests were particularly directed against illegal encroachment of water bodies and construction work such as filling up ponds, lakes, canal, rivers or wetlands. The government has started a program to demolish the illegal structure and reduce water pollution (BAPA).
- Bangladesh Environmental Lawyers Association (BELA), whose mission is to ensure sound and sustainable ecological order in the country using legal mechanism, proper observation of vast regulatory regime on the environment and to make people aware of their environmental rights and duties. BELA conducts its EE activities through training, workshops, information dissemination on environmental regulation through the media, legislative advocacy, documentation and publications (BELA).

Mass Media

The electronic media like Radio Bangladesh and Bangladesh Television and the print media such as news papers,

periodicals, and journals are playing a very significant role in environmental education programs. Environmental education programs are regularly aired by the electronic media. Media provides the information related to natural calamities such as floods and cyclones, land erosion, water pollution, deforestation, industrial effluent, destruction of wild life, green house effects, biodiversity and the like.

People's Traditional Knowledge

Uses of traditional knowledge have been long in practice in agricultural farming in rural Bangladesh. A large number of people in the country have had no access to go through a process of formal education; they have been using their traditional wisdom to cope with environmental problems. In many parts of the country traditional methods of farming, fishing, health care and other technologies based on age old experience have been practiced among the rural farming community. These kinds of traditional knowledge and technologies are usually based on environment friendly farm practices.

Agricultural farm practices in Bangladesh have for long depended on the basis of versified words of wisdom called Khonar Bachan (Sayings of Khona, a mythological wise lady. Some consider Khona to be an imaginary person, her sayings symbolizing folk wisdom based on centuries of farming practices (Newaz). One of Khona's sayings is as follows: Mager mati heerer kati, Falguner mati shona; Choiteyr mati jemon temon, Baishakher mati mona. It means that, the best time to start preparation of soil for cultivation is the month of Maghe (mid-January to mid-February); the month of Fulguna (mid-February to mid-March) is also quite good; Chaitra (mid-March to mid-April) is so so, but the soil is no longer suitable in Baishakh (mid-April to mid-may).

There are many such sayings on the effect of weather on crops. For example, "*Diney rode, rate jol / Tatey barey dhanner bol*" which means, if there is sunshine during the day and rain at night, it would give a good rice harvest.

There are some other types of folk saying and folk remedies that relate to health care, protection of crops and conservation of natural resources, such as, local Neem trees (Azadirachta indica) that are used for health care. Neem and Biskatali (Polygonum sp.) is used in different parts of the country for protecting food grains from pests during storage. (Sharafuddin and Rahman: 1994).

It may be useful to compile this kind of folk wisdom and make good use of them to educate the common people about conservation of nature and the environment.

Conclusion

Though various governmental and non-governmental organizations have been trying to promote and foster environmental education, the overall achievements have not been satisfactory so far. One of the EE problems in the formal education system is the lack of supplementary reading materials for the pupils as well as of appropriate Audio-visual aids to teaching. The existing curriculum is book knowledge-based and examination orientated. There is also a lack of vertical and horizontal integration of curriculum components. School children do not have the opportunity to develop skills to analyse and evaluate local or national environmental problems or issues. It is very often EE is not a priority especially when the curriculum is overcrowded, even many teachers, students and parents do not perceive it as a priority in the curriculum.

The status of EE that has been performed by the informal sector is not satisfactory either. The print media like newspapers, journals, and magazines do not have wider circulation because of the high rate of illiteracy and it is also costly to acquire them on the part of the common people. EE related programs are given inadequate time by the electronic media. Though the national TV channel does show drama, film show, and documentaries on environmental issues, it has very limited coverage among the common people as there there is a lack of power supply in many parts of the country and also

many people cannot afford to buy a TV.

The mass media with the most potential in Bangladesh is the radio, which sends development messages to every corner of the country. Most of the people own and listen radios, but the broadcasting programs are not related to EE issues enough. Moreover there are not any established systems to get feed back on effectiveness of the programs. More effective program should be developed and sponsored for electronic media.

Lack of coordination amongst respective organization is a very common problem in Bangladesh. Many ministries or departments adopt their individual policies and programs to pursue their own mandate without any collective efforts and because of this there is duplication or competition between the actors. Unavailability of data and information on EE related issues also hamper the activities of environmental educators and facilitators.

Though the existing EE programs do not seem to be good enough, but the future looks promising. The awareness of the environmental problems grew in the country at all levels and in all sectors. Bangladesh observed 1990 as the "year of environment" and the decade of 1991-1999 had been observed as the "Decade of the Environment". Bangladesh has also signed various International Conventions and Protocols concerning the environment and adopted policies for environmental conservations, protection, and enhancement. The government banned the export of frog legs as well as killing of all kinds of wild birds and animals as a step towards the preservation of the natural environment and ecological balance. The Government has also recently banned on the production, marketing and use of polythene shopping bags throughout the country. Recognizing the air pollution in Dhaka city, Two Stroke Engine Vehicles (TSEV) and old and defective vehicles has been withdrawn from the city street. These are some of the indications of the positive interest of the government and the people in environmental protection and development. It is hoped that these steps will bring desirable results in the future in sustaining precious natural resources of Bangladesh.

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Country Report on Environmental Education in Cambodia

Roath Sith*

1 Executive Summary

Since 1993, environmental education in Cambodia has been slowly permeating the formal education sector at the primary, secondary and tertiary levels, including formal monk education, the training of government officials of Ministry of Environment, and sporadically the mass media and non-formal education sector.

There is currently no single long-term strategic plan for environmental education (EE) currently in place within Cambodia. Consequently the approach to EE is carried out in a fairly random manner. NGO's and IO's working in the EE field produce and apply their own educational material for their own projects without consultation, for the most part, with the Ministry of Environment (MOE). If this ad-hoc approach remains unchecked the Government will continue to have lack control or quality assurance mechanisms for EE.

In addition, the Ministry of Environment has identified that little knowledge exists of what environmental education (EE) materials/initiatives/capacity currently exists in Cambodia as a whole making it difficult to clearly identify and address national EE needs. Hence it is considered essential to formulate a national strategic plan to ensure the long-term effectiveness of EE in Cambodia and for the Government of Cambodia to regain control of its EE system and that Cambodia's EE needs are properly identified and addressed.

2 Background

2.1 General issues

The Kingdom of Cambodia seriously suffered from more than two decades of civil war and international isolation from the mid 1970's to the early 1990's. After the worst events were over, the United Nations supported the general elections in Cambodia in 1993 which ushered in a new era of peace. However due to a number of factors environmental degradation in Cambodia is apparent. This has been brought about by the prolonged war/conflict, the lack of capacity and knowledge on environmental issues, inadequate agriculture, business and industrial practices, imperfect infrastructure, unequal access to land tenure, lack of environmentally sound technologies and management, and a desire for rapid economic growth and poverty reduction. The links between poverty and environmental degradation are strong and need to be taken into consideration while planning or implementing environmental legislations and policies.

The major environmental issues facing Cambodia include inappropriate forest exploitation, soil erosion, sedimentation, coastal zone degradation, air and water pollution, depletion of the fishery stock, degradation of the Tonle Sap ecosystem, loss

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of biodiversity, urban environmental degradation, and high population growth.

Environmental education (EE) is of fundamental importance in addressing these issues as it provides the necessary knowledge/awareness, values and skills needed by students, the general public and decision makers to understand the complexities of the environment. The primary aim of EE is to enable Cambodian citizens to be aware of and appreciate the complex nature of the environment, as well as the role played by a properly managed environment, in social and economic development.

However, the field of education was one of the most seriously disrupted by the prolonged civil war and conflict. Not only were schools demolished, education suspended, literature and schoolbooks destroyed; the majority of schoolteachers did not survive the atrocities. A moderate reconstruction of the educational system began in 1979 but after the 1993 elections a revitalized education system was considered as critical to broad-based development, and improved education as a major contributor to overall nation-building, democratization and economic liberalization.

The Royal Government of Cambodia is committed to position its education system in order to optimize its contribution to social and economic development and considers environmental education one of the top priorities for the country. It recognizes that EE strategies are needed to mobilize all the elements that constitute the formalized methods of education within Cambodian society including formal schooling education (secular and non-secular systems), non-formal education, mass media, and socio-cultural elements like religious networks, and professional and occupational training. Each element must take on the responsibility of delivering EE as a legitimate aspect of its activities and must accept EE as fundamental to accomplishing the objective of a better environment.

2.2 Brief background to Cambodian Education System

The Cambodian education system can essentially be placed into three categories: formal secular, formal non-secular (monk education) and non-formal education. Formal education is undertaken in educational institutions such as schools and universities and non-formal education comprises education to the community outside of the formal schooling system and can include vocational training etc.

The formal secular education system during the decade of the 1980s comprised 5+3+3 respectively for primary school, lower secondary school, and upper secondary school. The tertiary school was set for 4-7 years for technical and engineer training. In the 1990s the Cambodian education system was upgraded to 6+3+3 for primary, lower secondary and upper secondary schools respectively.

The tertiary level remained unchanged until 2000 when tertiary education was privatized so courses now vary in length depending on the type of qualification. Vocational and technical education and training are also conducted from 1 year to 3-5 years. Non-formal education also contributes to the training of citizens. (See Appendix 1: Education system flow chart)

The formal non-secular education system is designed for Buddhist monk students. There are two parts to teaching materials: one is about literature and science subjects and the other is on Buddhism principles. The education system

for this sector is designed similarly to the formal secular education system which comprises 6+3+3 for primary, lower secondary and upper secondary schools respectively.

The National Constitution provides for free primary and lower secondary education (up to grade 9) in public schools. However, private contributions are allowed to make up for the lack of public resources. In view of the scarcity of available resources pre-school education has not been a major focus. About 94 percent of children aged between 3 to 5 years old do not attend pre-school. Approximately 55 per cent of all primary schools offer six grades. Net enrolment rates are still low at all levels. Most children who start school bear the consequences of the internal inefficiency of a system that is characterized by high repetition and drop out rates.

The rather uniform centralised curriculum for primary schools is not always perceived as very motivating and relevant to the children and their parents. Teachers are often unable to provide an active learning environment as a short Textbook Orientation Training alone is insufficient for encouraging the teachers to make a shift from the tradition of teacher centred teaching to child centred teaching methods.

Another area of major concern is the low primary school attendance rate, particularly for the very youngest of school-aged children and especially girls. According to the 1998 census only 20 percent of six year olds, and around 40 and 50 percent respectively of all the seven and eight years old children were attending school.

At all levels of education, students from the poorest families are under-served and under-represented. Cambodia is faced with a clear gender gap for most of the access and quality indicators. The gender gap for net primary enrolment stands at 6.2 percentage points for the academic year 2000-2001. The percentage of female students at pre-school level are 50, for primary 46, for lower-secondary 37 and for upper-secondary levels 32. Boys and girls at early primary level appear to have initially almost equal schooling opportunities. However, around the age of eleven, girls start lagging behind boys (CARE, 1998). At the same time, girls have higher labour force participation rates than boys during their teenage years suggesting that financial factors outweigh attitudinal ones in explaining the gender gap. Number of school girls drop down to about 33% at lower and upper secondary schools. (See Appendix 2: Number of schools, classes, students and staff). Again, numbers of girls studying at tertiary schools become marginalized.

3 Environmental Education in Cambodia 1993-1998

3.1 Establishment of the Ministry of Environment and Department of Environmental Education and Communication

In late 1993 the Ministry of Environment (MOE) was established to undertake environmentally sound management and the preparations for environmental education in Cambodia also began. The Ministry was (and still is) made up of six main technical departments with one being the Department of Environmental Education and Communication (DEEC) (See Appendix 3: Organizational Structure of the MOE). The DEEC role and function is to initiate, coordinate and cooperate with relevant governmental institutions, national and international agencies, as well as business sectors, religious, and local communities to work together for improving environmental capacity building and awareness.

The main functions of the DEEC are to:

- Build up national capacity and capability.
- Collaborate with line technical departments for organizing training courses on environmental issues.
- Collect, collate, develop and publicize environmental education materials.
- Cooperate with other International Organizations, Non-Governmental Organizations, and voluntary organizations for the implementation and dissemination environmental education activities.
- Develop and distribute environmental educational materials to be used by all sectors in the society.
- Develop environmental education programs and concepts to be integrated into curriculums of primary, secondary and higher education.
- Develop non-formal educational planning, i.e. environmental campaigns.
- Develop office strategic direction and action plans.
- Disseminate environmental awareness to officials, military officers, and general public.
- Liaise with relevant Ministries, institutions, NGOs, IOs and donor agencies concerned with environmental issues to coordinate activities and provide technical guidance and direction as necessary.
- Organize capacity building training courses for government officers.
- Organize competition campaigns on environmental awareness.
- Prepare program of action based on the National Environmental Action Plan as well as national and international policy.

3.2 Establishment of Inter-Ministerial Steering Committee for Environmental Education

Shortly after the MOE's establishment in 1993 an Inter-Ministerial Steering Committee for Environmental Education (IMSCEE) was established by the MOE, Ministry of Education, Youth and Sport (MOEYS), and Ministry of Cult and Religion Affairs (MOCRA) to carryout all EE activities. The main role of IMSCEE was responsibility for all environmental education programs in formal education for primary, secondary, and tertiary schools (secular) and monk schools (non-secular). The IMSCEE was provided with technical and financial support by UNDP/CEAT.

The Committee members comprised representatives from the three Ministries. Three Sub-Committees for Primary, Secondary and Monk Education were also established to undertake technical work for these levels of education. In addition an IMSCEE Secretariat was established to facilitate/support the technical and administrative work of IMSCEE and its sub-committees.

Shortly after the establishment of the IMSCEE, the MOE and IMSCEE, in cooperation with UNDP's Cambodian Environmental Advisory Team (CEAT), outlined the first general framework for the integration of EE at all levels of Cambodian society. The framework of EE in Cambodia stated the following issues as priorities: health, pollution, sustainable use of natural resources, conservation of biodiversity and the relation between nature and culture.

In late 1995 another program was launched involving the IMSCEE, which focused on the integrated environmental education into both secular and non-secular (monk) education systems and the Buddhist Association became a member of the IMSCEE (See Appendix 4: Organizational structure of the IMSCEE).

The responsibility of the IMSCEE members was as follows:

- MOE/DEEC was responsible for overall EE programs,
- MOEYS was responsible for any EE initiatives in the public education system by focusing on environmental education issues within secular education system.
- MOCRA and BA were responsible for EE for the monk education system by focusing on environmental education issues within non-secular education system.

Technical and financial assistance for this program was provided by UNDP/ETAP. The duration of this program was over a three year period. Activities began in late 1995 and ended in December 1998. The main outcomes are given in section 3.3.1 below.

The IMSCEE was suspended in 1998 due to financial constraints and has not been reconvened since.

3.3 Formal Education Initiatives

3.3.1 Inter-Ministerial Steering Committee for Environmental Education

The IMSCEE developed integrated systems for EE into schooling education systems. There are two main integrated target areas: secular schooling system (primary, secondary and high school levels) and non-secular (religious) schooling system (primary and secondary school levels).

In order to introduce the concepts, rational and goals of environmental education, and to discuss a model for the integration (interdisciplinary/multidisciplinary) of EE in primary and secondary schools, a First National Seminar on Environmental Education in Primary and Secondary Schools was held in August 1993 by the IMSCEE with technical and financial assistance provided by UNDP/CEAT. Participants to this seminar were officials from the MOE and MOEYS, primary and secondary school teachers' supervisors from both the central and provincial sectors. It was agreed that the EE should be integrated by changing the content of the broad learning areas (interdisciplinary approach). This meant that EE was to be integrated within the broad learning disciplines for primary school level. To begin with, EE was first to be integrated into primary school teaching and later on into lower and upper secondary school and tertiary school levels.

3.3.1.1 Secular primary school initiatives

In 1995 the IMSCEE successfully launched a program called "integrated EE into primary school level". This program began with the development of environmental education materials for both teachers and students followed by a three-week national workshop[1]. The main objective of this workshop was to introduce EE materials and collect feedback, comments and recommendations from participants for improving those materials. There were 48 participants who attended the workshop. After review of the EE materials by using workshop feedback, IMSCEE published the first draft of a teachers guide and environmental manual for primary school teachers.

This material was then introduced at six regional workshops[2], each of which was attended by about 50 participants invited mostly from the MOEYS (primary school's teachers) throughout the country, and several were invited

[1] The National Workshop was held in Sihanoukville from 27th May-14th June 1996.
[2] The Six Regional Workshops were held at Kandal, Takeo, Stung Treng, Battambang, and Siem Reap Provinces, and Sihanoukville Municipality from May to June 1997.

from MOE line provincial departments who carried out the EE program at both provincial and municipality levels. Feedback, comments and recommendations from participants were used to review, correct, update and enhance the quality of the books.

The teaching manual consisted of ten modules each comprising one lesson and several practical exercises. Those modules are:

- Module 1: What is the Environment?
- Module 2: Environment and Socio-Cultural,
- Module 3: Green plant is sources of food,
- Module 4: Water is life,
- Module 5: the Sun,
- Module 6: Wildlife,
- Module 7: Forestry,
- Module 8: Natural Resources,
- Module 9: Environmental Pollution and
- Module 10: Quality of life.

In addition activity-based exercises were added to the modules. Exercises were divided into three main grade levels: lower level for grade 1-2, middle level for grade 3-4, and upper level for grade 5-6. These included classroom and outside classroom activities, and story telling.

Unfortunately, the final documents were unable to reach final publication due to the shortage of financial support (resulting from the international fund suspended for Cambodia in late 1997).

3.3.1.2 Secular secondary school initiatives

The initiative for the secondary school education program was planned to begin in 1997 for materials development and environmental education training program in cooperation with UNESCO-Bangkok's Asia-Pacific Center of Educational Innovation for Development (ACEID) with expected additional funding from Japanese Trust Funds. Unlike the primary education program, where IMSCEE drafted a new EE classroom manual for teachers, the secondary program focused on the professional development of teacher educators using the UNESCO-ACEID training modules. However in 1998 the IMSCEE initiatives to launch integrated EE programs into secondary school (secular area) level collapsed because of technical problems and financial constraints.

3.3.1.3 Non-secular primary and secondary school initiatives

Environmental education for the formal non-secular education sector was administered through IMSCEE's monk education sub-committee. It was designed to be responsible for both the primary and secondary monk educations. A Sub-Committee Working Group for Monk Education was established to prepare/develop the materials for Buddhist primary and secondary school teachers with technical and financial support provided through IMSCEE's Secretariat. MOCRA decided to use the draft Primary School Teacher's Manual (see section 3.3.1.1 above) as a model for a similar manual for monk educators. The draft manual consists of a teacher's guide and ten modules. Each module comprises lessons, exercises including written tests, storytelling, experiments, and outside classroom activities. The IMSCEE

also launched an additional program for the primary Buddhist monk education system. This program began with the development of EE materials for integration into primary monk education level.

The IMSCEE had planned to organize a national workshop on environmental education for monk education in late 1998, to be followed by six regional workshops across the country in which the draft manual was to be introduced. Participants of the national workshop were to comprise 50 department heads/representatives of MOCRA, MOE, and MOEYS. The majority of participants were to be from MOCRA which is responsible for Buddhist education. For the regional workshops, the participants would be head and/or lead teachers of the approximately 300 existing Buddhist primary schools for monks.

The first draft of these materials was prepared but not published and introduced to the National Workshop for comment and other input. Unfortunately this program was also suspended at the end of 1998 due to the shortage of financial support.

The draft manual (produced in both Khmer and English) aimed to deliver EE to Buddhist monk's students with Buddhist principles and concepts in regards to the environment and human attitudes of high importance. The draft manual comprised 10 modules as follows:

- Module 1: What is the Environment?
- Module 2: Buddhist and the Environment,
- Module 3: Wataram (Pagoda) and the Environment,
- Module 4: Buddhist Education and the Environment,
- Module 5: The Buddha and Forest,
- Module 6: Khmer Cultural Environment,
- Module 7: Pollution and the Hygiene of the Environment,
- Module 8: Natural Recourse and People's Need,
- Module 9: Element for Life and
- Module 10: Environmental Morality.

The coordination of formal environmental education for monks in Cambodia has been suspended since December 1998 because of lack financial support.

3.3.2 Tertiary Education

The tertiary education system was controlled by the government through its line technical Ministries up until the Year 2000. The Ministry of Education, Youth and Sport (MOEYS) had overall responsibility for most of the tertiary schools and established national policies and curriculum guidelines for them. Also some tertiary institutions and vocational and technical colleagues were under the governance of other technical Ministries (Ministry of Agriculture, Forestry and Fishery, Ministry of Health, Ministry of Commerce, etc). Courses on environmental issues were very limited if they occurred at all.

3.4 Non-formal Education Initiatives

3.4.1 Department of Environmental Education and Communication

The EE program in the MOE was first developed in 1994, soon after the MOE was established by the Royal

Government of Cambodia in late 1993. The initial EE program was primarily focused on the capacity building of the MOE staff and other governmental officers rather than providing environmental awareness to students, farmers and the general public.

In 1994 with technical and financial support by international organizations (in collaboration with UNDP/CEAT, IDRC, UNESCO, and IUCN), the Department of Environmental Education and Communication (DEEC) within the MOE prepared and conducted a series of lecture programs on general environmental issues for MOE staff, called "Environmental Skills Training Course". Five training courses (four-week training course length) were organized and conducted with the following objectives:

- To ensure the MOE staff understood and supported the mission and goals of the Ministry;
- To ensure the staff knew the functions of each department and office of the Ministry,
- To increase the competence of the staff of the MOE with exposure to the full range of issues, sciences, and technology related to the environment.

This training course was planned to take place once a year to upgrade the knowledge of MOE officials working in the field of environment and was to become a regular part of MOE's program.

The holding of the first three training courses was supported by UNDP, UNESCO, IUCN and IDRC with both technical and financial assistance. There were about 300 personnel who attended these courses, the majority was MOE staff working in various fields throughout the country and the rest were invited from relevant governmental institutions. The final two training courses were organized by the DEEC in collaboration with UNDP, UNESCO, CARERE, IDRC, CEMP and other NGOs. Participants who attended these courses numbered about 200 and were invited from MOE line Provincial / Municipal Environmental Departments and also other participants were invited from relevant governmental institutions.

The short training courses were suspended early in 1996 due to a lack of technical and financial support and financial support provided by the government is generally inadequate.

DEEC had also been in cooperation with local non-governmental organizations to disseminate environmental awareness to the public. Implementation was via different types of education means such as short training courses, workshops, meetings and the mass media.

3.4.2 Non-Secular Education Initiatives

The non-formal education system for non-secular education (non-formal monk education) program was conducted through local NGOs covering Phnom Penh and 15 provinces. It should be noted that this program was under technical and financial assistance provided by from UNDP/ETAP and NORAD. An NGO Working group for a community based environmental training program for monks in the individual Wat (pagoda) community was established in December 1997 which comprised 11 NGOs. The working group was split into two task teams, one devoted to materials development (print and tape), and the other to training curriculum development. The

early material produced by the working group was a book called "A Cry from the Forest". This material was then distributed to pagoda and monk master trainers in 1999.

4 Enviromental Education in Cambodia 1998-Present

4.1 Formal Education

4.1.1 Secular Primary School

There is currently no government formal printed environmental education material available to be used in secular primary schools. However, the final "Teacher Guide Manual for primary school teachers" that was developed by IMSCEE in 1998 (but not published) has recently been put on a website for schools to use.

In addition, a group of 4-NGOs developed a primary school teaching aid called "Guideline for Environmental Educators" which comprises 42 lessons. Each lesson contains environmental issue explanation and exercise parts. This material was adopted by the MOEYS and then published and distributed in 2003.

4.1.2 Secular Secondary School

After the IMSCEE was suspended in December 1998, the MOEYS in collaboration with UNSECO developed a text book of materials related to environmental science for lower and upper secondary schools. This text book was called "Earth Science" and there are variety topics associated with environmental issues in general which focus on three different environmental fields: the green, blue and brown issues. Currently, this book is used in secondary schools.

4.1.3 Secular Tertiary

At the end of the 1990s, privatization of the education system at the tertiary level was encouraged. As a result, tertiary schools were dramatically growing while other levels of the schooling system remained controlled by the government. All kinds of private schools at the tertiary level are allowed to operate according to the curriculum development approved by the Ministry of Education, Youth and Sport.

A secular tertiary education program on environment was officially established in 2000 by the Royal University of Phnom Penh[3] (RUPP) with financial support provided by UNESCO and DANIDA (Danish International Development Agency). This program was designed to provide an undergraduate degree, which is a four-year academic study with 23 subjects. Students that enroll in this program are required to take 71 credits core courses; 39 credits of basic requirement; 33 credits of general education, and 10 credits group-research in the last semester. There are about 30 undergraduate students who take this course each year. The first environmental graduation students will complete their study in the 2004 academic year.

Materials for this graduate course have been developed with technical assistance provided by the Asian Institute of Technology (AIT), based in Bangkok, Thailand. Developed materials were introduced to many workshops for comments and feedback in order to improve the quality of materials as well as to fit it into the Cambodia situation.

[3] Royal University of phnom Penh (RUPP) is a specialized university under direct supervision by the Ministry of Education, Youth and Sport. The university mostly offers courses for professional teaching in various fields of education. Graduate students, after completing their courses in this university will generally become teachers.

4.1.4 Non-secular Primary and Secondary Schools

Due to ETAP ending in December 1998, the initiative for integrated environmental education into non-secular education system for both primary and secondary school levels was suspended and no further activities have taken place due to limited financial support. EE in this sector needs to be reactivated.

4.2 Non-formal Education

4.2.1 Ministry of Environment

Since 1998 non-formal education carried out by the Department of Environmental Education and Communication (DEEC) within the MOE has been limited. This is because it has not been a priority task for DEEC due to limited capacity of the staff, uncertain policy, and financial constraints. It is essential to reactivate a program in order to provide and strengthen the capacity of officials on environmental issues. This capacity building needs to be focused on various target groups, i.e. general officials, decision-makers and policy makers. A clear strategic plan for this development needs to be made.

4.2.2 Non-Government Organisations EE work

Since 1998 there has been quite a lot of activity in the non-formal sector which has been undertaken by Local and international Non-Governmental Organizations (NGOs), Associations, and Religious Groups. Similar to the formal education system, non-formal education has been implemented in both the secular and non-secular education sectors.

Non-formal education carried out by the Non-Governmental Organizations is more active because those organizations have clear work plans, enough funding to undertake such works, and their scope of work is generally small scale (focusing on one or a few provinces or districts or communes). To date we know that there are about 30 national and international NGOs working in the environmental field in Cambodia (See Appendix 5: List of National and International NGOs in Cambodia). Such organizations mainly focus their work on environmental protection and conservation, environmental pollution, and only slightly concentrate on environmental education. Only a few NGOs are concentrating more on environmental education, namely the Cultural and Environmental Protection Agency (CEPA), Save Cambodia Wildlife (SCW), and Mlup Baitong (Green Shade) for example. Their main activities cover various fields including EE material development, EE training programs for local villagers, advocacy, radio broadcasting, campaigns, etc.

However, most of the NGOs EE activities are lacking coordination/cooperation links either with the MOE nor MOEYS, and vise versa. They work by collaboration mostly with local authorities only. Such lack of cooperation with the central authority results in inadequate information for nationwide planning. Consequently, it is considered that some areas may have many environmental NGOs working in them, while others have none.

4.2.3 Public awareness raising of EE

Environmental awareness still tends to be very limited and is particularly low among people in rural areas and in areas of high bio-diversity. This lack of environmental awareness is a contributing factor to the destruction and/or degradation of the natural environment i.e. soil erosion, deforestation, declining fish stock etc.

In order to promote public awareness about current environmental issues, it is necessary to develop non-formal education programs where people can learn about environmental issues through mass media, campaigns and/or listening to advice from the monks.

The raising of public awareness in most provinces relies mostly on the print media, television, and radio broadcasting. However, to ensure effective high quality news coverage and information campaigns on the environment, journalists with specialized education in environmental issue are necessary. There is a lack of well-trained journalists in Cambodia.

Cambodia has more than 20 newspapers, four of which are published in foreign languages. The non-Khmer papers are well known among foreigners but have very low circulation among Cambodian people. Most newspapers in Khmer circulate well in Phnom Penh and Siem Reap municipalities, but have poor distribution in the other provinces. Environmental issues are not often covered by either the local or foreigner's newspapers.

Radio is a cost effective and influential medium with a vast reach into rural areas. The lack of an electrical network in most rural areas does not obstruct the distribution of information by radio, as batteries are commonly used in these areas. The size of radio audience in Cambodia is unknown but radio ownership is high. Radio programs will therefore reach a large section of the public and it seems to be an opportune time to introduce programs relating to environmental issues. Some regular radio broadcasting of environmental issues has been introduced recently by MOE and some NGOs i.e. Mlup Baitong and it is carried by the National Radio. There are about 10 radio stations in operation but only two stations are regularly broadcasting environmental programs/news twice time a week (the National Radio and Radio FM-103MHz).

Television (transmitting and cable TV) is becoming more widespread in large cities such as Phnom Penh, Siem Reap, Sihanoukville, and Battambang. Soon after the formulation of the framework for environmental education in July 1993, the MOE in collaboration with UNTAC and CEAT produced four short-term video bites for TV broadcasting. The videos were targeted at the general public and aimed to inform the people on the importance of Cambodia's forests. Then, in 1995 with support provided by UNDP/ETAP, the MOE/DEEC initiated and launched a TV Quiz Show on environmental issues. These shows were produced quarterly and broadcast 2 times a week. Such productions have decreased since 1998 due to inadequate resources. Currently, only two TV Quiz Shows a year are produced and broadcast. General environmental information programs are however shown quite regularly by 7 local TV operators.

Environmental campaigns also contribute to raise public awareness on the environment particularly on brown issues. Such campaigns are carried out by the MOE and are undertaken for many events including National Environmental Day, World Environmental Day, Clean up the World, Clean up Cambodian Beaches and Keep Phnom Penh City Clean. Again, financial support for such campaigns is inadequate and as usual what finance there is has been provided by private enterprises, local and international NGOs and embassies. Students, governmental officers and local people generally volunteer to participate in these events.

5 Challenges in Environmental Education

There is currently no single long-term strategic plan for environmental education (EE) currently in place within Cambodia. Consequently the approach to EE is carried out in a fairly random manner. NGO's and IO's working in the EE field produce and apply their own educational material for their own projects without consultation, for the most part, with the Ministry of Environment (MOE). If this ad-hoc approach remains unchecked the Government will continue to have lack control or quality assurance mechanisms for EE.

In addition, the Ministry of Environment has identified that little knowledge exists of what environmental education (EE) materials/initiatives/capacity currently exists in Cambodia as a whole making it difficult to clearly identify and address national EE needs. It also believes that there is little coordination of current EE initiatives which may be resulting in duplication of efforts and inconsistencies in approach. Indeed from discussions with a number of organizations involved in EE this view appears to be supported.

It is considered that the implementation of environmental education in Cambodia faces many obstacles including:

- Limited cooperation and coordination/networking between governmental institutions, NGOs, and the private sector,
- Limited environmental legislation, regulations and enforcement tools for managing its resources,
- High percentage of illiteracy among Cambodian people,
- Limited public knowledge on environment, so that their participation and commitment in environmental activities is still limited,
- Limited capacity on environmental education,
- Limited materials and facilitation equipment for EE.
- Limited financial support.
- Inadequate strategic planning for EE.

6 Strategy to overcome the problems

MOE/DEEC is developing a Strategic Direction on EE, the vision of which is that "All Cambodians have environmental awareness ensuring a sustainable future". The mission is "To achieve a coordinated and consistent approach to Environmental Education (EE) in Cambodia to better enable the conservation and protection of the environment to the benefit of all people's livelihoods, particularly the poor and disadvantaged." This is to be achieved by reaching four main goals:

- Development and implementation of a National EE Strategic Plan to identify and address EE need with integration of the ASEAN Environmental Education Action Plan (AEEAP).
- Development of a Sub-decree on Public Participation and Access to Information.
- Development of information tools for EE (website/newsletter/ CDs/Video, etc.)
- Development and mobilization of human resources for EE.

The major part of the strategic direction is to develop and implement a National Environmental Education Strategic Plan (NEESP) with integration of the ASEAN Environmental Education Action Plan (AEEAP)4. As a first stage to the development of the Plan a research project (known as the National Environmental Education Research Project or NEERP), is proposed to be undertaken. The NEERP will provide a picture of what EE materials/initiatives/capacity exist in Cambodia and a database developed with the information obtained to assist government and non-government institutions to better

identify the EE need of the Cambodian people at all levels of education (primary, secondary, tertiary, non formal and monk education) and help improve environmental awareness at these levels.

EETO has already commenced the NEERP with preliminary discussions with government institutions and NGOs about the project. However due to a level of financial constraint within the MOE donor funding is required for the NEERP to be substantially continued and completed (approximately US$30,000). Once funding is secured it is estimated that the research stage will take around twelve months to complete.

Once the NEERP is completed the material on the database would then be evaluated (as a further separately funded project) to identify the need for what further measures are to be undertaken to ensure EE is occurring at some level in all parts of the Country. Following the evaluation the strategic plan would then be formulated to address the needs identified. In the formulation of the strategic plan it is proposed that the equivalent of the IMSCEE be created to act as a steering committee for the plan's development with all relevant stakeholders being represented. The NEESP would then be implemented. The completion of the NEESP as a whole is expected to take 2 years (subject to availability of funding). The NEESP's implementation is anticipated to take between 3-7 years, possibly more (again subject to funding).

In addition it is recognized that in the interests of good governance it is important that the Ministry gains knowledge of what EE materials/initiatives/ capacity exists so it can establish a lead coordinating role for EE initiatives and also identify the need for future EE initiatives in Cambodia. Such measures would also be in line with the important regional initiative of the ASEAN Environmental Education Action Plan 2000-2005 (AEEAP).

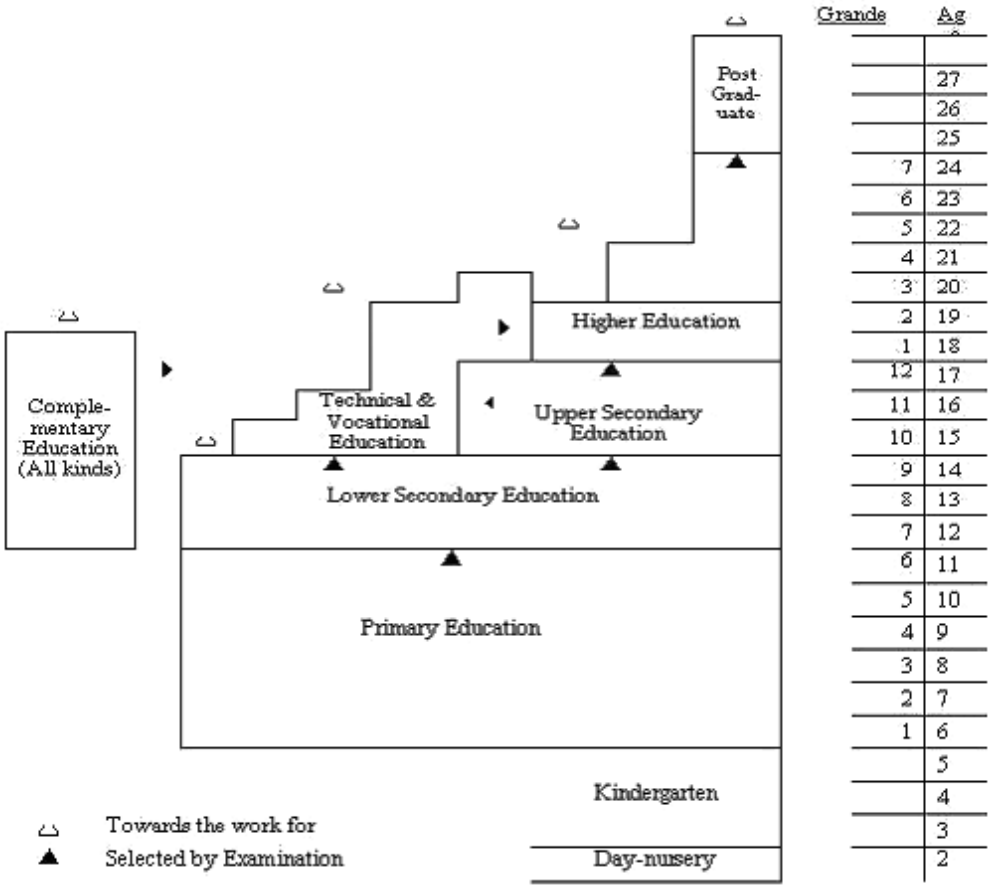
7 Conclusion

Since 1993, environmental education in Cambodia has been slowly permeating the formal education sector at the primary, secondary and tertiary levels, including formal monk education, the training of government officials of Ministry of Environment, and sporadically the mass media and non-formal education sector. Between 1993 and 1998 much of the EE activity in Cambodia occurred at the Government level, particularly in the MOE and MOEYS. Since then EE activity has been limited within the MOE though the MOEYS has been integrating EE into the secular primary and secondary school curriculums. The Environmental Science degree at the RUPP has also been recently developed. There has also been varying levels of environmental education work undertaken by NGO's over more recent years with the majority of the work occurring in the non-formal education sector.

However the MOE considers that the approach to EE is carried out in a fairly random manner. NGO's and IO's working in the EE field produce and apply their own educational material for their own projects without consultation, for the most part, with the Ministry of Environment. In addition it is recognized that little knowledge exists of what EE materials/ initiatives/capacity currently exists in Cambodia as a whole making it difficult to clearly identify and address national EE needs. It is therefore essential that a national strategic plan to ensure the long-term effectiveness of EE in Cambodia is developed in order for the Government of Cambodia to regain control of its EE system and that Cambodia's EE needs are properly identified and addressed.

8 Appendixes:

8.1 Appendix 1: Education system flow chart



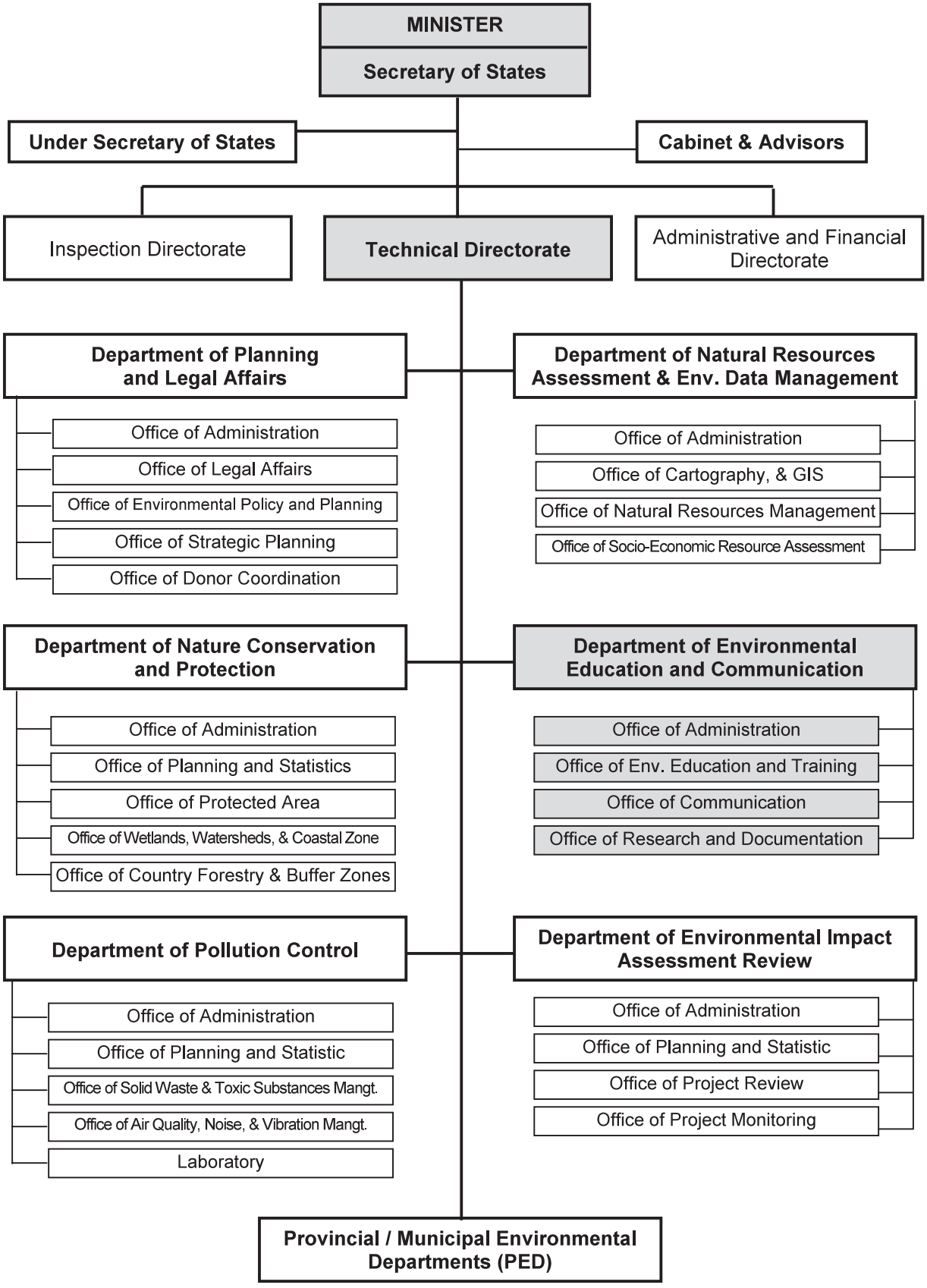
Source: Expended basic education program 2002-2005, Ministry of Education, Youth and Sport, Cambodia, 2002

8.2 Appendix 2: Schools, classes, student and staff

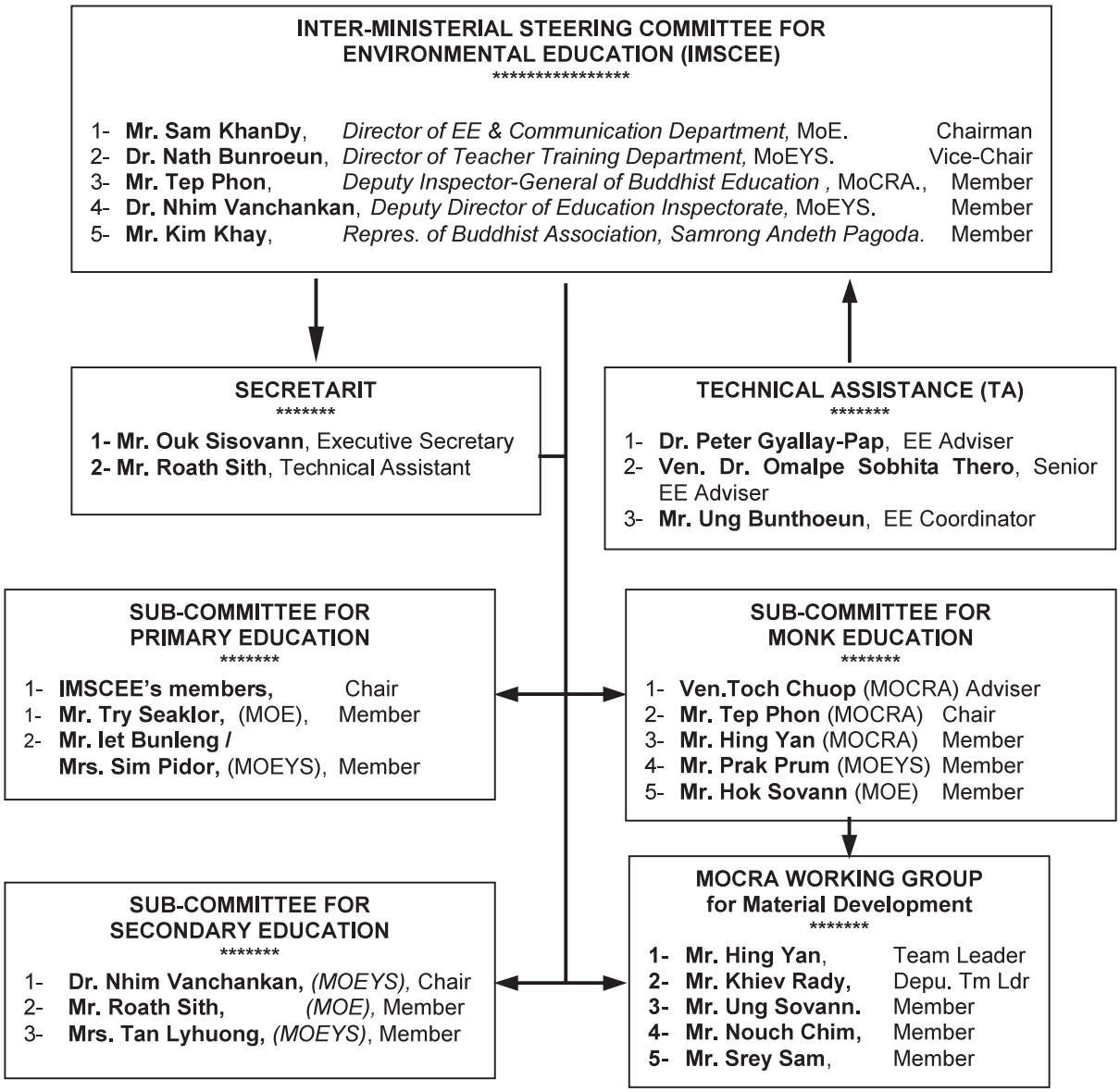
Particulars	Number of Schools	Disadv. Schools	Number of Classes	Classes in Pagoda	Enrollment		Repeaters		Teaching Staff		Non-Teaching Staff	
					Total	Girl	Total	Girl	Total	Female	Total	Female
Whole Kingdom	6,449	574	57,547	1,144	2,447,235	1,083,438	536,180	230,179	62,647	22,562	10,879	2,899
By Area of Location:												
Urban Area	1,094	39	16,255	211	718,415	316,044	122,967	51,158	21,337	10,246	4,954	1,935
Rural Area	4,605	417	37,602	831	1,576,190	699,177	371,1556	160,221	38,727	11,965	5,720	956
Remote Area	750	118	3,690	102	152,630	68,217	41,657	18,800	2,583	351	205	8
By Type of School & Edn. Level:												
- Pre-School	806	32	14,14	61	45,068	22,186	0	0	1,793	1,777	190	173
- Primary School	51,56	532	48,370	958	2,094,000	956,084	514,363	224,892	43,530	16,148	5,870	1,284
- College	355	10	3,506	125	127,247	42,186	10,102	2,412	8,114	2,015	2,221	572
- Lycee	132	0	4,257	0	180,920	62,982	11,715	2,875	9,210	2,622	2,598	870
- Lower Secondary Level	480	10	5,903	125	226,057	77,714	19,327	4,729	13,769	3,820	3,813	1,109
- Upper Secondary Level	132	0	1,860	0	82,110	27,454	2,490	558	3,555	817	1,006	333
Disadvantaged school (All Levels)	574	574	3,090	73	126,019	57,370	32,745	14,582	2,773	800	265	41

Source: Education Statistics and Indicators, EMIS Center, Department of Planning, MoEYS, 1999

8.3 Appendix 3: Organizational Structure of the Ministry of Environment



8.4 Appendix 4: Organizational Structure of the IMSCEE



8.5 Appendix 5: List of National and International NGOs in Cambodia

No	Organization	Abbreviation	Remark
1	Angkor Center for Conservation of Biodiversity	ACCB	
2	Biodiversity and Protected Areas Management Project	BPAMP	MOE's project
3	Cambodia Volunteer for Community Development	CVCD	
4	Center for Education and Development Agriculture in Cambodia	CEDAC	Government institution
5	Coastal Zone Management Project	CZM	MOE's project
6	Concern World Wide	CWW	
7	Conservation International		
8	Culture and Environmental Preservation Agency	CEPA	
9	Danish International Development Agency	DANIDA	
10	Fauna and Flora International	FFI	
11	Food and Agriculture Organization	FAO	
12	Japan Volunteer Conservation	JVC	
13	Lutheran World Service	LWS	
14	Mlup Baitong	Mlup Baitong	
15	NGOs Forum on Cambodia	NGO Forum	
16	Non Timber Forest Products	NTFP	
17	Osmoses	Osmoses	
18	OXFAM America	Oxfam America	
19	OXFAM GB	Oxfam GB	
20	Phnom Penh Pedagogy Faculty		Government institution
21	Royal University of Phnom Penh	RUPP	Government institution
22	Santi Sena Organization		Religous sector
23	Save Cambodia's Wildlife	SCW	
24	SEILA	SEILA	Government program
25	Soutien à L'Initiative Privée pour L'Aide à la Reconstruction des Pays du Sud-Est Asiatique	SIPAR	
26	The Cardamom Project		
27	Uniteed Nations Educational, Scientific and Cultural Organisation	UNESCO	
28	University of Fine Arts		Government institution
29	WildAid	WildAid	
30	Wildlife Conservation Society	WCS	
31	World Conservation Union	IUCN	
32	World Education	WE	
33	World Wide Fund for Nature - Cambodia	WWF	
34	Youth Resource Development Project	YRDP	

The Orbit of Environment Education Policy in Chinese Basic Education

Gen-cheng Su* and Zhi-yong Wei*

Gen-cheng Su

Abstract: Firstly, this paper introduces the concept of environment policy. Environment policy setted by a party or a state in a special period in order to achieve some environment educational goals, such as sustainable development and environment protect, is a directional administerial ways, and action guide line that can restrict, show and harmonize ideas and action of the objects of environment education.

This paper includes four parts.

The first part introduces the background under witch Chinese environment education policy came to being and developed. This paper thinks that Chinese environment educational policy is result of international background and Chinese special situation.

After society entering into industry society, Human rob nature resources more fearfully. The destroy to environment turns to dangers to Human being finally. United Nations hold the first world environment meeting in Stockholm of Sweden 1972. After this meeting, Chinese environment protecting strided forward difficultly. In the same time, under international background instituting of environment educational policy and work of environment education started difficultly in China.

Chinese theories instructing and policy instituting of environment education was impacted by International Environment Education Proseminar hold in Belgrade 1975 and Intergovernmental Environment Education Meeting hold in Fore-Soviet Russia Debilsi 1977. These meeting's pneuma turned to basic guideline that China advances the development of environment education.

Chinese farther development of environment education was influenced by "Uited Nations Environment and Development" meeting hold in 1992. This meeting bringed forward the conception of Human being having to go along with sustainable development definitely. The conception put forward new goals and assignments for environment education. then, Chinese environment education policy consummates step by step, environment education of basic education unfolds comprehensively.

The second part compartmentalizes the orbit of Environment Education in Chinese Basic Education. According researching files of Chinese Environment Education, this paper thinks that goals choosing, content, characters, and ways of environment education change phase by phase, then compartmentalizes the orbit as four phases that link up each other: startup phase, development phase, redirection phase, deepen and enlarged phase.

The third part introduces environment education character of different phases of environment education policy in Chinese basic education. Along with the orbit developing, this paper thinks that the practice of environment education in Chinese basic education develops continually also, and shows different characters.

In the startup phase, macroscopical policy instruction is main. This phase can be disparted into two phases by year 1978. In the front phase, the scope of environment education in Chinese basic education was narrow, the objects and ways were simplex, the influence is limited. After 1978, Chinese middle schools and elementary schools increased content

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of environment protection. From 1979 to 1983, the first, second and third meeting of Education committee of Chinese environment science academy put forward idiographic request about environment education of Chinese middle schools and elementary schools, and this promoted development of environment education of Chinese basic education.

Development phase mainly showed policy layout in macroscopical-level, middle-level and microcosmic-level. After 1978, Chinese middle schools and elementary schools emphasized energy sources, environment protection, zoology and so on in teaching, infiltrated content of environment education into relative subjects and extracurricular activities, trained teachers in the same time. In 1990, Chinese education committee requested that high school should have elective classes about environment protection. In November 1992, Chinese education committee and environment protection bureau hold the first "National Environment Education Workmeeting", put forward a guideline?Education is principal to environment protection. This promoted Chinese environment education to a flourishing situation.

In the redirection phase, macroscopical-level policy leaded environment education to the core of sustainable development. In this phase, the idea of sustainable development infiltrated into basic education step by step, so environment education of basic education come into prevalence commendably, school pay more attention to importance of environment education, both quantity and quality of teachers that took part in environment education upgraded.

In deepen and enlarged phase, the content of environment education was deepen and enlarged. In this period, the level of environment education of basic education in China improved obviously. Based on popularizing knowledge of environment protection, the work of environment education emphasized students' virtue of environment much more. The intercommunion that environment education of Chinese basic education did with others states boosted omnidirectional development of environment education. The content of the policy changed from "whether should we unfold environment education" to "how should we unfold environment education", "how should we insure unfolding of environment education" and such core problems.

The third part analyses the problems that environment education policy in Chinese basic education is facing and should to result. Passing through more than thirty years' development, this paper thinks, environment education policy in Chinese basic education has gotten notable achievement indubitably, has been acting important function that instructs and promotes environment education in Chinese basic education. but comparing with western developed countries' system of policy of environment education, the existing policy of environment education in china is being in a primary development phase. Basing situation of Chinese environment education, there are some problems in environment education of basic education that the policy have to result.

(1) The main body of environment education is not clear.

In the long time, Chinese basic education is affected by traditional examination-oriented education. Though our state has instituted macroscopical policy of environment education goals, different ranks education administrant departments do not pay enough attention to environment education. So this results to The main body of environment education is not clear.

(2) The strength of monitoring environment education is not sufficient

Presently, not only implementing the policy is not enough, but also monitoring environment education has too much limitation. It is necessary to exert administration monitoring, to enforce monitoring, inspecting and appraising for education administrant departments, environment protection departments and judicature departments, so that they can insure that all kinds of policies and measures can be brought into effect.

(3) It is necessary to change from emphasizing teaching environment knowledge to heightening environment diathesis

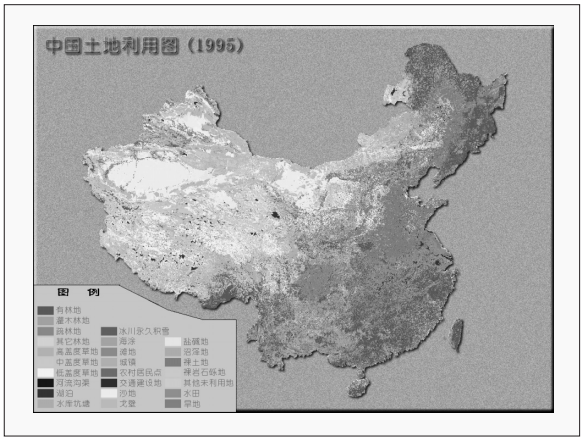
Environment education in Chinese basic education emphasizes environment knowledge and consciousness profoundly. But education conception has changed from knowledge first to comprehensive development. So environment education

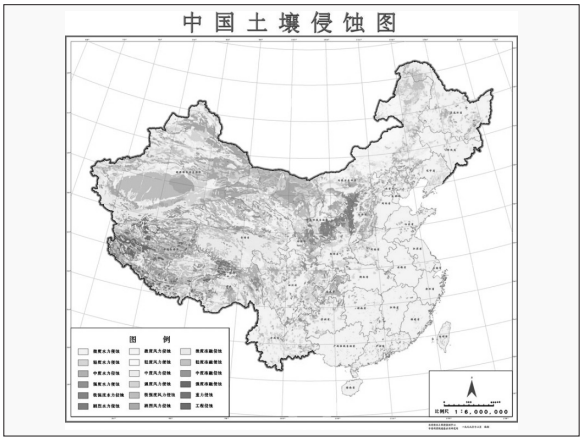
require that not only to teach the students knowledge and craftsmanship, but also to enhance the students' environment consciousness, feeling, attitude and values.

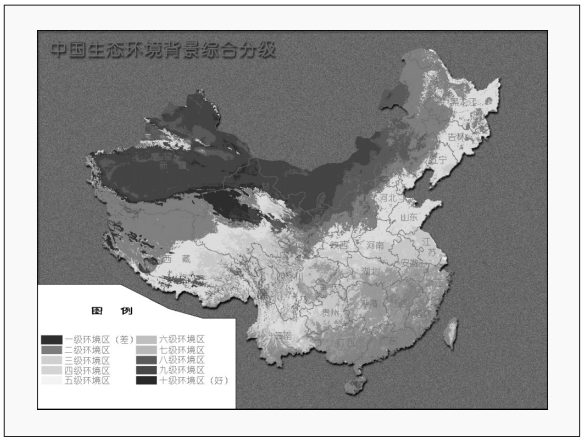
(4) Research and instruction of environment education theory are not enough

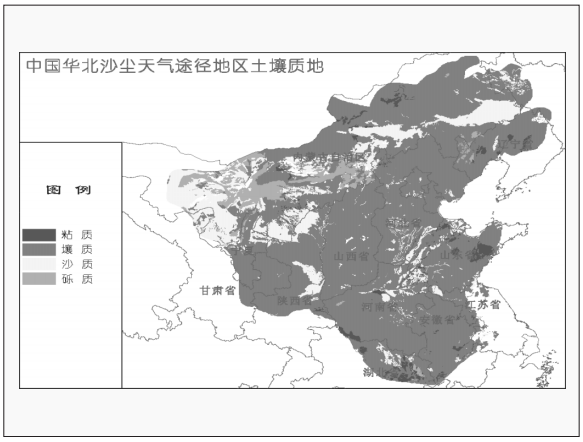
Successful progressing of environment education relies on instruction of science theory. But, another problem existing in many schools unfolding environment education is research and instruction of environment education theory being lacking, this make environment education be not able to empolder new realm, have no innovation, lack backup force, and make the students and teachers' interesting decrease step by step. So environment education can not make progress.

Key words: policy of environment education; basic education; China









Environmental Education in School System - Overview and Challenges

Amba Jamir*

Introduction:

Since the 1972 Stockholm Conference, it has been realized that the responsibility of protection and conservation of the environment and educating people for it does not lie in governments alone. Everyone is a stakeholder to our plant Earth and hence individuals, citizens groups, institutions and the various governmental and non-governmental organisations have a direct role to play. Environmental Education (EE) is therefore, critical to any comprehensive environment management strategy and must be a continuing process in all areas of education - be it formal, informal or non-formal. It is therefore, all the more critical in school education and hence EE must be accorded a critical place in the school education system.

India is home to 17% of the world's total population in just 2.4% of the world's total area. It is also estimated that there are about 325 languages that are effectively used in India and thousands of other local dialects that change in India almost after every 8-10 Kms. Given such a challenging situation, the educational development in India has attained much - both in quantitative and qualitative terms.

Historically, Indian tradition has upheld the need for sustainable lifestyles. The Upanishadsi more than 2800 years ago spoke of the need for restraint in resource use in order to protect the interests of future generations. People in India, over the centuries have had a fascination and respect for their natural heritage. This has also been expressed in the Ishopanishad as: "All in this manifested world, consisting of moving and non-moving, are covered by the Lord. Use its resources with restraint. Do not grab the property of others - distant and yet to come."

India is one of the very few countries in the world where a commitment to environmental protection and improvement is enshrined in the constitution. The Constitution of India endorses the concept of sustainability in its concern for the conservation of environment and enjoins the state and citizens to protect biodiversity. Article 51-A (g) expects every citizen of India to "protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures." Such concerns have been further emphasized following the 1972 Stockholm Conference on Human Environment through numerous legislations, policies and programmes.

The presence and activism of the Supreme Court of India - the highest court of appeal in the land - as further strengthened India's commitment towards achieving a sustainable and green world. The provision for public interest litigation specially empowers citizens to fulfil their constitutional obligations to protect the environment.

This preliminary report/presentation is by no means comprehensive or exhaustive. It is in fact a blend of the author's experience of working with both the formal and non-formal education systems and the review of numerous books, articles and reports got from various sources and institutions - both government and non-government.

* The Missing Link, Society for Environment and Communication, India

A Historical Perspective

The movement of Basic Education launched by Mahatma Gandhi in 1937, was perhaps the first serious attempt at relating education in schools to local environmental needs. The essential elements of the Basic Education movement being:

1. productive activity in education;
2. correlation of the curriculum with productive activity and the social environment; and
3. intimate contact between the school and the local community.

The best of the issues raised in the Basic Education were incorporated in the Report of the Education Commission (1964-66) so as to relate it to the life, needs and aspirations of the nation. In 1967, the Study Groups constituted by the National Council for Education, Research and Training (NCERT) incorporated critical environmentally-relevant components in the experimental editions of biology textbooks and teachers guides for the middle and secondary levels.

The need for Environment Education was further underlined after the documents "Curriculum for the Ten-Year School: An Approach Paper (1975)" and "Curriculum for the Ten-Year School: A Framework". According to these documents, environment education needed to cut across the entire school education curriculum through relevant subject disciplines. The NCERT then in 1974-77 developed syllabi, textbooks and other instructional materials and many states in India have over the years incorporated this environmental orientation in their efforts.

The National Policy on Education, 1986 states, "There is paramount need to create a consciousness of the Environment. It must permeate all ages and all sections of society, beginning with the child. Environmental consciousness should inform teaching in schools and colleges. This aspect will be integrated in the entire educational process"

The National Curriculum Framework for school, 2000 too recognizes the importance of EE and addresses issues, including minimum levels of learning, the use of information and communication technology, and the management and accountability of the system.

Judicial activism for the cause of the environment, especially for environment education is very significant. The Supreme Court of India in response to a public interest litigation in November 22, 1991 passed an Order directing that amongst others:

> "We accept on principle that through the medium of education awareness of the environment and its problems related to pollution should be taught as a compulsory subject. Learned Attorney General pointed to us that the Central Government is associated with education at the higher levels and the university Grants Commission can monitor only the under graduate and post graduate studies. The rest of it, according to him, is a state subject. He has agreed that University Grants Commission will take appropriate steps immediately to give effect to what we have said, i.e., requiring the Universities to prescribe a course on environment. They would consider the feasibility of making this a compulsory subject at every level in college education. So far as education up to the college level is concerned, we would require every State Government and every education Board concerned with education up to the matriculation of stage even intermediate college to immediately take steps to enforce compulsory education on environment in a graded way. This should be so done that in the next academic year there would be compliance of this requirement."

Overview of Educational System in India

There are about 888 thousands educational institutions in the country with an enrolment of about 179 millions. Elementary Education System in India is the second largest in the World with 149.4 millions children of 6-14 years enrolled and 2.9 million teachers. This is about 82% of the children in the age group.

In 1976, a Constitutional Amendment (42nd) brought education on to the Concurrent List otherwise it was always a State subject. Since then education in India is the joint responsibility of the government at the Centre and the States with each having their own role and responsibility. The Central Government however, maintains an overall responsibility regarding the quality and character of education. On the other hand, decisions with regard to the organization and structure of education are largely the responsibility of the states. While the department of Education in the Ministry of Human Resource Development (MHRD) shares with the states, the task of educational planning, school education in India is basically under the direct control of the respective states.

The constitutional amendment in 1993 on Panchayat Raj (local bodies) prescribes for the decentralization of planning and administration of school and teacher education and this is now being implemented in a number of states in the country. Another constitutional amendment initiated in 2001 now makes primary education a fundamental right to all children in India.

This amendment further empowered the National Policy on Education (1986) which had advocated for free and compulsory education up to all children up to the age of 14 years. A significant trend in the school education system is also the move away from simple enrolment to retention and achievement. This therefore, not only provides admission to children but also ensures their progress and continued education.

Environmental Education in India

The National Policy of Education visualizes a national curricular framework, which contains a common core including several elements having direct bearing on the natural and social environment of the pupils. These core areas are expected to occupy a place of prominence not only in instructional materials but also in classroom and out-of school activities.

Environment Education is education that is intimately connected with the environment. EE being education not merely through the typical books, lectures or talk and chalk method but education through direct exposure to the environment, it is hands-on learning, exploring and problem solving. Issues about how environmental education is being implemented in the country remains to be debated but nevertheless, the efforts and achievement of India in propagating environment education in all stages and sectors of education cannot be ignored. Both government and non government players have either jointly or in their own way continue to contribute to the growth and give direction to environment education in India.

On the governmental side, the Ministry of Environment and Forests (MoEF) and the Ministry of Human Resource Development (MHRD) of the Government of India, has made major contributions to environmental education at various levels. While the MHRD works towards greening of the formal curriculum, the MoEF focuses on non-formal educational programmes and strategies to reach the larger community that includes children, youth, urban and rural communities, industry, decision makers etc. many of the programmes and schemes of the government are implemented with the active participation and support of NGOs.

In addition to the efforts of the government a large number of voluntary organizations are also involved in promoting

EE in both formal institutions and non-formal settings.

The main sources of the educational institutions and NGOs for EE activities are the government (Central and States), independent trust, donor agencies, etc.

Integrating EE into curriculum: The Big Questions

"Should there be a separate discipline called 'environment' or should environmental concerns be infused in the curriculum through other subjects?"

"Should 'environment' be taught as an alternative to the basic disciplines or be taught through them or be taught as an additional subject?"

With growing awareness and continued pressure from various sectors, including the judiciary environment education is not only being adopted as an out-of-class extra-curricular activity but a growing number of schools have begun to introduced it as a compulsory academic subject. Some state level education boards like in the state of Maharashtra have made environment education

compulsory while national boards like the CISCE and CBSE have introduced it as an optional subject, in their curriculums.

EE in the formal school system

EE in the formal educational system in India is usually handled at three levels. At the primary school level it is a composite subject called Environment, at the middle and secondary school level it is infused into environment in regular school subjects, and is a separate subject at the college level.

A number of specialized institutions like the Centre for Environment Education (CEE), India quite rightly advocate that all three functions need to be done simultaneously rather than sequentially. There is therefore a strong move for the introduction of an environmental studies programme at all levels of education.

The proposed model is for the integration of all three approaches of infusion approach, additional subject approach and the non-formal activity approach. These three separate learning approaches have to supplement and reinforce learnings from each other.

Bharati Vidyapeeth Institute of Environment Education and Research (BVIEER), an NGO in Pune, Maharashtra, did a two-year content analysis of more than 1,800 textbooks from all over the country, studying their handling of environmental subjects. After two-years research to identify gaps and anomalies in environmental education in India the study has brought much light to the whole issue of how green school curriculums are and how they should be rectified. Today about 800 schools now have a new and improved syllabus that promotes an understanding of environmental issues. More than 100 schools in the state of Maharashtra, and 700 more around India, now have a syllabus that aims to improve children's understanding and knowledge of the environment. This change stems from a World Bank-aided study, undertaken by the Indian government since 1999, with the objectives of strengthening environment education in the formal school system. A number of states have been selected for the pilot implementation of this project and much progress is already being made towards greening of the school text-books.

Who delivers EE?

- Sate and local governments
- Local communities
- Non-governmental organizations
- Universities, colleges, schools and technical training institutes
- Central government
- Business, industry, and the media
- Foundations and funding/doner agencies

Policy and programs

(Excerpts from Greening Formal Education: Preliminary Report by CEE for MoEF, Government of India, 1998)

The two very important ministries of Ministry of Environment and Forests (MoEF) and the Ministry of Human Resource Development (MHRD) of the Government of India champion environment education in India. An overview of their policies and programmes are highlighted below:

Ministry of Human Resource Development (MHRD)

- National Council for Education , Research and Training (NCERT)

  Since the 80's, the NCERT has not only developed textbooks and teacher's guides but has also prepared guidelines for various textbook boards to develop textbooks related to EE. Emphasis on the new textbooks is now more on making teaching and learning more environment-oriented and socially-relevant.

  During the last 10 years, the NCERT has facilitated a network of curriculum development centres both in the state and voluntary sectors. These projects mainly assisted by UNICEF are:

  o Science Education Programme
  o Primary Teacher Curriculum Renewal Project (PECR)
  o Comprehensive Access to Primary Education (CAPE)
  o Nutrition and Health Education and Environmental Sanitation (NHEES)
  o Development Activities in Community Education and Participation (DACEP)
  o Children's Media Library (CML)
  o Early Childhood Education (ECE)

  Under these projects, almost all state governments in India have been engaged in developing instructional materials for experimental schools and in organizing in-service training programmes for elementary school teachers.

- National Policy on Education

  The National Policy on Education, 1986 states that 'Protection of the Environment' is a value, which along with certain other values must form an integral part of the curriculum.

  The Policy visualizes a national curriculum framework that contains a common core including several elements having direct bearing on the natural and social environment of the pupils. Such core areas are expected to be central not only in the instructional materials, but also in the classroom and out-of-school activities.

  The popularly known Socially Useful Productive Work (SPW) is also being reorganized to introduce systematic

gradation in the programme with the provision of direct participation of children in environment related field programmes, like planting and nurturing of trees, environmental sanitation, etc.

- NCERT and the NPE

  The National Council for Education, Research and Training's model syllabi for schools strongly recommends the adoption of innovative teaching and learning techniques. For example, for grades I to V, the strategies recommended are:

  o Learning about the environment;
  o Learning through the environment; and
  o Learning for environment.

Facilitating EE in school curriculum

Grades I to II: The child is introduced to the environment as a whole without making any distinction between the natural, physical, social and cultural aspects of the environment.

Grades III to V: While retaining the environmental factor, the social and scientific aspects of the environmental are introduced as two separate curricular areas: Environmental Studies I and Environmental Studies II.

The NCERT's new curriculum guidelines in the subject areas of geography and civics indicate a significant orientation to environmental problems and issues.

Greening Formal Education: Concerns, Efforts and Future Directions

CEE-India, 1998

- Environmental Orientation to School Education (EOSE)

  This is a scheme supported by the Ministry of Human Resources Development based on the concept that a compact area having the uniform ecosystem should have similar environmental concerns. Therefore, such a compact area can form the unit for designing one set of programmes for implementation in the schools and the community in that area. Such compact area would then constitute a project for the purpose of the scheme.

  The overall aim of the scheme being to promote experimentation and innovation and to complement in diverse ways the schemes being implemented by the state governments for the achievement of goals spelled out in the National Policy on Education for promoting environmental consciousness amongst students. The scheme provides financial assistance to suitable voluntary organisations for development of locale specific teaching-learning materials, undertaking action-research, training etc.

Ministry of Environment and Forests (MoEF)

The Ministry of Environment and Forests (MoEF) interacts with the University Grants Commission (UGC), the NCERT and the MHRD for introducing and expanding environmental concepts and issues in the curricula of schools and colleges. While the MoEF also have a number of schemes and programmes, a lot of their interventions are in the awareness and non-formal EE sectors. The MoEF's Centres of Excellence have been extensively working in this sector as well as with the formal sector.

The MoEF accords priority for the promotion of non-formal EE and awareness among all sections of the society through diverse activities using traditional and modern media of communication. Some of the MoEF's activities in this

direction are:

- The National Environmental Awareness Campaign (NEAC)

  Initiated in 1986, the NEAC's basic objective is to create awareness in all sections of society. Under this scheme a large number of NGOs, educational institutes, community groups and even the army from all over the country are financial assistance for organising environmental awareness activities. Since its inception, nationwide school programmes have been organised by the MoEF's Centres of Excellence.

- Eco-Clubs in Schools

  To facilitate environment education in schools and to encourage the participation of school children in conservation activities, the MoEF provides financial assistance for setting-up Eco-Clubs in government schools. Each club has about 20-30 members belonging to Classes VI to X. Usually a group of 20 to 50 Eco-Clubs are then facilitated by a coordinating agency, which may be an NGO, professional body or even an educational institute.

Example of a national EE program

To support the many government policies and programmes, the role of the non-governmental sector in expounding and implementing environment education in India both at the formal and non-formal education systems is significant. A major initiative aimed at building networks and developing synergies between various organizations is a programme called National Environmental Education Programme in School (NEEPS). NEEPS is a national network of NGOs, schools and the State Departments of Education, facilitated by National and Regional institutions. Both the Ministry of Environmental and Forests and Ministry of Human Resource Development partially support this initiative.

How does NEEPS work?

- The MoEF provides financial support to institutions like Centre for Environment Education (CEE);
- Schools are grouped into clusters and networked with trainings, materials and monetary support;
- Each cluster is an autonomous unit comprising of an NGOs with 20-25 schools in an area;
- The capacity of the facilitating NGOs on EE approaches and methodologies are provided for by CEE;
- The trained NGOs then train and support teachers to incorporate EE into classrooms and other school activities;
- Besides being in constant contact with their respective clusters, some NGOs also facilitate the development of locale-specific programmes and materials.
- The NEEPS model has the advantage of decentralization where the responsibility is shared by a number of institutions and also in achieving a multiplier effect to reach greater numbers of teachers.

Today the NEEPS network includes over 50 NGOs and 1500 schools across the country. Several other NGOs such as World Wide Fund for India (WWF-India), CPR Environmental Education Centre, BVEERI have been organizing teacher orientation programmes for many years.

Adapted from Status of EE in India - Mamata Pandya, CEE

The other national programs being undertaken in schools across the country is the National Social Service (NSS) scheme where students are exposed to some issues and elements of the environment through field activities like plantation programmes.

Non-governmental organizations

Like in many other fields, even in environment education, the non-governmental organizations (NGOs) have been leaders in environmental education initiatives both in the formal and non-formal sector. Some educational activities are directed more toward the solution of specific environmental challenges or increasing awareness about national or global issues such as deforestation or habitat loss. A number of the national NGOs and even smaller local NGOs and CBO are now involved in research, curriculum development, teacher training, and evaluation.

School curriculum and environment education: The challenges

In 1991, a landmark order of the Supreme Court of India in response to public interest litigation ruled "through the medium of education awareness of the environment and its problems related to pollution should be taught as a compulsory subject." The court directed the University Grants Commission to prescribe a course on environment in the graduation and post-graduation level and consider feasibility of making this a compulsory subject at every level in college education.

The court further directed all state governments and every education Board concerned with education up to the matriculation or even intermediate college to immediately take steps to enforce compulsory education on environment in a graded way by the next academic year 1992-1993.

While a number of state education boards and universities did make amends to introduce environment as a subject, many fail to do so even today. The Supreme Court therefore again intervened in September 2003 and slapped monetary fines on 10 States for their failure to respond to the court notice to implement an earlier order directing the introduction of "environment" as a subject in school and college curriculum.

Issues and Challenges

The various policies of the government coupled with the judicial activism has of course generated much eco-enthusiasm but the question still lies as to how is EE or for that matter 'environment' as a subject effectively being integrated into classroom curriculums? The responses vary - while one school of thought opines that in spite of widespread water scarcity, deforestation, chaotic cities, pollution and global warming becoming everyday realities, environment education in schools and colleges across the country is limited in its content and reach.

A very important matter is that despite all the hustle and bustle of EE, it still does not seem to be a priority in the country. Funding is still lacking and even in educational institutes it remains a low priority.

The preparedness of the educational boards, school administration and teachers is another issue that must be addressed simultaneously if EE is to be effectively taught. The sudden information overload and varied activities around the 'environment' has left most well intentioned school managements perplexed and confused. Though most urban schools have jumped on the green bandwagon, introducing environment education as an academic subject or an extra-curricular activity, there is widespread dispute about its contours and content.

EE within the school system:

Constraints:

- Curriculum load
- Shortage of time
- Pressure of examination system
- Large classroom sizes
- Lack of relevant teaching learning materials
- Limited access to reference materials and teaching aids
- Lack of support of school management and parents
- Overloaded teachers

Opportunities:

- Importance of EE being recognized by all concerned
- Environmental concerns are already a part of curricula and textbooks
- Co-curricula activities such as eco-clubs and nature camps are becoming increasingly popular

CEE India

There also is a strong need for more locale specific teaching and learning materials both for teachers and for students. There are of course a number of good resources developed by NGOs like the Center for Environment Education or the Bharati Vidyapeeth Institute for Environment Education and Research. A number of state education boards have also being not only developing educational materials but making them available in various local dialects. In some states, the State Council for Education, Research and Training (SCERT) has also been active in developing EE materials and programs. The lack of a comprehensive inventory of such materials is also not helping the matter.

Environmental issues must be intimately connected with the social, political and economic policies of the nation. It cannot be taught in isolation only as a 'science' subject. On the other hand, it must enable the creation of consciousness of the environment across all sections of the society. It must be linked to real issues that enable one to such as the relation between poverty and natural resources. The contents of EE materials must therefore, be developed in such a way so as to inculcate appropriate knowledge, skills and attitudes.

EE must be linked to the 'roots' of the respective societies and their well-being. It cannot just be about primary species or recycling of plastics or planting trees. It must reach out to bridge the urban-rural divide through a spectrum of issues supported by multidisciplinary inputs. For this a consultative process of all stakeholders is important and their involvement encouraged.

For environment education to be made holistic, it must move away from the 'nature' focus to other areas of development and social issues of environmental conservation. For this, it is important that practitioners, educators, locals and students network and learn together.

The process and methodologies of infusion of environment education into the school curriculum needs to be strengthened by building synergies between the various approaches and setting respective learning goals.

There need to be special programs that support and look at teacher training for effective environment education.

The use of non-formal methods must be further explored and infused into the normal school teaching methodologies. NGOs and other non-formal institutions and organisations are way ahead in this sector and both the government and educational institutions should capitalise on it by building healthy relations and networks.

The greening of school curriculum should adopt strategies that highlight environmental concepts, information and issues that are of importance to the region or area where the text-books are to be used. The examples, case-studies and activities together with action plans must be locale specific otherwise there is a danger that these green books become

just another set of books that are used to grade students knowledge and memory. The contents must in a way be able to inculcate an ecologically conscious way of thinking and living amongst the learners.

The approach to thinking or defining environment education must also be revisited so that EE is about a systematic approach that responses to manage rather than react to solve.

EE must also bring about the whole issue of social equity that facilitates mainstreaming by realising the linking of the non-formal and the formal systems. This therefore would require a form of systems thinking that brings hope, creates options and identifies the elements of the system be it bottle-necks or opportunities to development.

While it is important to have green policies and text-books, it is even more important that the institutions and organised in these complex process have consistent funding sources and an enabling environment. Teachers, for example, should be constantly supported through a series of orientation trainings, pre-service trainings, in-service trainings, evaluations, refreshers courses etc.

Despite many exemplary efforts in environment education, the lack of long-term consistent support and commitment at different levels has created a field that is often fragmented, inefficient, and duplicative. Much work still needs to be done at national, state, and local levels to institutionalize environmental education.

In many regions, the responsibility for environmental education rests mainly with nonprofit organizations, community educational institutions, and motivated educators scattered throughout the country. The government must supply the amount of funding needed to support the field or leverage support from various other sources.

While environment education in schools is being pursued with much zeal, we must not forget that there is a larger audience outside who probably need EE as much or more than the children. These could be adults, low-income or other deprived groups.

There needs to be a national accreditation panel to evaluate environment education programs and determine their effectiveness. This will not only help maintain the quality of the programs but also help in improving the content, quality and design of the materials, training programs and even projects.

There is a dearth of baseline data on the subject matter of environment education or on skills that may be required. This must be supported with research on materials, outcomes or effectiveness and more importantly skill competencies of the teacher/trainer.

Conclusion

EE is as complex and complicated as the term 'environment' itself. It cuts across many disciplines, sectors, realms, eco-systems and spheres and hence EE needs to be planned and implemented systematically. There are a large number of innovative practices and lessons already available. These need to be identified and replicated or adapted for similar regions.

Despite numerous definitional and implementation flaws, the contribution of the environment NGOs and activists need to be recognized for creating a nation-wide awareness on issues of environment and development. This has been one of the major elements that has pushed environment education in India where it is today. Quality structured formal and non-formal environment education syllabuses are urgently required so that these can be smoothly assimilated in to existing education systems. That should n A society cannot survive if its natural resources are rendered unfit for use by its people. The only hope of salvaging this grave situation is by making the young aware that they need to proactively begin to protect the environment they will inherit.

Education should not be thought of packing ill assorted and unwanted information into the heads of the students. It should not become a dead weight crushing all originality in them and turning them into mere automata as Mahatma Gandhi has put it.

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Challenges towards Promotion of the Decade of Education for Sustainable Development

Hans van Ginkel*

Changing Role of Education in the Globalizing World

We are living in a time of profound change; in an increasingly interlinked world. The rapid development of improved systems of communication and transport has changed our world from a complex and sometimes chaotic blanket of territories and borders to a hierarchical system of nodes and channels. The frequency and volume of the exchange of goods and the mobility of people, money and ideas have created a situation in which no one can allow him or her to live in isolation. Our world is becoming ever more globalized and knowledge-based. Our society is getting more complex and heterogeneous, consisting of individuals characterized by intriguing sets of multiple identities. Together we are set on an unsustainable course, using so much of our planet's natural resources, that the future of younger generations is jeopardized.

These changes are for both the better and the worse. All that can be positive can also be negative. When international terrorism can strike from a great distance, this also means that good can be done over great distance. Together, we can make this choice to contribute to " a better life and a safer world for all .... also our grandchildren and their children." When we - ourselves - live in an affluent society we cannot ignore poverty; neither in our own affluent society, nor in poverty-stricken countries. We can no longer ignore the interlinkages between globalization-trade-poverty -development and environment. That is what sustainable development is all about: to understand the whole, complex reality and to act in adequate, informed ways. That is where education comes in: to learn to know, to do, to understand, to be (Commission Delors: Learning the Treasure from Within); also to be aware of our individual responsibilities to contribute, to make responsible choices, to respect other people, nature, diversity.

Quite some thought has been given over the last decade to the question of how to ensure that globalization will benefit all of humankind and help sustain the future. What has become clear in this process is that the line between the beneficiaries of globalization and those who are currently on the losing end is not easily drawn. Of course, "big" business - often headquartered in industrialized countries - that thrives on the globalization of trade and labour markets, is readily identified as occupying the driver's seat in the globalization process. At the other end, there are the farmers and labourers in developing countries who, due to a lack of access to education, information and technology and to the imbalances of international markets, are severely limited in their bargaining power for the prices of their labour and produce. But, is it all North versus South, industrialized versus developing countries? Certainly not. What about the developing country-based NGO that, through the Internet, has become able to link up with like-minded groups around the world and, by broadening its basis of information and building on the experiences of others, is in a much better position to further its cause than before? On the other hand, there are people in industrialized countries, sometimes out of work as rationalization has made their

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specific skills obsolete, to whom the global circles of communication and collaboration are the most remote of realities.

Without attempting to downplay the differences that continue to exist between the opportunities of developing and industrialized countries to participate in the global economy and information networks, one point becomes clear when contemplating the complex realities of globalization in its current form (we all know that globalization is not a new phenomenon): that is whether or not one can benefit from globalization much depends on the skills one possesses - skills to obtain and analyze information, to make independent judgments, and to communicate across social and cultural boundaries - rather than just being a function of location. And this is, obviously, where education comes in.

Education, understood broadly as an ongoing process including both formal and informal modes of teaching and learning, plays a crucial role in preparing people for their future in a highly connected, interlinked, globalized world. Higher education, in particular, occupies a central position in shaping the way in which future generations learn to cope with the complexities of globalization-trade-poverty-development and environment . Higher education prepares an important portion of the population for their entry into the labour market, including in most cases, the teachers that are responsible for education at the primary and secondary levels. Here, universities are called upon to teach not only the skills required to advance successfully in a globalized world, but also to nourish in their students, faculty and staff a positive attitude towards environmental issues and cultural diversity, to help them understand how a richness of both nature and cultures can benefit the peoples, and can contribute to a better life in a safer world for all. To instill in young people the desire to contribute to their society and its environment; in short to sustainability of their way of life and quality of living.

A Copernican Revolution- Position of Universities

Apart from the fact that increasingly global labour markets require universities to adjust the way in which they approach education, globalization affects universities in yet another way: the frames of reference for the quality and position of each university have broadened considerably; it is no longer just to their neighboring cities or countries that universities look for institutions with which to cooperate or to which to compare themselves. Rather, the global network the university belongs to will become increasingly important. It will contribute directly to the identity and awareness of the university and its international position. It is, indeed, possible that international networks may form the basis of the university of the future, or at least will help it function properly. In fact, it will not be long before the stronger universities will establish new branches abroad. We can already detect this in a number of cases, where, in particular, universities from the United States or the United Kingdom establish such branch universities in other countries. The university will become, under the influence of this process, bigger, stronger, more competitive. It will behave increasingly like an international business: with shrinking distances, larger institutions, competition, selection and hierarchization.

In spite of this, I believe, globalization will lead to greater unity in the long run. This unity will not, however, be the unity envisaged, for instance, by Napoleon two centuries ago, with the same laws and the same straight roads stretching right across Europe. It might be, and ought to be, a unity in diversity, based on the principle of subsidiarity. This applies, in particular, to universities. They have a tradition of diversity stretching back to their origins - in China, the Arab World, Europe. Universities will become increasingly interlinked and bound to one another, while also identifying themselves as distinct from each other. Each within their own region and country, their own tradition, with their specific sets of disciplines,

programmes and people. Here again, the key for the universities will be to have as the guiding principle in their processes of internationalization - the acceptance and appreciation of diversity.

A Copernican Revolution is taking place with regard to the position of universities in their own country and worldwide. In the interlinked, globalized world, the "Network Society" as defined by Manuel Castells, universities no longer can regard themselves only as a part of a national system, protected by national laws and regulations. In their strive to excellence, in a much more competitive world in which they must maintain constructive and supportive relations with all their stakeholders, universities must more and more take care of themselves individually. As a consequence, they must rethink their modes of governance, their financing, their internal structures and external relations. They must rely more and more on the considerable capabilities and creativity of their own people, not just to teach and do research, but also to run and develop the university as an organization; as an enterprise though, in general, not for profit; as a public good though managed in energetic, entrepreneurial ways. For this to happen, universities must mobilize talent from within. And they must network, develop relations with all kinds of institutions and show in their actions to take their social responsibilities seriously.

It is for this reason that the UNU with UNESCO and the Polytechnic University of Catalunya have started the "Global University Network for Innovation (GUNI)." We strongly believe that real innovation of universities must come from within. Such innovation will be created and supported by all people working and learning in the institutions for higher learning, rather than by top-down regulation, changes in the governance structure or financial regulations. We also believe that for universities to learn from each other by working together, it is important that the global network is based on regional networks, as the conditions under which universities must work are very different from country to country, from region to region. Only strong, responsible and responsive universities can fulfill properly their crucial role in developing education for sustainable development, in providing guidance and leadership in all education with regard to curriculum-development and teacher training, in introducing and disseminating "state-of-the-art" knowledge.

Mobilizing for Sustainable Development

Since the Earth Summit, sustainable development has been high on the political agenda. However, the role of education was not very well articulated. Neither was education defined as one of the major stakeholder groups. There were nine major stakeholder groups identified, under which trade unions, youth, science, business were included, but not education. In the World Conference on Higher Education in1998, a thematic debate was organized (by the UNU at the request of UNESCO) on "Sustainable (human) development," which brought fourteen different organizations together.

During the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, the Global Higher Education for Sustainability Partnership (GHESP) was launched as a Type II Partnership (IAU, ULSF, Copernicus Campus, UNESCO). The Global Virtual University on Environment Issues was presented by the Norwegian Government, Norwegian universities, UNEP- GRID Arendal and UNU. The Japanese as well as Swedish Governments chose education for sustainable development as a spear point for its contributions. The UNU Institute for Advanced Studies (UNU/IAS) took the lead in bringing together the Ubuntu Declaration Group for the signature of the Ubuntu Declaration. Based on the proposal of, among others, Japan, and Sweden, the United Nations General Assembly adopted a resolution on the Decade of Education for Sustainable Development (DESD), starting from January 2005 for 10 years. UNESCO was designated to be

the lead agency for the Decade.

At the WSSD, the following eleven world's foremost educational and scientific organizations signed the Ubuntu Declaration, which brought together for the first time, science, technology and education for sustainable development. The Declaration strives to ensure that through ministry policies and practices, as well as the research and publication of researchers in all relevant sciences and technologies, all the educators and learners from primary through higher education as well as the media, are aware of the imperatives of sustainable development. Through the focused work of this network of networks it is anticipated that more people worldwide will be informed on the basis of the best knowledge and insights created in all sciences and technology and will practice, in their work and life habits, the values and principles of sustainability.

- African Academy of Science (AAS);
- Copernicus-Campus;
- Global Higher Education for Sustainability Partnership (GHESP);
- International Association of Universities (IAU);
- International Council for Science (ICSU);
- Science Council of Asia (SCA);
- Third World Academy of Sciences (TWAS);
- United Nations Educational, Scientific and Cultural Organization (UNESCO);
- United Nations University (UNU);
- University Leaders for a Sustainable Future (ULSF) and,
- World Federation of Engineering Organizations (WFEO)

Major Problems to be Tackled

Lasting solutions for sustainable development depend on the effective integration of science (in the broadest sense!) and technology. Education is critical in galvanizing the approach to such integrated solutions for sustainable development. Higher education particularly could and should play an indispensable role in informing and supporting all levels of educators to address the critical challenges of sustainable development.

The signatories of the Ubuntu Declaration consider that there remain significant needs for:

(i) Closer communication between scientific and technological communities and educational communities to integrate the latest scientific and technological information and knowledge into education curricula and ensure appropriate education for sustainable development.

(ii) Closer linkage between primary, secondary education and higher education, so that the concept of sustainable development is integrated into all levels of education as appropriate.

(iii) Bridging the knowledge gaps between the nations of the world through a fundamental strengthening of education for sustainability worldwide.

They committed to work jointly towards:

- strengthening the role of educators in the CSD process as one of the major stakeholders;
- promoting communication and collaboration among scientific, technological and educational organizations;
- facilitating the review and revision process of educational programmes and curricula at all levels of education for integrating the latest scientific and technological knowledge for sustainable development into educational programmes and curricula,
- developing mechanisms to continuously inform teachers and update programmes;
- promoting efforts to attract young people to the teacher profession;
- emphasizing the importance of ethical issues in education for building a sustainable and peaceful global society in the 21st century;
- promoting knowledge transfers in innovative ways to speed up the process of bridging gaps and inequalities in knowledge; and
- working towards a new global learning space on education and sustainability that promotes cooperation and exchange between education at all levels and among all sectors of society.

Key Issues for the Success of the DESD

Education for Sustainable Development does mean what it says: it is not just environmental education nor even sustainable development education, but "education for sustainable development (EfSD)." It is not a topic that can be taught in a few weeks just at a certain age, but should rather be given attention in all sectors and at all levels in relation to relevant, already existing subjects in an integrated manner. In this way EfSD gives orientation and meaning to "education for all (EFA)." EFA and EfSD are two sides of the same medal. To develop the curricula and courseware needed - and regularly update these - and to inform teacher training and re-training in effective ways we need an inclusive and flexible process, mobilizing all who have something to contribute in primary, secondary and tertiary (including higher) education. Specific attention will be given to online learning and contributions of the media. The Johannesburg Plan of Implementation gives guidance with regard to the issues to focus on in particular, such as: water, energy, health, agriculture and biodiversity (WEHAB) and of course the Millennium Development Goals. The Earth Charter, too, gives important perspectives and concepts to build upon while constructing curricula and training teachers. The GHESP-toolkit will provide, increasingly, good teaching materials to introduce concepts, to sharpen insight and overall improve knowledge.

Some specific recommendations were made at the International Conference on A Sustainable Future, 24-26 October 2003 in Tokyo, organized by the Global Environmental Action (GEA) as the key issues for the success of the DESD. They include, among others,

(i) One of the most important key issues for the success of the DESD is to develop an enabling environment mobilizing as many stakeholders as possible towards partnership for education for SD.

(ii) It is important to develop a new global learning space on education and sustainability that promotes cooperation and exchange between education at all levels and among all sectors of society. It is especially important to promote locally-based activities, taking account of social, cultural and environmental diversities.

(iii) There is a need to strengthen communication and collaboration among scientific, technological and educational organizations and facilitate the processes for integrating the latest scientific and technological knowledge for SD into educational programmes and curricula.

(iv) Higher education could and should play an important role in promoting education for SD to integrate the concept of SD into all levels of education as appropriate. It should be recognized that, among others, higher education would play a key role for basic and secondary education through teacher training and retraining.

(v) It may be clearly emphasized that education for SD is important not only for developing countries but also in developed countries. Some topics such as sustainable production and consumption and lifestyles are more relevant to developed countries.

(vi) It should be clearly recognized that the governments are invited to integrate education for SD into their national education strategies and action plans at all appropriate levels by 2005 by UNGA Resolution.

UNU's Activities to Promote the DESD

To promote the DESD the United Nations University is considering a two-step approach, namely:

(i) To improve quality of education by integrating state-of-the-art knowledge in all types of science and technology on sustainability into educational curricula and practices in all levels and all sectors; and

(ii) To sufficiently raise awareness of public at large and policy and decision makers in particular so that the state-of-the-art knowledge on sustainability will be duly reflected in the national development planning and processes.

The following activities, among others, will be undertaken during the coming two, three years:

- Development and implementation of the International Implementation Scheme for the DESD;
- Awareness raising among public and policy makers in particular;
- Promotion of regional centers of excellence on education for sustainable development both in Japan and in the world;
- Support to and active participation in GHESP Toolkit project;
- Promotion of distant on-line learning through ICT (Global Virtual University, the Asia Pacific Initiative etc.).

Regional Centers of Excellence

The process of the Decade must be inclusive and flexible, the framework challenging and enabling, not limiting and harnessing. The challenge that might mobilize many and serve to give focus to their contributions might be the following:

" *to create jointly a global learning space for sustainability, based on regional centers/clusters of excellence...*"

Regions are seen here - as in common language - as parts of countries like Tohoku or Catalunya. The regional centers/clusters of excellence on education for sustainable development (RCEs) should include institutions of primary, secondary and tertiary education, research institutions, the media, (science) museums, non-formal education, zoos/parks, etc. As it is important to mobilize many, initially, prizes could be awarded for innovative, joint projects of two or more institutions from

different sectors. The RCEs might be identified in a comparable way as the monuments on UNESCO's cultural heritage list. This would have the advantage that local/regional conditions can be fully taken into account. The DESD would in this way have as a visible output, a global network of such RCEs. In the process, it would be possible to mobilize many, learn from their creative ideas, build on diversity and promote international cooperation in education for sustainable development. The RCEs together and their mutual relations would form the global learning space for sustainable development; the major outcome of the DESD. The Earth Charter would provide the philosophy and guidelines for their work. The GHESP-toolkit could serve as a good-practice portal from which all partners can use good learning material and customize these according to their local/regional conditions.

There have been significant experiences in Japan to integrate sustainability components, particularly environmental aspects into educational programmes and community-based activities. For instance, the City of Sendai is famous for its environmentally friendly activities. And the City of Kesennuma has been implementing excellent environmental education at elementary school level. Some of such attempts may be considered as RCE activities or may be considered so if modified as appropriate. (Sendai and its surrounding areas may be a good candidate for RCE activities.) We would like to work together and support such activities to promote RCEs in Japan to share their experiences as good practices with other parts of the world.

The UNU is also planning to undertake a few demonstration projects on RCEs in the Asia-Pacific region as the first step to promote RCEs and their networking at the global level. RCE's around the world, cooperating together, learning from each other, would together create the Global Learning Space for Sustainability (EfSD), which would be essential outcome of the DESD.

Thank you.

UBUNTU DECLARATION

On Education and Science and Technology for Sustainable Development

In an effort to make integrated solutions work for sustainable development and to mobilize the education sector to contribute to sustainable development;

We, the education and scientific organizations of the world,

United Nations University United Nations Educational, Scientific and Cultural Organization African Academy of Science International Council for Science International Association of Universities Copernicus-Campus Global Higher Education for Sustainability Partnership Science Council of Asia Third World Academy of Sciences University Leaders for a Sustainable Future, and World Federation of Engineering Organizations,

Call for an initiative to strengthen science and technology education for sustainable development.

Cognizant that integrated solutions for sustainable development depend on the continued and effective application of science and technology, and that education is critical in galvanizing the approach to the challenges of sustainable development.

Endorsing the Earth Charter as the inspiring, fundamental and balanced set of principles and guidelines for building a just, sustainable and peaceful global society in the 21st century, which should permeate all levels and sectors of education.

Noting that science is all science - natural, social and human.

Recognizing the necessity to bridge the knowledge gap between the nations of the world through a fundamental redress of the distribution of education for sustainability.

Acknowledging that the ultimate goal of education in all its forms is to impart knowledge, skills and values to empower people to bring about changes.

Concerned that education has not been utilized as a vehicle for attaining sustainable development.

Reaffirming the indispensable role of education in achieving sustainable development, and the important role education plays in the mobilization of science and technology for sustainability as contained in Chapter 36 of Agenda 21.

Recalling the Luneburg Declaration on Higher Education for Sustainable Development of 10 October 2001, and its emphasis on the indispensable role of higher education informing and supporting all education in addressing the critical challenges of sustainable development.

And recognizing that the Scientific and Technological community, as represented by the International Council for Science, Third World Academy of Sciences, and World Federation of Engineering Organizations in the WSSD process has called for a new social contract between science and technology and society for sustainable development.

Determined to work towards the goals contained in the Millennium Declaration, Monterrey Consensus and the Doha Development Declaration.

Call on Governments of the World Summit for Sustainable Development and the Post-Summit agenda to:

Designate educators as the tenth stakeholder group in the WSSD process.

Call on educators, Government and all relevant stakeholders to:

Review the programmes and curricula of schools and universities, in order to better address the challenges and opportunities of sustainable development, with a focus on:

- o Plans at the local, regional and national country levels;
- o Creating learning modules which bring skills, knowledge, reflections, ethics and values together in a balanced way;
- o Problem-based education at primary and secondary levels in order to develop integrated and non-instrumental approaches to problem solving at an early stage in the education cycle;
- o Problem-based scientific research in tertiary education, both as a pedagogical approach and as a research function;

Promote efforts to attract young people to the teacher profession both to meet the Millennium Development goals of universal access to primary education as well as to further strengthen primary, secondary and tertiary education. In developed countries the major challenge in the coming years will be to offset the high outflows of experienced teachers reaching retirement age or taking up other challenges.

Develop mechanisms to continuously inform teachers and update programmes on major progress in scientific and technological knowledge relevant for sustainable development.

Promote knowledge transfers in innovative ways in order to speed up the process of bridging gaps and inequalities in knowledge. This is the shared responsibility of teachers, schools, research and education institutions and governments.

To achieve these challenges and objectives, we are resolved to work towards a new global learning space on education and sustainability that promotes cooperation and exchange between institutions at all levels and in all sectors of education around the world. This space must be developed on the basis of international networks of institutions and the creation of regional centers of excellence, which bring together universities, polytechnics, and institutions of secondary education and primary schools. We invite all other responsible stakeholders to join us in this endeavour.

The Present Condition and the National Policy of Environmental Education in Japan

Tatsuya Ootsuki*

Thank you for your introduction. My name is Ootsuki. It is my very great pleasure to have this opportunity of speaking to you at the 2004 UNESCO Japan Asia Pacific Environmental Education Research Seminar. I would like to express my appreciation to Miyagi University of Education as well as the co-organizers - the Asia Pacific Culture Center for UNESCO and Kesennuma City. More than 10 years ago, I was a staff member in Miyagi Prefecture, dealing with education, so I am very pleased to have this opportunity to visit the Kesennuma region again. About 20 years ago, I was based in the APEID secretariat within in the UNESCO office in Bangkok. Therefore, I hope that you have a very successful seminar here in Kesennuma.

Environmental problems are very urgent and crucial issues for the existence and prosperity of humankind in the future. We should make a transition from the mass consumption, mass production, and mass wasting society of the 20th century, and shift to a recycle-based sustainable society or eco-friendly society in the 21st century.

As Dr. Ginkel has mentioned, many things have been going on recently in the global environment area. For example, the WSSD (World Summit on Sustainable Development) was held in Johannesburg in 2002, and the United Nations has adopted the resolution on the Decade of Education for Sustainable Development, which will start in 2005. Also, in Japan, we have had several activities to focus on these issues. In particular, the Kyoto Protocol was ratified by the Government of Japan in 1995. Our Government has adopted the outlined policy to address global warning, and new laws and regulations have been adopted, too. In particular, in July, 2003, both legislative bodies of Japan approved the law for the promotion of environmental education and to promote the will for environmental conservation. The laws of the respective bodies were clarified in the government-outlined policy which determined actions needed for ensuring global environmental preservation. Each individual human being has deepened his/her understanding and awareness of the relationship between the environment, and people should be able to live, caring for the environment. We should make efforts to convert society and human behavior into something environmentally sustainable. Therefore, environmental education has drawn a lot of attention and has been emphasized. The development of human resources that have sensitivity and knowledge for the environment has been emphasized. We at the Ministry of Education, Culture, Sports, Science and Technology have the following philosophies in regard to this issue. We humans should have knowledge about and interest in environmental issues as well as the ability to make decisions and judgments with responsibility about the environment. We should also while participate in creating a better environment and nurturing an attitude enabling us to take responsible action and behavior concerned with the environment.

Now let's look at environmental education in the schools. Our schools have various subjects such as social studies, science, PE, and health where matters related to the environment are taught. In the mid 1960s, considerable attention was drawn to the issue of pollution. In 1969, there was a revision in the course of study for the lower secondary education to

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allow introduction of subject classes related to issues of pollution and health issues in physical and health education. Not only pollution studies but also all the other aspects of the environment have been introduced in formal education.

In 1988, the course of study was revised again, so currently education is being promoted on the basis of the new revised course of study which has been offering much more in regard to environmental studies. In particular, integrated studies have been introduced to deal with environmental education. Today, many of the participants here are teachers who teach integrated studies under the revised course of study. Students themselves find themes, issues and topics to think about the problems by themselves and act on them by themselves with the objective of solving the problems. They should actively pursue and explore problems, and also think about how to live better. The knowledge and skills the students acquire from this subject and separate subjects should be interrelated and linked to each other to give them comprehensive abilities for making decisions. This illustrates just some of the topics to be taught in the integrated studies, in respects to the specific contents. The course of study merely gives examples of things that are encouraged to be taught. In 2002, environmental issues were introduced into integrated studies in 56 percent of Japanese elementary schools and 40 percent of lower secondary schools.

I would like to show you some of the examples of this approach. Individual schools are conducting integrated studies in environmental education. This is a primary school in Osaka. In social studies and science classes and the period of integrated studies, the school has been developing a curriculum and teaching materials to introduce the topics of energy and the environment. Specifically, the students learn about electric power, thermal energy, hydroelectric power generation, and they are made to notice problems related to the possible depletion of natural resources and fossil fuels. Moreover learn how the strength of electric current varies depending on the number of electromagnetic lead wires wound. They actually learn about the circulation of the electric currents of copper wires. Moreover, they get to experience generating electricity in both the thermal way and hydraulic way by using manual power generators. They learn as well about the energy conversion efficiency of hydraulic power generation and how low thermal power generation requires fossil fuels. They do some experiments where they use natural and renewable energy such as solar and wind power, so learn, too, about the lower conversion efficiency and the insufficient light intensity.

Furthermore children at this school themselves make a hybrid power generator whose electronic buzz will go on even though the lights have been shut off in the generators they produced. So in this way, the children learn how they can conserve energy, natural resources and sources of energy. Environmental issues tend to cause some denial of humankind or denial of science if they are not properly taught. So, the students learn how to do tests and experiments where they take a more positive approach and try to have positive views of humankind and science. The teachers of these integrated studies let children learn that they can resolve environmental problems - by means of science. We must encourage them to solve the environmental issues.

Next this is an example of a lower secondary school. "Globe", an approach that was encouraged by the United States in 1994, is an international program for environmental science and environmental education. This is being practiced in a lower secondary school in Akita Prefecture. That school uses elective science studies some of the time and at other times integrated studies for children to make observations of changes and environmental parameters such as water quality and acid rainfall, so as to encourage them to think actively about their own environment and develop an attitude that is more friendly to the environment. Thus in these integrated studies, the contents for students to learn about the environment are based on independent problem-solving activities where they tackle various issues of their own choosing.

In the first year of lower secondary school, they, for example, look at what to do about waste and the recycling of

materials and waste. In the second year, they take a look at their prefecture, local communities and the nation and learn about ocean pollution, forest protection, and electric consumption. In the third year, they pick up the theme of acid rain, animals and wild life on the verge of extinction, deforestation and world heritage. Observing their own community's environment and areas beyond their community is the first step in environmental learning. There are no natural boundaries to air and water pollution. The students conduct their own observations by themselves to learn the importance of conservation.

What abilities are to be nurtured through the opportunities of environmental education? I have categorized those capabilities into several areas. One is a problem-solving capability: by working positively on environmental issues, students can identify the problems, make forecasts and investigate natural phenomena. So they implement such exercises and examine the results, which they apply to a new set of problems. Research and task-based investigations are very popular for raising the level of the problem solving ability.

Second is the methodological capability to quantify the environmental phenomena and to grasp matters in quantifiable and statistical ways by collecting, classifying and analyzing data through investigation. These skills are very important in tackling environmental problems objectively and logically.

Third is the ability to use information through experimentation and the investigative application of multimedia, including computers. Students learn how to collect, select and process important information, and streamline all that information in an appropriate way. Fourth is the ability to communicate, this means the capacity to be aware of environmental problems, to become interested in them, and for students to develop their own ideas and opinions, and express their opinions orally or in writing or by using the media.

Fifth is the ability to evaluate the environment. This ability means that the students will be able to observe the environment and notice changes in environmental conditions, and come to notice what changes occurred or the status of the environmental changes or the possible impact the changes in natural phenomena have on the environment. They also learn to project future possible changes in an environment, and to investigate and observe environmental events before and after the event in a multifaceted and comprehensive way.

Next is the development of attitudes toward environmental education. The basis for such an attitude should lie in the affection and emotions the students have. The attitude should be such that they are interested in the effects of household garbage and waste-water on the living environment. They should want to resolve these problems in a rather enthusiastic way, and also to learn and judge what lifestyle they should have to preserve their environment and to implement the necessary actions.

The second is the attitude of thinking and judging by themselves, without a selfish viewpoint concerning nature and human beings. Students should develop the attitude of grasping natural and social phenomena in a multi-faceted way and respecting the fact.

Fourth is a tolerance for the beliefs and opinions of other people. Therefore, without having only fixed concepts, their attitude should be open to different ways of identifying the causes and lifestyles related to environmental problems, and they ought to be tolerant of the positions held by other people and also different value structures, based on the facts and objective ways of thinking.

What viewpoint should be borne in mind when implementing environmental education? There are six points. The first one is that environmental education should be clearly defined within the school's guidance plan and implemented in all the school's educational activities.

The environment should be included in each subject within the courses of study and be offered in every school and every classroom. How should we deal with such classes and what should be the developmental activities and guidance methods? The schools of each community and their students are in different situations, so each school will have to decide how to implement its environmental education according to its own conditions. Each school ought to clarify its own objectives in environmental education for the school and transmit the contents, and conduct related activities to check and investigate the environment on a continuous basis.

The second point is to develop guidance that can relate environmental content within subjects in an integrated way. Environmental education in schools should of course be embedded in each subject. How to deal with events related to the environment ought to be related to the character and objectives of each discipline. In the hour for Integrated Study, the basic knowledge taught in each subject should be mobilized in an integrated way for problem-solving. It is expected that the students will take advantage of what they learn in each individual subject and also what they learn from the Integrated Studies will be applied to the study of each subject in school.

Third, the education should be tailored to the real and actual conditions of the community and the children. It will not be enough just to recognize what problems lie ahead in the future. Actually the natural and social environments have their own environmental concerns. There is a need for teaching materials that cultivate problem-solving attitudes and capabilities among the children and that practice environmental education. It's very important to identify and characterize the status-quo of the environment of the particular region where the children live. The teaching materials should be selected properly, and the guidance method also chosen to meet children's educational wants and needs in the best way.

Fourth, enriching learning through hands-on experience depends upon the children's particular stage of development. To repeat what I have already mentioned, problem-solving and hands-on learning depend on what stages their children are in. The relevance of the environment to human beings should be deepened. Fifth, environmental education should be properly positioned within the entire educational activities of a school to deepen common understanding among the teachers and to raise the level of awareness toward the problem in order to have effective education. Toward that purpose, the teaching staff should be fully aware of environmental problems and ought to reach a common understanding on the teaching materials and guidance methods. The awareness level of the teachers toward the environment should be constantly high, and teachers should have time for research and training in teaching materials and improving their qualities as teachers.

Sixth, good linkage among school, households and community: environmental education should not be completed simply within the school setting alone. In order to foster very sensible attitudes toward the environment among children and get them to participate environmental preservation, close collaboration is needed among the school, the homes and the region to handle environmental education, along with non-profit organizations dealing with environmental preservation. These activities should be done in collaboration.

What are the policies of our ministry? We designate model projects where environmental education is being carried out in each municipality, and globe-model schools. Moreover, an environmental learning fair is an event sponsored by the Ministry to conduct reach-out environmental educational practices. In Ehime Prefecture in 2004, we will hold the Environmental Learning Fair, and we will continue with such projects. We have additional new projects planned as well for reach-out extension. One such project is to be done in collaboration with the Ministry of the Environment to raise the capacities of teaching staff and arrange the information infrastructure for environmental education. We want to utilize them best in schools and have basic courses for leaders, including teachers, on environmental education, environmental learning and school facilities. The development of eco-school is another attempt to promote environmental education. In order to implement hands-on experiences with nature and integrated studies involving the environment, in the next fiscal year, we

will be developing new teaching materials for primary schools, and we have allotted a budget - totaling 500 billion yen for promoting environmental education.

In concluding my report, I would like to note that the objective of environmental education is to develop the capacity to be interested in the environment and environmental problems for a sustainable society, and to understand the responsibilities and the roles of people toward the environment, so that they can get involved by themselves in the creation of a better environment and environmental preservation. For this purpose, environmental education should be conducted at every level and every place including schools, households and the community, and it ought to be targeted at all age groups from young children to the elderly and carried out in a systematic way depending upon the level of awareness. Life-long learning also has to be continued in addition to formal education.

Well, environmental education should really depend on the conditions of the each region. Environmental problems stem from conditions ranging from urban pollution, to the destruction of natural environment. The character of the problems in each community varies. The contents of environmental education should be geared to the needs of the characteristics of the regional problems. It should start with nearby activities. As Dr. Ginkel mentioned, we should emphasize "think globally, act locally." What we do locally will ultimately lead to a better global environment. We should develop sufficient capabilities and attitudes as well as the ability to act and to get interested in solving global environmental problems. By changing people's awareness, we can develop environmentally-minded people, and that'll be a step to the further realization of sustainable societies.

With this belief, I would like to complete my speech. The Ministry will make its best efforts to promote environmental education. And to teaching staff and all the participants, I will say that I really hope that you will further your efforts to practice environmental education in your own communities. With that plea, I would like to finish my presentation. Thank you very much.

Asia-Pacific Regional Cooperation through the Development of Teaching/Learning Materials for Environmental Education

Tomoko Shibao*

Part I: Organizational background

The Asia/Pacific Cultural Centre for UNESCO, which many people call ACCU, is a non-profit organization established in Tokyo in 1971. It was founded by the joint efforts of the public sector, especially the Japanese National Commission for UNESCO and the private sector. ACCU has since then been implementing, in line with the principles of UNESCO, various regional cooperative programmes in the fields of culture, education and personnel exchange in close collaboration with UNESCO and its Member States in Asia and the Pacific.

In the fields of culture, education and personnel exchange, we have programmes for materials production, training and networking activities.

In the personnel exchange programmes, ACCU has been organizing various activities in the field of environmental education. These activities are organized in cooperation with the Japanese National Commission for UNESCO and the United Nations University, linking various organizations and networks such as:

- 3rd World Water Forum, Kyoto, March 2003
- UNEP International Environmental Technology Centre in Osaka, December 2003
- CITYNET: The Regional Network of Local Authorities for the Management of Human Settlements
- ASP Net (UNESCO Associated School Project)
- Universities
- Schools

The unique feature of ACCU materials development programmes is that they are done through the Joint Production Scheme with the close cooperation and full participation of UNESCO member countries - from the planning stage to implementation, and to distribution and evaluation. This scheme is based on the idea of mutual consent and mutual advancement.

The following is how the Joint Production Scheme works, in the case of producing of books for children.

First stakeholders and experts get together and decide on the themes to be taken up.

Then, based on this decision, text and illustrations are prepared by writers and illustrators in each country. They are sent to ACCU for final editing, and the prototype version is published in English. The prototype English versions are sent to the participating countries to be translated and adapted into the local/national languages for wide distribution to children throughout the country. The whole process then will be evaluated for further improvement

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PART 2: Teaching/Learning Materials for Environmental Education produced through the Asia-Pacific Regional Cooperation

Let me first review, very briefly, the objectives of environmental education.

1. Awareness: Environmental education is to help social groups and individuals acquire awareness of, and sensitivity to, the complete environment and its associated problems.
2. Knowledge: Environmental education is to help social groups and individuals gain a variety of experiences in, and acquire a basic understanding of, the environment and its associated problems.
3. Attitude: Environmental Education is to help them acquire a set of values and feelings of concern for the environment, and the motivation to actively participate in environmental improvement and protection.
4. Skills: Environmental Education is to help them acquire the skills for identifying and solving environmental problems.
5. Participation: Environmental education is to provide them with an opportunity to become actively involved at all levels in working towards resolving environmental problems.

   This set of objectives is from the very comprehensive work in "Environmental Education in the Asia-Pacific Region" edited by Dr. Bhandari and Prof. Abe and published by the Institute for Global Environmental Strategies.

1. Books for Children (ACP)

The first set of materials that ACCU has been producing through Asia-Pacific cooperation is the Ecology series of ACP.

ACP stands for Asia/Pacific Copublication Programme, and it was started in order (1) to encourage and support Member States in supplying attractive, low-priced and high-quality books and (2) to foster mutual appreciation of the various cultural values in the Asia-Pacific region by providing common reading materials for children.

So far 29 titles have been published and more than 4 million copies distributed in and outside of the region.

These are four titles in the ACP ecology series: "Trees", "Water", "The Sun" and "The Earth".

The characteristic of these books is that they try to share the wonders of nature not only from an ecological, but also from the cultural point of view. Together with the environmental problems, our age-old proverbs and folktales are introduced.

The examples of national versions of "Trees" in different languages: include Sinhalese from Sri Lanka, Mandarin from China, Malay language from Malaysia, Filipino from the Philippines, Divehi language of Maldives, Japanese, Hindi version from India, in Korean from Republic of Korea, Vietnamese, in Kannada from India, and in Thai.

2. PLANET (Package Learning Materials on Environment)

The second series of materials which has been produced through Asia-Pacific regional cooperation is PLANET: Package Learning Materials on Environment.

Why it is a package? It has a set of components on the same theme so that learning will be more flexible, effective and enjoyable.

The main components of PLANET are:

- Animation video
- Poster
- Cartoon book (booklet)
- Guide for users/facilitator's guide

The PLANET series is produced in order to raise awareness on various environmental issues and to promote behavioral changes for a better environment.

It has been used for children in schools, learners in Community Learning Centres, in community development programmes and in TV broadcasting in 20 Asia-Pacific countries.

It has been produced through the Joint Production Scheme in the same way as the books for children.

The narrative of the PLANET series takes place in an imaginary Asian village. The main character is a woman called Mina. She used to be illiterate but through learning in a literacy class, she acquired not only literacy skills but also self-confidence and self-esteem. Mina and her husband, Jai, and their five children, are main characters of the PLANET story.

PLANET 1, Mina's Village and the River takes up the problem of water pollution. PLANET 2, Mina's Village and the Forest deals with the issue of forest conservation.

Here are, again, some examples of the local versions of PLANET 2: from Bangladesh, Cambodia, India and the Philippines.

The production of PLANET 3 is presently underway with the cooperation of experts in the region. PLANET 3 is on waste management, focusing on the importance of co-operation for better waste management to create a cleaner and healthier environment. It is expected to be completed in July this year and will be disseminated to the UNESCO Member States. ACCU is soon to invite proposals from Member States for effective utilization of PLANET 3 in each country.

3. Materials for neo-literates (AJP)

The third type of materials that I would like to introduce here are the educational materials for literacy education for neo-literate people. Neo-literates are those who have acquired the basic reading and writing skills. Without adequate reading materials, however, they easily relapse into illiteracy. As environmental education has to be provided for many different target groups, environment-related issues are important themes in this series of materials for literacy education.

The AJP materials are especially intended to reach out to disadvantaged people. Unlike the books for children, which are designed as common reading materials in Asia and the Pacific, in the materials for literacy education, ADAPTATION in language, illustration, contents, format, etc, is very important. This is because for the literacy learners it is essential that the materials are very relevant to their needs and everyday life, and the learners have to feel very close to the contents of the materials.

These are some examples of national versions of "Better Crops from Healthy Soil with Compost." We are only looking at the cover page illustration, but you would notice that in some cases, the method of compost-making itself is different from

other cases - as a result of adaptation.

Part 3: Towards the UN Decade of Education for Sustainable Development: an approach of ACCU

As we all heard from the very comprehensive and insightful special lecture of Prof. Dr. Ginkel of the United Nations University, next year is the first year of the United Nations Decade of Education for Sustainable Development.

Sustainable development is built on three interdependent and mutually reinforcing pillars: (1) economic development, (2) social development, and (3) environmental protection. Sustainable development is stated in "Our Common Future" by the World Commission on Environment and Development of 1987 to be "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The UN Decade of Education for Sustainable Development, for which UNESCO is the lead agency, aims

(1) to promote education as a basis for a more sustainable human society,

(2) to integrate sustainable development into the education system at all levels and in all its forms (FE and NFE) for people of all ages.

(3) To strengthen international cooperation toward the development and sharing of innovative ESD programmes, practices, and policies.

Throughout this decade, education is geared to foster a better understanding of the world in which we live and the complexity and interrelationships of problems that threaten our future. The list of "problems" is a long one and each is interrelated.

It is not an easy task. Full co-operation among government, NGOs, international organizations, etc, will be necessary for us to see fruitful results at the end of the Decade in eleven years, but ACCU would like to continue to be a part of this important international movement.

ACCU's approach for the UN Decade of Education for Sustainable Development is to strengthen our existing scheme of materials development, training, and networking/information sharing so that they reinforce each other for multiple effect.

We would like to keep working for the ongoing United Nations Literacy Decade (2003-2012), and also for the forthcoming UN Decade of Education for Sustainable Development, keeping the principles of our Activities:

They are:

(1) Materials development as concrete and practical process for a behavioral change,

(2) Emphasizing the process of joint planning and joint advancement,

(3) Facilitation of partnership/networking within a country and in Asia-Pacific Region, and

(4) Contribution to mutual understanding.

Environmental Education in Laos

Mithong Souvanvixay*

Introduction

The government of Lao PDR has been trying to improve the quality of life for all its people. The government recognizes that education is essential for the development of the country. Education is important for breaking the cycle of poverty.

Lao's current education system is provided at five levels: Primary 5 years (compulsory), Lower secondary 3 years, Upper secondary 3 years, Post-secondary 1-2 years and Tertiary education 3-7 years,

The educational objectives are provided the all round education covering five educational dimensions: moral, intellectual, labor, physical and aesthetic education. New curriculum and instructional materials for primary, secondary and teacher education have been developed in the 1990s. The environmental education is very important part of the contents and activities of curriculum and instructional materials.

Environmental education in curriculum system

The first National Environmental Action plan was adopted in 1994. Since that time there were many changed, concerning environmental conditions and priolities in the country.

National Environmental Action plan identifies the the need for a number of approaches to raising environmental awareness among the people including the integration of environmental subjects into public and private school curriculum, public awareness activities involving mass organizations, community based natural resource consultation and the provision of specific training programmes.

At the present time the preparation of a framework of national strategies on environmental education and awareness is going on. The goal of it to equip the citizens by environmental basic of knowledge, skills and attitude on environment issues and the citizens should acknowledge the values of environmental and encouraging the wise use and natural resources sustainable, and to help foster positive and responsible attitudes towards the environment.

In the primary school level to secondary education level, efforts have been made by the National Research Institute for Educational Sciences to integrate information about the environment into the curriculum. Student's book at the primary

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level that is in "World Around Us" subject and in the secondary level gain environmental knowledge through general natural sciences and biology subject.

At the University level teaching of environment related subjects occurs at both the diploma and Bachelor of Science level. Besides, such activities have place also at non-formal and informal education and among mass organization at village and district level.

EE in the Teacher education

Teachers play an important part in the environmental education of primary, secondary and higher education. Teachers who add environmental knowledge in their relevant courses as well as instructors in change and skill, and the ability to teach environmental knowledge of teachers definitively influence the environment quality and effects. At present time in Laos is lack of teacher education and professional development in environmental education is a major matter.

In the Teacher Training Colleges and pilot school we are promoted of teaching environmental education to familiarize teachers and educational administrators with the different aspects and problems of the environment and to make them aware the impact of deforestation and pollution the quality of life and to enable them a basis to incorporate environmental education effectively into their respective teaching and learning activities.

The scope of environment teaching and learning are:

- Recruitment of consultant in environment education.
- Carrying out environment education training needs.
- Developing of training packages.
- Development and revision of the existing curriculum and textbooks on environment education in teacher education.
- Training of core team at provincial and Teacher Training Colleges levels.
- Training of teacher trainers, educational administrators on environmental education.
- Training of teachers in pilot and practicum schools.

Waste - Econ Project

Since the establishment of Lao PDR, the Government has given the importance to the integrated waste management and has recognized that there is the negative effect to the human health, culture and Environment. On the contrary, if we can well address this issue, it will create the favorable condition for the promoting the natural beauty, the cleanliness of the city and community as well as the whole economy and society. So far, In addition to the mobilization of the public to deal with the waste management based on their capacity and conditions, the Vientiane Capital has received the technical assistance from Japanese Government in order to make the study on the waste disposal and management.

Actually the Vientiane Capital is in the process of implementing the integrated waste management project in the urban area. The dumping area at Kilometer 18 has been rehabilitated and finished in 1997. and then in 2000, under the assistance

of NORAD through UNDP we have initiated the waste management project in 4 secondary towns namely: Luang-Prabang, Thakhek, Savannakhet and Pakse such project has the following objectives:

- Develop the strategy for the waste management in 4 towns in a sustainable way.
- Increase the knowledge and understanding of the local community on legal aspects of waste management and appropriate implementing mechanism.
- Institutional and human resource capacity building on waste management.
- Implementation of waste disposal and incineration in an effective manner.
- Study on the possibility of reuse, recycle of waste production of organic fertilizers.

The project activities have been well implemented in various places such as:

- There was the survey of the dumping areas according to the hygiene principles and not harmful to the environment of 4 towns.
- Creation of Landfill in each town according to the minimum technical standard.

In addition to the public relation activity has also initiated in order to promote the well understanding for the local community and institutions for the active participation to the waste disposal, management and recycle. The environmental protection law has been disseminated at the community level. In the future there is a need to deal with the Environmental Audit which is also an important issue that need to be addressed.

According to the needs for solving the problems as far as the waste management recycle and legal aspects are concerned, we can say that we are at the initial stage, a lot of things need to be done, the understanding of waste management at the community legal still low and many areas waste problems still exist and can not be solved.

The waste - Econ Project has the objectives for the training of staff on the awareness for using waste as an economy, the separation of wastes for reuse, recycle and making compost. In fact we can create jobs and can contribute for the poverty alleviation.

The Waste-Econ project

Lao PDR Waste-Econ project presents a lot of importance for promoting the environmental protection and sustainable development. The project activities are:

- Training course on Waste-Econ
- News letter and publication
- Teacher training workshop
- Teacher training manuals
- Special workshop for curriculum development
- Master degree study(02 persons)
- And pilot project implementation such as:

Title: "Waste separation and making compost of organic waste"

- Making compost of organic waste : By using EM technology, By using BE solution, As usual, Soil analysis and

Market survey.

- Waste separation: Survey of waste component (wet season and dry season), Interview of venders such as venders of fresh vegetable and meat venders, And other people who are living near the market.

Conclusion

In view of the well implementation of the project, and promote the public awareness on waste economy we need to be very active and need to exchange of views and experiences in a fruitful manner and open way.

If we can solve the waste issue in the future we shall also address for enhancing the beautiful public parks, clean roads, as well being of all people which are the goals we want to achieve.

Principles and Practice of Environmental Education for School Children in Malaysia

Tengku Adnan Bin Tengku Awang*

1.0 INTRODUCTION

Malaysia has a total land area of 303, 752 sq. km consisting of Peninsular Malaysia with an area of 127, 560 sq. km (42%) and East Malaysia in West Borneo with an area of 176, 192 sq. km (58%). It has a total population of about 23 million. The topography consists of about one-third of hill land in the central region. The climate is hot and humid with a high solar radiation. The mean monthly temperature is 27°C and the yearly rainfall exceeds 200 cm.

About 65% of Malaysia is covered by tropical rainforests of highland, low and mangrove forests. There are nearly 30 different types of natural habitats which house a very large number of different flora and fauna species.

2.0 ENVIRONMENTAL EDUCATION PROGRAMME

Environmental Education (EE) is an educational process about, for and through the environment to upgrade the living standards of the people. The environment consists of all the physical, social, economic and political factors which are interrelated and affect the well-being of the people. It aims at improving the quality of life people and the quality of the environment with importance placed on sustainable development

through an understanding and wise management of all the natural resources.

2.1 Aim

The aim of environmental education is to create a society that is sensitive and cares about environmental issues and at the same time is knowledgeable, skilled and committed to act as individuals or as a group to solve environmental problems.

2.2 Objectives

Environmental Education enables students to:

2.2.1 gain experience, knowledge and basic understanding about the environment and its problems.

2.2.2 be sensitive, aware and caring about the environment and problems related to it.

2.2.3 have a positive attitude, value and love the environment and be motivated to be actively involved in the preservation and conservation of the environment.

2.2.4 understand that national development should only be undertaken with careful planning.

2.2.5 acquire skills needed to identify and solve environmental problems.

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2.2.6 be given the opportunity to be actively involved in solving environmental problems.

2.3 The Status of Envoronmental Education

Environmental Education is not taught as a subject but elements of environmental education are infused across all subjects in both primary and secondary schools.

2.4 Environmental Education Content

The elements of environmental education asross the primary and secondary school curriculum are as follows:

2.4.1 God is the Creator of the Universe and All Living Things

2.4.2 Earth and the Universe.

2.4.3 Non-Living Things and Natural Resources.

2.4.4 Living Things and Their Environmental.

2.4.5 Interaction between Man, Animals dan Plants.

2.4.6 Management of the Environment.

- Renewable and Non-Renewable resources.
- Human activities and their effects on the environment.
- Environmental issues, problems and solutions.
- Population and related environmental problems.
- Importance of conserving the environment.

3.0 IMPLEMENTATION STRATEGY

3.1 Among the strategies adopted by the Ministry of Education are the following:

3.1.1 EE is infused across the school curriculum.

3.1.2 Advocation of spiritual, moral and student-centred approaches in the teaching and learning of EE using environmental education learning stations that can easily be set up. Schools are encouraged to set up EE learning stations in the school compound and also in the surrounding areas. These stations are set up for the purpose of practical work and hands-on activities. For example, at the Station of Plants, student compare and contrast leaf shapes and bark texture for identification, ect. The learning stations that can easily be set up in the school compound include:

- Station on Various Types of Pollution
- Station on Plants
- Stations on Animals
- Station on the Uses of Various Types of Energy
- Station on the Recycling of Waste Materials.

3.1.3 Teaching and learning methods that are student-centred, fun and interesting and these include practical work, investigations, experiments, projects, study visits, games, demonstrations, discussion, etc.

3.1.4 Evaluation and monitoring to ensure the success of the environmental programmes carried out in the schools.

3.1.5 Preparation of EE materials to be used in primary and secondary schools such as:

- Teacher's Guide Books on the Infusion of Environmental Educations Element Across the Primary and the Secondary School Curriculum.
- Marine Education Kit (in collaboration with Deparment of Fisheries).
- Greening of Schools (in collaboration with World Wild Fund for Nature Malaysia).
- Translated version of Mobius Curriculum : Understanding the Waste Cycle (in collaboration with United Motor Works Malaysia).

3.1.6 In-service teacher-training courses on EE for resource teachers EE is a compulsory subject to be taken by trainees in teacher-training colleges).

4.0 SUPPORT PROGRAMMES AND ACTIVITIES

In the Malaysian Development Plans, all the organizations in the public sector are required to give emphasis on EE and on sustainable development which has to be taken into account is also encouraged to follow suit.

Various agencies both from the govermental and non-governmental sectors as well as inter-governmental cooperation have come in support of the EE in Malaysian schools.

4.1 Government Agencies

4.1.1 Department of Environment (DOE), Ministry of Science, Technology and the Environment.

a) Environmental Awareness Camp

- This is an on-going activity for school children 14 - 16 years of age.
- DOE's modules cover seven ecosystem of forest, highland, riverine, marine, organic farming, plantations and urbanization.
- 3,200 students have participated in 80 camps held all over Malaysia.

b) WIRA ALAM project

- Emphasize on the involvement of school children in protecting and preserving the environment.
- This project is divided into three categories that is:
  - (i) WIRA ALAM DIRI (Knowledge and self awareness)
  - (ii) WIRA ALAM KOMUNITI (Community Activities)
  - (iii) WIRA ALAM (Nature Activities)

c) PRIAS (Scrap Book Competition)

- Emphasizes environmental issues.

d) River Watch Programme

- To educate and instill awareness among school children on the importance of rivers.
- Participating schools have to submit report of analysis on water quality of selected river twice a month to DOE. Based on the results. DOE will identify rivers that are clean, half-polluted or polluted.

e) Environmental Cadets / Brigade

- A uniform group established in school to create environmental awareness on the significance of conservation.

f) Environmental Themed Competition

- Novel-writing Competition
- Environmental Poetry Writing Competition
- Inter-Varsity Environmental Debate
- ASEAN Inter-Varsity Environmental Debate

g) Environmental Materials

- Production of Animation Series
- Video clips
- Documentaries
- CDs on environmental songs
- Era Hijau (Quarterly magazine distributed to all schools)
- Posters
- Pamphlets
- Booklets

h) Training Programme

- Environmental Awareness Workshop for selected teachers from each state. Teachers will then conduct environmental champs at school level funded by DOE.

4.1.2 Department of Fisheries, Ministry of Agriculture

The Department of Fisheries give more emphasis on educating public awareness on conservation and protection of marine resources in marine parks.

Marine Education Kit

- With collaboration of the Hong Kong Bank Bhd. (HSBC) and WWF Malaysia, the Marine Education Kit was produced to highlight the importance of Malaysia's rich marine heritage. This kit is a teaching aid focusing on four marine habitats that are mangroves, seashores, coral reefs and oceans and seas.

4.1.3 Department of Wildlife and National Parks (PERHILITAN)

- Nature conservation courses were conducted at all the three Nature Study Centres: Nature Study Centre at Bukit Rengit, Lanchang, Pahang and Nature Study Centre at Kuala Atok, Taman Negara , Pahang.
- The main aim of these courses is to instill awarenss among the younger generation on the importance of nature conservation.

4.1.4 National Institute of Public Administration (INTAN)

- A workshop on "Managing Malaysia's Natural Heritage - Investing In Our Future" was conducted in April 2001. Students from selected secondary schools and undergraduated from the local universities attended the workshop.
- In 2002, a workshop on Career Options in Biodiversity will be held for secondary school teachers.

4.1.5 Dep rtment of Local Government, Ministry of Housing and Local Government.

- Book and Video on Rubbish and Your Life.
- Song on Recycling in three different languages (Malay, Chinese and Indian).

4.2 Non-governmental Agencies

4.2.1 World Wide Fund for Nature Malaysia (WWF Malaysia)

- WWF sponsored 12 teachers to attend an environmental teaching course in United Kingdom, after which the teachers assembled a handbook and resource kit to meet the urgent need for interesting teaching material.
- WWF has provided technical support in establishing a model field center for environmental education.
- WWF has also conducted pre-service and in-service courses for teachers.
- Production of Resource Kits:
  - (i) Marine Education Kit
    In collaboration with HSBC and the Department of Fisheries.
  - (ii) Posters : Water Bird Migration, Greening of School, Green House Effect, Ozone Depletion.
  - (iii) Mobile Education Unit
    The unit will visit a school daily by bringing the forest into the classroom through interesting slide shows, films, videos and fun quizzes.
  - (iv) Fraser's Hill Nature Education Centre (FHNEC)
    This center was set up with the objective of inculcating a better understanding of highland forests, their importance and the need to conserve them. The center provides visitors with information and programmers to enjoy the highlands of Malaysia.

4.2.2 Malaysian Nature Society (MNS Malaysia)

The educational initiatives of MNS can be outlined as:

a) Ex-situ approach - through outreach programmes such as schools' nature club, seminars and lectures, exhibitions, etc.

b) In-situ approach - through the establishmet of Nature and Research Centres in Forest Research Institute of Malaysia (FRIM), Cameron Highland, Endau Rompin and Rimba Ilmu Environmental Education Programme in University of Malaya.

4.2.3 Wetlands International - Malaysia Programme

- Organised an intensive training course for Putrajaya Wetland Nature Guides a constructed wetland at Putrajaya.
- Began developing of a wetland Education Camp Activity Pack Consisting of education modules for wetland camps at the Tasek Bera as the first Ramsar site in Malaysia. Topics covered include general ecology, the concept of sustainability, threats to the natural wetland ecosystem, water supply and wetland statistics.
- Wetland Education Kit
  Distributed to primary schools in Bera District, Pahang Darul Makmur.
- Wetland Wonders
  In collaboration with Hongkong Bank and the News Straits Times, publish a four-page supplement Wetland Wonders on the last Sunday of each month.

4.2.4 Hong Kong Bank Corporation (HSBC)

HSBC Bank Malaysia Berhad's on-giong partnership with the Department of Fisheries Malaysia. Wetlands International - Asia Pacific and other non-gonvernmental organisation such as WWF Malaysia enables the bank to continue supporting various initiatives to protect Malaysia's marine environment for the benefit of present and future generations.

4.2.5 United Motor Works Corporation Sdn. Bhd. (UMW Corporation).

- In 1995 and 1996, UMW sponsored a workshop on 3R using 'The MOBIUS(r) Curriculum: Understanding the Waste Cycle'.
- In 1997, 'The MOBIUS(r) Curriculum: Understanding the Waste Cycle' was translated into the national language Bahasa Melayu and distributed to all secondary school.

4.2.6 Malaysia Newsprint Industries (MNI)

Malaysia Newsprint Industries Sdn. Bhd. supply world-class, premium grade newsprint based on recycling old newspapers and magazines. MNI helps the environment by:

- Organizing The Most Seccessful Paper Recycling Schools Competition. Most of the schools involved have successfully collected more than 50 tonnes of newspapers.
- Recycling Programme in schools, offices, hotels, charity organization and local community.
- In collaboration with MNS, organized a teacher's Environmental Camp to demonstrate the significance of preserving nature.

4.2.7 British Petroleum Malaysia (BP Malaysia)

In collaboration with INTAN, Nature Education Course focussing on Biodiversity was conducted and funded for school children in 2001. The main aim of this course was to instill awareness among the younger school children in preservation and conservation of Malaysian Biodiversity. In 2002 Workshop on Career Option in Biodiversity will be held for secondary school teachers.

4.2.8 Southern Waste Management Sdn. Bhd.

- A solid waste management company established in 1997 and currently based in Johore, the education unit frequently give exhibitions and talks on recycling solid wastes to school children from 5 - 18 years, undergraduates and to the local community.

5.0 International Cooperation

5.1. Danish Cooperation for Environment and Development (DANCED)

Bilateral relationship between the Danish and Malaysian Government was formalized through a signing of a Memorandum of Understanding (MOU) between the Danish's Ministry of Environment and Energy and the Malaysian's Ministry of Science, Technology and the Environment in 1994.

Project Proposal : Strengthening of Environmental Education in Primary and Secondary Schools in Malaysia.

The Pilot Project:

- The pilot project will take place in two states involving 20 schools and three teachers from each school.
- The teachers will be provided with comprehensive training during the 3 years project period.

- The training will be organized in monthly cluster session where new methods are introduced. The teachers will then plan learning session and reflect on the outcome during the following cluster session where additional competence is added.

6.0 LESSONS LEARNED

Since the implementation of EE infused across the curriculum and not as a subject, the support from various sectors have been of great help in making EE interesting , exciting, fun and assist in making students aware of the need to conserve the environment.

The cooperation has brought closer ties between both the government and non-governmental sectors in their common goal to address the environmental issues in line with the aspirations of the Malaysian government.

Implemetation of EE especially in the co-curricular activities bears a high cost and the involvement of non-governmental sectors help alleviate the financial conctrains. This has enabled EE to have a wider and better coverage and higher participation of school children in Malaysia.

In terms of training and exposure to EE the assistance from experts in the environmental discipline have been a tremendous help in assisting teachers keep abreast with the current and latest environmental information and issues.

Without doubt, conservation of the environment is a paramount importance for every nation in the world. Therefore it makes sense for government and non-govermental agencies to work in tandem in these issues so as to conserve and safeguard its natural heritage for its future generation.

Asia Pacific Research Seminar on Environmental Education for Sustainable Development

Balaram Timalsina*

Nepal is a land locked mountains country located along the southern slope of the Himalayas. It is a small country with an area of 147181 square kilometers (14.7 million hectares) lying between 80°.4'-88°.12' east and 26°.22'-30°.27' north. It ranges 100 meters in the south to 8848 meters in the north from the sea level.

A standard physiological division of this country is based mainly on an altitudinal variation. Nepal consists of one third of the entire length of the Himalayas where the Mount Everest (8,848 m), the highest peak in the world lies. According to the census of 2001 Nepal has a population of 2,31,51,423 consisting of people of diverse social, cultural and ethnic backgrounds. The census noted 102 social groups, recorded 92 languages out of which more than a dozen including the national language Nepali are in active use among a significant size of the population section. The official language is Nepali.

The country is politically divided into 5 development regions 14 zones, 75 administrative districts. The local level political body is municipality or village development committee. The smallest political unit is known as ward.

Formal Education System

The Nepalese education system comprises five years of primary education (grade 1-5 for 6-10 age groups) three years of lower secondary education (6-8 for 11-13 age groups) two years of secondary education (9-10 for 14- 15 age groups) and two years of higher secondary education (grades 11-12). The structure of tertiary education consists of three years of bachelor degree followed by two years of master degree program.

Educational development and present status

Over the five decades, the educational system in Nepal has successfully concentrated on increasing the access to school level education although the quality of education is also government's prime concern. The following table shows the growth and present status of education in Nepal.

* Nepal National Commission for UNESCO, Ministry of Education and Sports, Nepal

	Year					
	1976	1981	1991	1996	1999	2001
Literacy rate	-	19	39.6	48	53	54
Total no of schools	-	-	-	22372	25689	25194
Primary sch.	8768	10628	18694	22218	25522	24943
Lower Sec. Schools	2289	2787	4045	5506	7276	7340
Secondary schools	520	918	2079	2903	4082	4113
Total students	907000	1701896	3658083	4568942	5081042	5361362
Total teachers	32146	46288	99127	125505	143263	142183

Sources: Education Statistics 2002

Note: A school running grades 1-10 is listed three times: as primary (grades 1-5) school, as lower secondary (grades 6-8) school and as secondary (grades 9-10) school. That is why total school does not match with the sum total of primary lower secondary and secondary school.

Literacy Rate

	1991	2001
Literacy rate 6+	39.6	54
Literacy rate 15+	33.0	44
Literacy rate 15-24	49.6	74

Source: EFA National Plan of Action 2003

Sustainable Development and Environmental Education

The United Nations general assembly proclaimed the ten year period from 2005 to 2014 as the United Nation's Decade of Education for Sustainable Development. Governments around the world are invited to use the decade to integrate education for sustainable development into their national educational strategies and action plans at all appropriate levels.

The government of Nepal has prepared and approved the Sustainable Development Agenda for Nepal. This agenda aims to guide and influence national level planning and policies up to 2017 and the government is committed to translate the ethos and the letters contained in the agenda. This document presents the sustainable development as "national resolve to pursue happy, healthy and secure lives as citizens who lead a life of honor and dignity in a tolerant, just and democratic nation".

The government set out some goals related to environmental education in the agenda for sustainable development. They are as below:

- Most of the nation's energy is generated from domestic renewable source, including hydro, solar, wind, as well as sustainable harvested and cleanly burned bio-fuel.
- Land use is planned and managed at the local and national level such that resource bases and ecosystem are improved with complementarity between high and low lands that forest biomass grows, that agricultural and forests lands are protected from urban sprawl, and that biodiversity is conserved at the landscape level recognizing threats from habitat fragmentation and loss of forest cover.
- A system of protected areas (including national parks and conservation areas) is maintained and further developed to safeguard the nation's rich biodiversity. Local communities near protected are involved in both management and economic benefit sharing of the area. Domestic scientific expertise on global and regional environmental threats, including climate change is developed to closely inform Nepal's foreign and domestic policy on those as well as to help adequately prepare form adverse consequences.
- Every citizen has adequate availability of forest products to meet his/her basic needs and also has the opportunity to enjoy aesthetic and spiritual experience in nature.

Sustainable Development Agenda for Nepal stresses a major departure from the current education system to ensure happy and healthy society that leads towards a sustainable society.

Sustainable development is still a debated doctrine in spite of its being explained and defined in various international forums including the earth summit. It may mean different things to different people. However, a common understanding underlying the notion is that "humanity must take no more than nature can replenish". Nepali society and their culture have a long tradition of respecting this notion, especially in the harvesting of forest resources.

However the disparity among people and their relations in terms of economic development, consumption patterns, and environmental pollution hinders sustainable development of non-industrialized countries. Widespread poverty, hunger, diseases and illiteracy among people have contributed to cause environmental degradation and the loss of the earth's biological diversity. The threshold to sustainable development is better to be sought in the process of educating the society and imparting knowledge and awareness to the present generation. The type of education to address the problem of sustainable development would need to integrate three main components; environment, society and economy.

Environment as resource for development would need effective conservation efforts.

Nepal has set aside over 18 % of its territory as protected area to conserve rare and threatened biodiversity. Empowerment of people through community forestry program has illustrated environmental revivals of degraded area. Economy of 80% people largly depends upon agriculture.

The Nepal Biodiversity Strategy 2002 and the Agricultural Prospective Plan 1995 seek to follow a developmental model that is sustainable. But the path of educational development has not yet taken a course to contribute towards sustainable development. The national conservation Strategy implementation Project (1989-1996) under the aegis of the National Planning Commission and the World Conservation Union-IUCN for the first time identified "environment education" as a priority area to support the goals and objectives of the national Conservation Strategy.

Environmental Education in School Education

Environmental problems can not be confined within a country but spill across its border even develop into a problem affecting the region and the entire earth. Nepal is no exception to the environmental problems like greenhouse effect, deforestation, soil degradation and desertification, atmospheric pollution, reduction in genetic diversity etc. The problem is more serious in Nepal because of the high population growth rate and the worsening situation of poverty.

The environmental education recognizes the values and clarifies the concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among human his/her culture and biological surroundings. Environmental education also entails practice in decision making and self formulation of code of behavior about issues concerning environmental quality.

The goal of environmental education is to develop a citizen aware of concerned about total environment and its associated problems and man should have the knowledge, attitude, motivation, commitment and skills to work together or individually towards the problems. To solve the environmental problems, it is imperative that appreciation, respect and understanding of the delicate sun-soil water air organism complex be foster at the grass root level.

Bearing these facts His Majesty's Government has introduced incorporated environmental education in social studies in an integrated way in primary level. There is compulsory subject in lower secondary and secondary level education as well. Environment related various topics and issues are integrated with other subjects like Nepali language, Social studies, Health education and General Science etc.

Basic issues like pollution and contamination of land, water and air, conversation of biological diversity, degradation of land and forest resources, natural hazards associated with the monsoon and mountain ecosystem, and global environmental concerns like ozone depletion, global warming and climate change are the themes for the environmental education. Besides it also deals upon population pressure and heritage conservation.

School children are given opportunity to deepen their understanding of the environment and energy issue and develop respect for the environment. They are encouraged to develop practical skills and abilities to take actions voluntarily on the conservation of the environment and make it better. Thus, great emphasis is placed on problem solving and hands-on learning approaches.

Similarly, non-formal education packages are prepared for various training program in agriculture, forestry, tourism and so on. Public awareness, programs are also conducted with various partners and non-governmental Organizations. The informal environmental education programs to general public has been started by various Non-Governmental Organizations and Government Organizations through various means such as the radio, television, exhibitions, seminars, study tours, training camps, posters, magazines, newspapers etc.

A Good Practice in School

School based environmental education program has been implemented in 16 different districts through the formation of Eco Club in the country since 1994. There are currently 228 Clubs throughout the country. The objectives of Eco club are:

- to raise conservation awareness among the students, teachers and youths
- to encourage them to participate in the conservation of natural and cultural environment at local and national levels
- to mobilize those students, teachers and youths to raise conservation awareness in the communities
- to encourage students to share their knowledge, concepts, skills among their peers in the country and abroad and
- to enhance students networking for the cause of environmental conservation, peace and harmony.

The Eco Club members carry out various curricular and extra curricular activities to enhance their knowledge on environment and its conservation namely study tour, plantation, clean up campaigns, awareness campaign in the locality, recycling and reuse of waste materials, various competitions like essay, quiz, poetry, sports, songs, etc.

Various environmental awareness programs like community mobile education and extension, audio/visual program, campaigns, board with conservation messages and street dramas are organized at local level to create awareness on conservation issues among the local communities.

On one hand, the school based eco clubs have been instrumental in disseminating strong message of Conservation on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) and species conservation across the country and aboard. The clubs have become a good medium of peer learning and knowing each other at the participant level. The clubs have created synergy among for enhanced cooperation for conservation.

Teacher Training Program

Before the change in school level curriculum some years ago, there was no existence of environmental education as a separate subject. Therefore, most of the school level teachers who have been teaching in primary lower secondary and secondary level had not studied environment education. To provide them content knowledge and teaching learning methodology on environmental education, teacher training is the most appropriate way.

In order to improve the teaching learning situation in the country, teacher training programs have been given prominence. Although, the government has had some success in setting up a national teacher training scheme, a large portion of the teacher population is still untrained. With a view to catering for school teachers and addressing their needs, some teacher training schemes have been launched through which teachers are being trained. National Center for Educational Development (NCED) is the apex institution for teacher training. Under its guidance and program following institutions conduct the teacher training program.

No.	Name of Institution	Length of Training
2	Primary Teacher Training Center (PTTC)	Five months
3	Department of Education (DOE)	Short Term
4	Curriculum Development Center (CDC)	Short Term
5	Secondary Education Center (SEC)	Short Term
6	Distance Education Center (DEC)	Five months

There are two modes of training program in the country:

- Face to face mode and
- Distance mode

DEC broadcasts its training program through radio. On the other hand there are nine PTTCs throughout the country and the trainee teachers go there to receive training from various districts of the country. Both the institutions assess the trainee through exam at the end of the program and announce them pass or fail. The teachers who succeed are considered trained. And other remaining institutions provide short term refreshment training. The NCED co-ordinates these training programs.

All these training institutions have been running training for primary lower secondary and secondary level teachers in which environmental education is also included. Mainly in training packages environmental issues such as population growth, pollution, environmental degradation, conservation of biodiversity are included and knowledge skills and attitude on these important aspects to teacher are given in the training.

Community Participation in Environment Education

Social and human development should go along with economic development and sustainable environment. This means social development, economic development and environmental management should go ahead in an integrated approach. For this, community involvement is an inevitable. Following activities are being done with the involvement of local community:-

- Conducting health and sanitation awareness programme, and toilet construction
- Running non-formal adult literacy class, often focused on women in the community and usually linked with practical training
- Construction of irrigation ponds to retain water from monsoon for the dry season
- Green enterprise development, such as commercial plantations to produce bamboo, grass, valuable cash crops that also serve to protect vulnerable micro-watersheds
- Formation of forest user groups and providing them responsibility to preserve their own forest
- Classes on environmental education in the community level
- School management Committee (SMC) and Parents Teachers Association (PTA) are also involved in preservation and protection of environment in their surroundings.

Challenges for Education for Sustainable Development

Sustainability is not easy concept to follow. It involves economic, social, cultural and environmental issues. The

government, various INGOs NGOs, and Civic Organizations are doing a lot in environmental issues in the country. However, on the path of sustainable development there may be so many challenges which should be faced. They can be summarized as below:-

- Teachers lack adequate knowledge and skills on conservation and sustainable development. To train teacher in formal sector and local communities in non-formal sector requires more time as the term "sustainable development" is not common and well-understood by the communities. Some aspect of environment is provided in the national curriculum, but the approach is not coherent and does not cover the wider range of sustainable development.
- Education for Sustainable Development has not been clearly reflected in the formal education system. Local efforts and initiatives in isolated areas may require more time and resources for promotion in school.
- Most schools lack the sufficient resources and materials on conservation and sustainable development
- School in local levels do not have sufficient budget to carry out desired activities
- Developing local capacities and demonstrate sustainable development principles in action through an integrated approach, incorporating gender sensitive social, economic and environment linkages is also a challenge.
- Poverty is one of the serious threats to the environment.
- People are less aware of conserving the environment of their surrounding.
- Insufficient reward system to the people who works in the field of environment education

Conclusion

Environment as the resource for development would need effective conservation efforts. Development becomes sustainable when people develop the sense of ownership and fulfill their needs without destroying the resource base. Development that meets the needs of the present without compromising the ability of future generations to meet their own needs is the motto of developmental policy of the government of Nepal.

The need of education to improve agricultural productivity, to improve sustainable harvest of forest and vegetation seasons, to reduce population growth rate, to enhance environmental protection, to reduce ecological hazards and to raise the standard of living is widely acknowledged in Nepal. Environmental education is one of the important subjects which is being run in formal and non-formal education sector in the country to make the people aware of nature and skillful to use the natural products.

Although, government has formulated and implemented so many policies and programs, there are various challenges on the way of achieving the goals of sustainable development. On this difficult path slowly and steady Nepal will win the race.

Thank you!

Environmental Education/Education for Sustainability

Barry Law*

Section A: Describe the national policy of environmental education/ education for sustainable development

In New Zealand education for sustainable development has been addressed through the concept of environmental education and learning and education for sustainability and is identified as a policy strategy in many national and local government, business, and private sector documents.

Sustainable development in New Zealand is viewed as "a process rather than an end result" (Ministry for the Environment briefing papers). This view is also grounded in ecological sustainability and "aims for efficient use of resources, environmental preservation and a just and equitable social order all at the same time" (Ministry for the Environment briefing papers). Currently a Strategic Policy Group within the Ministry for the Environment is providing a scoping paper to explore the key elements that are necessary for sustainable development to be made operational in public policy. However, there still remains some confusion in New Zealand regarding the role of education, and in particular environmental education in teacher education, as an effective strategy for meeting some of the aims of sustainable development.

There are three major initiatives that promote education as an effective strategy for sustainable development. These have occurred at the Central Government level through the formation of a cross sector environmental education coordinating group 1999-2001 (Ministry for the Environment), the Ministry of Education environmental education professional development contract June 2000 - June 2003 and the environmental education coordination contract with School Support Services 2003-2005. These three initiatives have established a framework to assist with the effective coordination of education activities across all sector groups (local government, formal education, community groups, NGOs etc.).

1a The role of education in the national strategic plan for sustainable development

The Ministry for the Environment, Ministry of Education and Ministry for Local Government accept that environmental education (EE) is a key strategy within the broad framework of sustainable development. All three Ministries have become more proactive in this area over the last six years. Consequently, they have begun to address environmental education (education for sustainable development) in policy documents and in some aspects of practice. However, while a common approach to environmental education between the three Ministries has begun to influence the direction of policy documents related to sustainable development there is still an urgent need to put many EE strategies into practice.

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The Ministry for the Environment released the Government's strategy for the environment in 1995. 'Environment 2010' provides New Zealand with a management strategy for addressing environmental concerns. The document outlines a six-part management agenda to "help achieve the vision of a clean, healthy and unique environment, sustaining nature and people's needs and aspirations."

The six parts of the management agenda are:

1. Integrate environment, economic and social policy
2. Establish a coherent framework of law
3. Sharpen the policy tools
4. Build up the information base
5. Promote education for the environment
6. Involve people in decision-making

Part five 'Promote education for the environment' outlines four proposals for action:

- National approach
- Guidelines for schools
- Tertiary education programmes
- Community education policies and action plans that acknowledge their roles.

Three of the above four proposals for action have been addressed in the last six years. A National strategy for environmental education was written by the Ministry for the Environment in 1998. This document Learning to Care for Our Environment: A National Policy on Environmental Education clarifies an understanding of EE for all sector groups. The main aim of EE is "to encourage environmentally responsible behaviour and informed participation in decision-making by promoting environmental education throughout the community" Environment 2010 Strategy p.57.

National approach

The Ministry for Education launched the Guidelines for Environmental Education in New Zealand Schools in August 1999. This document identifies EE as an investment for the future. The EE Guidelines highlight essential skills, increased understanding of the environment, effective decision making and social action as critical tools to establish a sustainable future.

> "Education for sustainability is a new focus for education. It is a way of helping individuals and societies to resolve fundamental issues relating to the current and future use of the world's resources. However, simply raising awareness of these issues is insufficient to bring about change. Environmental education must strongly promote the need for personal initiatives and social participation to achieve sustainability." EE Guidelines p. 8.

Guidelines for Schools

The EE guidelines for NZ schools support the national policy "Learning to Care for our Environment." The four key concepts that underlie EE in New Zealand are: interdependence, sustainability, biodiversity and personal and social responsibility for action. The concept of sustainability in New Zealand also recognises the special relationship of the Crown

with Maori through the treaty of Waitangi and therefore the notions of hauora (total well-being and balance with nature), rahui tapu (conservation) and kaitiakitanga (guardianship) are key aspects of sustainable development. The EE guidelines for schools provides a framework and direction for schools and the assumption is that teacher education providers will address this document within their pre-service programmes. The Guideline document clearly outlines that "the NZ curriculum provides a context for developing teaching and learning programmes for environmental education. Schools will also have a range of policies and practices through which the aims of environmental education can be met. Such policies and practices can be used to establish appropriate organisation, operational and curriculum objectives that promote a whole school approach to a sustainable environment." (EE Guidelines, p.15). However, the 1999 EE Guidelines for NZ schools is only a set of guidelines and doesn't carry the status of a formal prescribed syllabus. Currently there is no compulsion for schools to adopt any of the ideas outlined in the guideline document. However, the science curriculum has the mandated achievement aim: "In their study of planet earth and beyond, students will use their developing scientific knowledge, skills and attitudes to investigate how people's decisions and activities change planet earth's physical environment, and a responsibility for the guardianship of planet and its resources" (SiNZC, p.106)

Over the past decade there have been major changes to the curriculum framework in NZ schools and a stream of new requirements associated with assessment, funding, staffing, monitoring and reporting performance. This has placed pressure on teachers, managers and administration staff as they constantly dealt with a raft of educational changes. Consequently, environmental education has maintained its status on the very fringe of curriculum delivery in many schools. However, this is slowly changing as new initiatives are implemented. In June 2000 the Ministry of Education established a national professional development programme for environmental education. This programme trained 75 national facilitators working in 17 regional teams who facilitated over 40 two-day courses around New Zealand based on the Environmental Education Guidelines for NZ Schools. This equated to approximately 380 schools and 700 teachers. However, this is a small number given the total number of schools (2700) and total number of teachers (40,000).

More recent changes to the curriculum framework based on the curriculum stocktake (2001-2003) has seen the emergence of 'Education for Sustainable Development' as a new focus theme to be delivered across all learning areas/ disciplines. At this point in time ESD/EE learning outcomes tend to be addressed in isolation within separate disciplines. This limitation makes it difficult for individuals or groups to gain the full picture of any issue and pursue any form of action for the environment that considers skills, knowledge and attitudes and values in a holistic manner.

However, the national environmental education professional development programme and the environmental education coordination contract has recently supported and promoted the development of courses that address "Sustainable Futures" at the senior (yrs 11-13). Currently 64 secondary schools are either delivering or writing courses (to implement at the start of 2005) that focus on education for sustainability.

Community education

The Ministry for the Environment supported local government initiatives in 1998 by allocating sustainable management funding to write an Environmental Education strategy document for local Government and non-Government organisations (NGO's) Environmental Education: A guide for programme providers. This initiative provided direction for community education policies and action plans and acknowledged the role of local government in educating New Zealanders

for a sustainable future. Local government in New Zealand has already established a number of key initiatives in education for sustainability and they provide education programmes for schools, small business and community groups. Some of these initiatives involve cooperative working relationships with other sector groups and this includes formal education providers. Specific examples of these initiatives are outlined in Section B.

Tertiary education

While many universities provide environment related papers, the focus of these papers is often on knowledge acquisition and awareness. Tertiary education providers have been slow to offer programmes that comprehensively address ESD/EE in formal qualifications. Consequently, there are limited qualifications in the tertiary sector that specifically address education for sustainability by linking biophysical, economic, cultural, social and political aspects together in a coherent programme of study. Victoria University in Wellington is currently developing a programme that specifically addresses education for sustainability.

In the late 1990's Massey University took the initiative to convene a series of meetings for tertiary institutions to explore education for sustainability in relation to core programmes of study, organizational structures and operational practices and while several tertiary institutions have adopted a more sustainable approach towards their operational practices many have not followed through on the initial support this initiative provided.

There have been several attempts within teacher education to address the inclusion of core or optional papers in environmental education. However, numerous obstacles such as; the over crowded curriculum, funding constraints and traditional practice have been cited as major limitations in establishing EE strongly within the current system of pre-service delivery in teacher education in NZ. Opportunities for pre-service teacher education courses in environmental education exist at Auckland College of Education (ACE), Massey University, Christchurch College of Education and Waikato University's School of Education. In-service courses in environmental education are offered through the School Support Services at Team Solutions ACE, Waikato University's School of Education, Massey University, Wellington College of Education/Victoria University, Christchurch College of Education and Dunedin College of Education.

Massey University provides a Post-graduate Diploma in Environmental Education. The Christchurch College of Education offers a joint Masters Degree in Environmental Education with Griffith University (Brisbane).

Significant influences on Policy in Learning and Education for Sustainability.

• Parliamentary Commissioners Office

The Parliamentary Commissioner for the environment (PCE) released his report "See Change: Learning and Education for Sustainability" (January 2004) that explores "how societies can learn to live in sustainable ways" (p.12). The document highlights the critical importance of education in its broadest sense and the need for re-design in education across all sector groups in New Zealand to bring about a fundamental change in thinking to achieve a sustainable future.

The purpose of the report "is to raise the level of debate about education for sustainability and to stimulate effective

action so that New Zealanders can learn to live in sustainable ways" (PCE, p.130). The document addresses the need for new thinking and a shift in how we view issues/problems in order to implement action that brings about situation improvement. A clear distinction is made in the document between learning and education.

Learning is viewed as: "a psychological phenomenon. It is a process in which people develop ways to see and interact with the world around them" (PCE, p.13). Education is described as "a sociological phenomenon. It is more focused on what educators (such as parents and teachers) do to facilitate learning in others".

The report clarifies the environmental dimensions of sustainability as:

• "The life supporting process (ecological systems) that provide people with good quality air, water, soil marine life, and a viable climate. This is essential for sustaining a world that humans and other species can survive and flourish in" (PCE, p.14).

• "Other environmental factors that contribute to people's quality of life. What people value about the environment is always changing, but most people in New Zealand today enjoy living in a good quality environment" (PCE, p.14).

Thus, Education for sustainability is viewed as:

Education that is not simply about sustainability but "education that empowers people of all ages and different backgrounds to contribute to a better future" (PCE, p.15). Thus, education for sustainability is characterized by such things as: encouraging people to ask questions, challenging underlying assumptions, critical thinking, individual and systemic change, redesigning systems and is grounded in a transformative process (PCE p.15).

The PCE's document covered seven major topics

1. Introduction to education for sustainability
2. People, places and pressures on sustainability
3. Explaining education for sustainability
4. Educating people for tomorrow today
5. Further shapers in society
6. Waste not, want not.
7. Future directions

Significant areas of focus included in the PCE's document are:

• Quality of Life
• Keeping an eye on the bigger picture
• Developing capacity
• Learning across society
• Pursuing social marketing for sustainability
• Being positive to cultural diversity

The Commissioners report is a brave document that is wide ranging and deals with many contentious issues related to learning and education for sustainability. This document has the potential to influence our thinking and shape future decision-making in a wide range of government and local body policy over the next few years.

Section B - Examples of 'Best Practices' in School Education

1. Ministry of Education.

a. Environmental Education Professional Development

The Christchurch College of Education was the successful tender for the national EE professional development contract in 2000. This contract is a Ministry of Education contract that started in June 2000 and finished in June 2003. The professional development programme involved three key initiatives. Firstly, it provided funding for the training of 75 national facilitators in seventeen different regions throughout NZ. A special Maori EE training progamme added another 18 Maori facilitators. The second initiative involved the national facilitators delivering regional training programmes to teachers. The regional training programmes provided a detailed exploration of the EE Guidelines for NZ Schools. The professional development approach encouraged teachers to use innovative ways to address ESD/EE within their current school programmes and it also challenged participants to consider alternative ways of designing new school programmes that focus on ESD/EE. The third initiative identified teachers and schools that were committed to ESD/EE and provided additional support and assistance for the school to become a pilot school. The focus of the pilot schools was to establish a number of regional 'enviro schools' or 'model schools' that could demonstrate a balanced curriculum approach to achieving education for a sustainable future. Many of the national pilot schools are now part of a national "Enviro-Schools programme" (see description of the enviro-schools programme below).

b. Environmental Education National Coordination - School Support Services

In January 2003 a national environmental education coordination team was set up throughout New Zealand to support the professional development programme 2000-2003. Eleven full-time positions where allocated to the six School Support Service providers. One national coordinator was established (.5) based at the Christchurch College of Education. The remaining positions were allocated to the regional School Support Services providers. Currently we have 4 fulltime positions at Team Solutions (ACE), 2 positions at Waikato University's School of Education, 1.2 positions at Massey University, 1.2 positions at Wellington College of Education/Victoria University, 1.5 positions at Christchurch College of Education and .6 of a position at Dunedin College of Education. The regional coordinators are responsible for providing support for teachers and schools working in environmental education. The whole team meets twice a year to share new thinking and plan new directions. This year the team is split into four working groups addressing research in EE, developing new teaching and learning strategies for EE, developing NCEA achievement standards for education for sustainability and identifying appropriate structures for disseminating resources. The team reports once a year to a national reference group to gain feedback and provide guidance to the Ministry of Education..

2. Enviro-schools programme - Learning for a sustainable future

Creating a sustainable school

Enviroschools is a whole school approach to environmental education where students participate in creating a sustainable school with support from their communities. Schools form an Envirogroup, create a Vision Map and undertake environmental action projects that integrate the formal curriculum. The process is student-centred, allowing individuals and groups to learn through exploring their environment, making decisions, designing, implementing and maintaining

sustainability projects.

An enviroschool becomes a model for sustainability, reinforcing the environmental education curriculum and providing ongoing opportunities for student learning and action. Four key areas of school life are enhanced through this process:

- *Physical Surroundings* - Ecological and participatory design of grounds and buildings.
- *Operational Practices* - Sustainable conservation practices in the day-to-day running of the school.
- *Organisational Principles* - Participatory and democratic school management.
- *A Living Curriculum* - An integrated formal curriculum that enriches school and community life.

A partnership approach

Enviroschools development is an ongoing process of participation and partnerships at all levels. The Enviroschools Programme began as a Council/community initiative and is now governed by The Enviroschools Foundation which provides facilitator training, educational resources, sharing opportunities and a strong governance and networking structure. Funding for the national office comes mainly from grants and at the regional level from Councils and local Trusts.

At a national level the Enviroschools Foundation has a key partnership with the Environmental Education Guidelines Professional Development Programme, currently managed by the Christchurch College of Education. This partnership is crucial for the strategic direction of EE in schools nationally and for coordinating action to support schools in the regions. Links are also being strengthened with the Department of Conservation, sustainable business networks and other agencies to provide the cross-sectoral support that is imperative for sustainability education.

At a regional level facilitators and support people are mainly funded by Councils and some independent Trusts. Schools are supported through either the three-year facilitated Enviroschools Programme or the Enviroschools Awards Scheme, depending on the level of support in each region.

Further development needed

Sustainable schools have the potential to contribute to wide-ranging community benefits such as health and well-being, conservation, efficient urban infrastructure and increased community participation in local issues. Much has already been achieved to create this future. However, a secure funding base has yet to be established to enable the Enviroschools Foundation to further strengthen networks and provide increasing support to regions. A number of components are in need of immediate development, including:

- School facilitation of Maori perspectives of the environment,
- sustainability educational materials in te Reo Maori,
- facilitation of community mentor schemes,
- increasing the momentum of the national Enviroschools Awards scheme, and
- further support for the national Enviroschools reflection-evaluation process.

3. Local and regional government programmes that support school initiatives

A large number of community educators and local government organisations provide in-service programmes in environmental education for teachers and these include: Hamilton City Council (started Enviro-schools NZ), WWF-NZ, New

Zealand Association for Environmental Education, Northland Regional Council, Auckland Regional Council, Environment Waikato, Hawkes Bay Regional Council, Horizons Manawatu, Wellington Regional Council, Environment Canterbruy and Southland Regional Council.

The Enviro-schools awards scheme developed by the Auckland Regional Council in conjunction with Enviro-Schools New Zealand (Hamilton) and supported by the National EE professional development facilitators is an example of a successful schools based awards programme. This programme provides an "incentive scheme for schools to become actively involved in environmental education" that assists students and teachers to "undertake initiatives that make a real difference to their communities" (Auckland Regional Council, p.2).

The purpose of the scheme is to encourage schools towards becoming a sustainable community incorporating best environmental practices that will carry over in to home/everyday life. The guiding principles include sustainability, environmental education, children's participation, respect for the diversity of people and cultures and Maori perspectives and knowledge on the environment.

The award offers schools

- an opportunity to make environmental education a central part of school life
- enriched and integrated educational experiences
- an opportunity to develop young people's decision making skills
- potential for financial savings
- a chance to share ideas with other schools
- access to a network of support agencies
- a national award
- an opportunity to become part of a global movement.

What it requires from the school

- the support and commitment from the principal and Board of Trustees
- a willingness to involve young people in planning decision-making and action
- active involvement from teachers, parents and the wider school community
- a willingness to take action and to commit to long-term change
- a commitment to document the process towards creating a sustainable school environment
- a commitment to explore the integration of curriculum objectives with school organizational principles, operational practices and school ground management that reflects a sustainable future.

The award is based on meeting established criteria in four key areas of school life curriculum:

- Organizational Management
- Operational Practices
- Physical Surroundings
- Living Curriculum

There are three levels of attainment:
Bronze
Silver and
Green-Gold

Criteria are established at each level covering the four key areas. At the bronze and silver level the award is school monitored and documented prior to submitting to the council as evidence for checking and feedback. The green-gold award is more prestigious and involves a school monitoring visit by a small group of assessors to make sure that the school has embraced the principles of a sustainable school environment.

The Auckland Regional council also provides environmental education through their "Learning through Experience" programme for school within the Auckland region. The programme supports curriculum achievement objectives and is supported by the Ministry of Education.

4. Collaboration and cooperation through a regional Environmental consortium.

Environmental educators in the Canterbury region of New Zealand have established a number of environmental initiatives by working together in a consortium and sharing their knowledge experience and resources to develop opportunities for schools. The consortium involves: Environment Canterbury, Christchurch City Council, Department of Conservation, WWF- NZ and Christchurch College of Education and the Canterbury Environmental Education Trust.

A school-based Road show for teachers outlines the opportunities, services and resources offered by each of the consortium partners individually or collectively.

Specific programmes that involve collaboration include:

•Coast to the High Country - A multi-day programme to gain first-hand experience of current environmental and sustainability issues facing the Canterbury Region. The environmental educator that facilitates this experience works with teachers, local government educators and DOC staff to customize each programme to suits the needs of both students and teachers.

•Learning through Action - Is an environmental education initiative that has twenty different programmes using natural and municipal sites around Christchurch. The environmental facilitators work with teachers to design a programme that best suits student's needs. Programmes focus on five key areas:

- Streams, rivers and wetlands
- Coastal programmes
- Biodiversity and Geology
- Water and Waste
- Heritage and History

•Department of Conservation Super Sites programme - Department of Conservation educators provide resources and staff to help teachers and students better understand conservation goals at the super sites that identify specific issues or highlight effective conservation practices.

The Coast to the High Country programme often uses both "Super Site" and "Learning through Action" sites, including local government educators to support the programme. This is an effective collaboration that provides a cooperative and supportive educational programme. The Consortium meets on a regular basis and its members are also key members of the New Zealand Association for Environmental Education.

5. Sustainable Business Partnerships with Education

Sustainable business interests are involved in supporting enviro-schools New Zealand by way of grants for administration and staffing. "Untouched World Foundation" associated to the Snowy Peaks Group in Christchurch provides funding support for the Blumine Island conservation project in the Marlborough Sounds. The Blumine Island project is a joint venture between Untouched World Foundation, Department of Conservation (National Biodiversity), Christchurch College of Education (Teacher Education for a Sustainable future) and South Island secondary schools (Practical experience through student-centred learning). The programme is designed to provide practical field trip experience for selected students and teachers to draw together conservation, education and sustainable business practices. The students and teachers involved in the field trips have supported enviro-groups back in their schools. As a result of the Blumine programme two of the schools involved now have head students who hold environmental leadership roles and have responsibilities for informing the school on issues related to sustainability.

Summary of key strengths in environmental education in New Zealand include:

1. The development of effective partnerships between formal education, local govt, Community educators and sustainable business that provide new ideas and new thinking about educating for a sustainable future.
2. An action based and student-centred approach to environmental education.
3. A small shift in curriculum thinking that identifies education for a sustainable future as a new focus theme in the recent curriculum stocktake (Ministry of Education).
4. The development of NCEA courses at the senior secondary level that focus on sustainable futures (currently 64 secondary schools developing courses in this area of study).
5. A strong national coordination team (11 fulltime positions) that facilitate regional in-service courses for teachers in environmental education across New Zealand.
6. An innovative Enviro-schools Foundation and awards scheme that supports the concept of sustainable schools. This programme supports the notion of sustainable schools where school grounds, operational, management and curriculum are all part of the sustainability process.
7. A strong national environmental education association (NZAEE) that provides networking, an organizational structure, political support and conference opportunities for environmental educators.
8. Research has been strong component of the EE professional development programmes in NZ. The NZ Council for Education Research and the University of Waikato have completed an independent evaluation of environmental education in New Zealand schools.

Section C - Challenges (Constraints and problems) faced in implementing current EE programmes both at school and other levels of education

1. An urgent need to re-examine the nature and structure of schooling in a more critical way to address environmental education/education for a sustainable future in its broadest context ie, school organizational principles, operational practices, school ground management and curriculum content. We are faced with a paradox, is education the problem or the solution towards a sustainable future. At our current levels of un-sustainable practice and over consumption it could be concluded that education is part of the problem. If education is the solution then it requires a deeper critique and a broader vision for the future. Thus, a whole system re-design needs to be considered to challenge existing frameworks and shift our thinking beyond current practice and towards a sustainable future.

2. Teaching and learning in environmental education needs to move beyond a mechanisitic/transmissive approach to learning and adopt a more transformational process. Mechanisitic systems, processes and assessments are the problem. Transformative systems, processes and assessments are a solution (Sterling 2001).

   For example student decision-making needs to be a critical part of the education process (transformative) rather than teacher directed decision-making (mechanistic/transmissive). The emphasis on learning should be an integrative approach that has teachers as learners and learners as teachers rather than total focus on adults teaching. Teachers and students should operate as a critical community of reflective thinkers rather than as functional learners'. Meaning and understanding needs to be constructed and emergent rather than given and learning needs or be active rather then passive. Consequently the national environmental education coordinators are currently developing materials that explore appropriate teaching and learning strategies for environmental education.

3. Assessment Issues. There are currently no achievement standards that specifically address cross curriculum achievement standards for environmental education/education for a sustainable future. However the national environmental education coordinators are currently addressing this issue.

4. Lack of time in the current schooling system to implement action based projects that relate to issues of sustainability. Many school-based activities don't go past thinking about identifying possible actions.

5. The lack of status and support in schools for developing environmental education/education for sustainability programmes makes it extremely difficult for interested teachers to get things started. The National Environmental Education Guidelines for NZ Schools states that "the extent to which environmental education is incorporated within the curriculum will continue to be determined by the board of trustees of each school" (Ministry of Education/Learning media, p.5). Thus, environmental education is not viewed as a core component or essential requirement of schooling, it is left up to the school community to determine to what extent they will incorporate environmental education in to the school programme.

6. The delivery of environmental education (education for sustainable development) in New Zealand is still constrained in both formal school education and in the wider community by the lack of a broad vision that encourages collaboration and cooperation among all educators.

7. The emphasis on literacy and numeracy in our education system continues without any acknowledgement of the contribution of environmental literacy or integration between numeracy and education for sustainability. EE/EFS provides a ideal context for teaching the 'mechanical' skills of literacy and numeracy.

8. There are no ESD/EE requirements or specific outcomes identified for teacher education by central government and therefore, very few teacher education providers have developed courses or acknowledged ESD/EE components within pre-service or in-service programmes. The failure of many teacher education institutions to re-orientate their programmes has been due to four key factors. Firstly, the widespread and rapid changes in the education system over a relatively short period of time. Secondly, the autonomy held by teacher education institutions over their own programmes of study. Teacher Education providers are not accountable to anyone other than market forces. Thirdly, the perceived role of some institutions in delivering only what schools want (training) rather than assimilating training with education programmes that challenge and re-orientate content and practice within schools. The fourth factor is a lack of commitment by managers in some institutions to support areas of study that are not mandatory or part of the core curriculum.

   The role of teacher education in ESD/EE is under review. Teacher education is identified in the current agenda of the NZ sustainable development group as a key target area for change.

9. Although indigenous perspectives of the environment are recognized as a crucial component of environmental education and sustainability there is a lack of structure within many organizations and institutions to provide support for this. More Maori educators and environmental education resources in te reo Maori are needed for Maori students and teachers in schools. However, it is also essential to have people who can bring Maori perspectives into mainstream education - widespread awareness and acceptance is necessary in order to bring about the inter-cultural understanding necessary for sustainability.

Presently, there is an attempt to address some of these issues but, they tend to be further constrained by the lack of an organisational and operational framework that outlines how specific outcomes will be achieved for each sector group working in environmental education/education for sustainability in New Zealand. There is also no formal monitoring procedure to check on whether specific outcomes for EE/EFS are being met in formal, local government or community education.

Section D - Country plans for the contribution of EE for the UN DESD

The National Commission for UNESCO-NZ's new education committee meets for the first time on February 3 2004 to discuss plans for the contribution of EE for the UN DESD. Several initiatives have been identified but no formal discussions have taken place to establish these in any official plan for the decade.

Current initiatives include:

- Continuing to develop a research community in EE/EFS in NZ
- Establishing a working group to explore effective teaching and learning strategies for EE/EFS
- Developing NCEA assessment standards for EE/EFS in NZ
- Continuing to develop partnership opportunities to model a cooperative and collaborative approach to EE/EFS
- Developing stronger links between educators involved in EE/EFS and sustainable business.
- Linking with the IUCN CEC EE network on supporting the Decade of ESD 2005-2015.

There are many positive initiatives in New Zealand and a willingness by interested educators to collaborate to achieve positive outcomes for a sustainable future. However, the biggest limitation is the lack of recognition for EE/EFS by some educational managers/principal's in our current unsustainable schooling system.

This limitation is compounded by the notion that EFS is the responsibility of the formal education system - making cross-sectoral collaboration very difficult.

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Philippine Response to the United Nations Decade of Education for Sustainable Development

Merle C. Tan*

The quality of the environment and the quality of life are directly related. Human beings have the power to control the quality of the environment. Too frequently the use of this power has a negative impact on the environment often to the point of irreversibility. Thus, the defense and improvement of the environment for intergenerational use and enjoyment has become an imperative goal for all.

Society prepares its citizens to carry out their responsibilities through its education system. Education helps citizens develop an awareness and sensitivity to the environment and its problems, acquire the knowledge and skills to perform in society effectively, and foster positive attitudes and proper conduct towards the environment. This is the role of environmental education (EE). All sectors of society are expected to contribute towards the attainment of the goals of EE. It relies on partnership and cooperation of all stakeholders at the local, national and international levels.

This paper deals mainly with environmental education (EE) programs and activities for basic education and teacher training

National & School Policies and Support on Environmental Education for ESD

In the late 60s, popular books such as Silent Spring by Rachel Carson, Closing Circle by Barry Commoner and Limits to Growth by Donella Meadows aroused the environmental consciousness of middle class professionals and college students. Soon after, Eugene Odum's Ecology became widely used in college biology and ecology courses. It was during these times that agricultural production for self-sufficiency was the major thrusts of the government but was not sustained due to fertility reduction and soil erosion. Likewise, the effects of increasing deforestation were beginning to be felt as flash floods and sedimentation of dams and reservoirs became more serious (ADB Philippines EE Report, 1992).

The National Pollution Control Commission was established also in the late 60s to monitor vehicular emissions and pollutive industries. Environmental awareness grew further with the creation of the National Environmental Protection Council (NEPC) and the Natural Resources Management Center. In 1977, the Philippine Environmental Code was promulgated directing the Department of Education (formerly DECS now referred to as DepED) to integrate environmental education in the school curricula at all educational levels and for NEPC to conduct continuing educational campaign and training for the improvement of the environment.

With the creation of government agencies, schools also began offering environmental science and management

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courses. Years later, the Environmental Management Bureau (EMB) was created out of the merger of the NPCC and NEPC. Its Environmental Education and Information Division (EEID) fully undertook the planning and implementation of environmental education activities.

The Philippine Strategy for Sustainable Development was formulated in 1989 and EE was one of its 10-pronged strategies.

A review of the state of EE in the country was done in 1991 to determine the existing infrastructure that supports EE, policy formulation process, implementation arrangements, the role of government agencies particularly the DepED and the Department of Environment and Natural Resources (DENR), coordination mechanisms, qualification of key staff, and adequacy of funding. The study also assessed the extent of coverage of environmental issues in the curricula at all levels and in all subjects both in the syllabus and examinations as well as the extent to which these issues are effectively taught. The scope and quality of textbooks and supplementary instructional materials including visual aids were also reviewed. Furthermore, the study evaluated the capacity of DECS and DENR personnel to produce appropriate pupil learning materials and teacher resource materials as well as the readiness of teachers to provide instruction in basic education. Finally, the review identified innovative activities at the basic education and teacher training level.

The results of the study enabled the researchers to identify major issues and concerns and made recommendations concerning policy reforms, institutional capacity building, curriculum, staff qualification and materials development. Thus, the National EE Action Plan (NEEAP 1992-2002) was designed. The Plan laid down a ten-year program for the systematic dissemination of EE concepts and skills through the formal and nonformal education systems. This plan also operationalized the EE strategy in the PSSD as well as the stipulations of EE embodied in the Philippine Environmental Code.

It major components are: curriculum and materials development, training, information and social advocacy, research, institutional capacity building, and policy development and reforms.

Five years after the release of the NEEAP, pilot projects were implemented. One of the outputs is an EE Curriculum Framework. This document describes the four dimensions of EE: objectives, learning strategies, experiences/activities for students and assessment and evaluation. Based on this framework, exemplar lessons plans, posters and comics with EE orientation were also prepared for different subject areas. In addition, four video materials on different titles were developed for use in formal as well as nonformal EE activities.

A series of training programs on how to use the EE curriculum framework followed. The training was intensive in 1999 to 2001 for basic education and higher education and was expanded to cover technical/vocation education in 2002.

EE promotion became more active in 1995 with the establishment of the network of 380 universities and colleges nationwide called the Philippine Association of Tertiary Level Environmental Planning and Management or PATLEPAM. Programs and activities of the association were based on the Philippine Agenda 21. Their activities also included in service training of teachers at the basic education level.

Current EE Programs and Its Contribution to National Development

Current EE related programs are based on NEEAP 1992 to 2002. Some of these programs have been sustained.

Curriculum and Materials Development

EE is integrated into the formal curriculum of classroom learning and the organizational and operating procedures of the school through its environmental management (or its informal curriculum). Science, Social Studies, Mathematics, Communication Arts and Technology and Livelihood Education are taught with an environmental orientation. Textbooks and supplementary materials have been developed and used in schools using environmental situations as context for concept understanding or as applications of concepts in real life.

DENR provides updated information about the environment to different agencies, schools, and universities through its publication of the State of the Philippine Environment as well easy to read materials on different environmental concerns which could be used in schools. Video materials for specific environmental concerns like solid wastes, safe water, forest conservation, and coastal zone management are also available.

The Commission of Higher Education (CHED) has revised its general education curriculum especially for teacher education to include an EE-oriented subject. The National Institute for Science and Mathematics Education Development of the University of the Philippines (UP NISMED), the national center for science and mathematics education, develops curriculum materials for students and resource materials for teachers. From the private sector, Miriam College Foundation develops modules for use by member schools of the Catholic Education Association of the Philippines. There are many other institutions doing similar activities.

Training

Inservice training programs of teachers include updating of their knowledge about environmental related issues and ways of integrating these issues into the curriculum. Environmental integration is done not just to help teachers make classroom interaction more relevant and interesting but give them opportunities to develop higher order thinking so that they can pass on the skills to their students.

Recently concluded training conducted by UP NISMED, in cooperation with EMB DENR, focused on how to use the Breath Clean Air module series in secondary schools.

Other programs focus on technical training such as monitoring pollutants in bodies of water, air pollutant emissions of vehicles, level of acid rain, and many others.

Training programs for teachers are organized not just by government institutions but also by professional teachers organizations, business groups, and NGOs.

Information and Social Advocacy

The EMB-DENR takes the lead in producing advocacy materials. TV and radio plugs about air pollution, water pollution, solid waste management, toxic and hazardous chemical waste management, unleaded gasoline, and the environmental crisis in general are regularly broadcasted. Posters about global warming, climate change, air pollution, water pollution, endangered species, garbage, trees, and waste segregation are distributed as calendars. Popular competitions aimed at increasing awareness and education of the public on general environmental related matters have been conducted. These include photography contest on citizen participation in environmental protection, painting contest on global warming, cross-stitch design contests on humankind in harmony with nature, television spot contest and poster making on environmentally-sound development and the role of youth in the care of the environment in the new millenium. In addition, T-shirt designing, Green Schools competition, environmental quiz, recycled products contest, and making scale models on sustainable development have also been organized.

The local government units all over the country, organize yearly the Search for Cleanest Barangay (the smallest political unit in the Philippines), to highlight the need for proper waste management and implement the Ecological Waste Management program of the government as well as the Philippine Clean Air Act.

Challenges Faced in Implementing Current EE Programs at School and Other Levels of Education

Interest in EE across the country is growing but good practice is not widespread. There are many activities going on but these are not cohesive and unidirectional. Most initiatives still tend to favor nature conservation rather than the multidisciplinary concept of sustainable development and the holistic imperatives of a sustainable future. EE activities are initiated by the DENR not by the DepED. The focus is on information and awareness-raising campaigns directed at individual behavioral change rather than broader educational or sustainability goals. The lack of interest of DepED explains why EE is often not a priority, especially as the curriculum is overcrowded. Moreover, EE concepts are usually not included as examination subjects. The interactive and experiential teaching strategies of EE are in conflict with the traditional classroom practices that emphasize recall of content and examination performance rather than development of problem solving and other higher-order thinking skills.

Instructional materials on different environmental problems/issues are available but in limited circulation. Oftentimes, critics question the accuracy and bias of the information received by young people about environmental issues. Given the scarcity of EE-related textbooks and support materials, children and the community get information (often sensationalized) from inaccurate sources.

Many teachers attempt to integrate EE objectives and topics into their subject areas. However, the information overload, coupled with the complex and continuously developing state of environmental knowledge makes it difficult for teachers to present a coherent and balanced picture of the nature of an environmental problem, especially if they are not adequately trained. Teachers need training in carrying out discussions on issue-based topics.

Local studies also reveal that the problems stated are intensified by the lack of support for EE by policy makers, school administrators and teacher educators. Professional teacher organizations and nongovernmental organizations (NGOs) have not been maximized in conducting in-service training on EE strategies. Media support as well as school and community linkage are limited. Researches related to EE methodologies are lacking. EE programs are not sustained especially when funds are not made available

Moreover, the holistic and sometimes philosophical nature of EE, the variety of environmental problems/issues to be debated on, and the different educational background of environmental educators make EE promotion sometimes difficult and challenging.

To address this concern, the use of core messages as unifying themes when doing EE in schools and communities is encouraged. The core messages help learners recognize the connection between environmental quality and quality of life.. The core messages help develop environmental values applicable to any environmental problem or ecosystem - anytime, anywhere. The interrelated unifying themes and the core messages (in italics) are summarized as follows:

- Interconnectedness - Everything on Earth is connected to everything else.

What one does affects others, directly or indirectly.

- Biodiversity and Stability - The more diverse the ecosystem is, the more resilient is that ecosystem to change.

All life forms are important.

- Change - Changes continuously occur. There are changes that improve the quality of the environment; other changes degrade it.

We have to avoid or prevent those changes that degrade the environment.

- Balance of Nature - Nature has it own laws to maintain and/or cleanse itself.

Nature is beautiful.

- Finiteness of Resources - Most natural resources are finite. Even those that are renewable are difficult to obtain or they take hundreds of years to grow or develop.

Resources have to be used prudently and wisely so that future generations can also enjoy them.

- Population Growth and Carrying Capacity - A given ecosystem can only support a specific number of individuals at a given time.

Population growth has to be controlled

- Materials Cycle - Materials are neither created nor destroyed. They are only converted from one form to another. Pollution occurs if the volume of the materials in one place is too much that the ecosystem's quality and usefulness are reduced.

Recycling is following nature's conservation law.

- Stewardship and Cooperation - Humans are part of nature. They are not masters but caretakers of God's gift to humankind.

Each person should practice responsible environmental behavior.

When the principles and core messages are internalized, these will lead to sustainable development.

Country Plans: Contribution of EE for the UN DESD

Late in 2003, the EMB-DENR organized a consultative workshop on the updating of the NEEAP in the light of relevant national and international challenges, particularly the declaration by the United Nations, of 2005 to 2014 as the Decade of Education for Sustainable Development. The new Plan "envisions an environmentally literate and proactive citizenry, imbued with a sense of responsibility to care, protect and enhance environmental quality that is conducive to their well being and supportive of the national economic development and unified in its pursuit of peace, social justices and equity in the use of natural resources".

For its mission, the new Plan aims to

- improve the institutional systems, making them more relevant towards delivery of EE to all segments of society;
- mobilize resources and encourage more private and public investments and partnerships in supporting programs for EE;
- establish a critical mass pf committed environmental educators and practitioners who will spearhead the EE movement; and
- promote environmental ethics which will instill the right values and attitudes as a way of life among Filipinos.

For basic education and teacher training, priority targets for action, based on key issues in EE were identified:

- To recommend the designation of a focal point in DepED and DENR and their regional counterparts to coordinate the implementation, monitoring and evaluation of EE.
- To conduct an inventory of existing curriculum materials and related resources for basic education
- To provide teachers with community-based lesson guides, tools and learning materials geared towards SD.
- To establish linkages with relevant institutions that could help in the acquisition of appropriate technologies and facilities that will enhance EE.

- To develop a monitoring and evaluation system for the implementation of the new NEEAP.

For tertiary education, the aims are

- To improve the institutional systems, making them more efficient and effective in the delivery of EE at all levels
- To mobilize resources and encourage public and private investments in supporting the programs for environmental education
- To train a critical mass of competent policy makers, teachers, environment specialists and field workers who will spearhead the EE movement
- To promote an environmental ethic which will inculcate the right values and attitudes among the citizenry with respect to environment

On policy, higher education institutions (HEIs) plan to

push for relevant policies in the institutionalization and smooth implementation of key themes in education for sustainable development. On research and development, HEIs plan to i

dentify EE and SD methodologies and strategies in the curriculum as well as evaluate the effectiveness of EE programs.

The proposed NEEAP (2004-2013) is a work in progress. As part of the consultation, the following questions are being discussed:

1. What do you need to help you expand education for sustainable development?
2. From among the items mentioned in 1, what will you or your sector commit to do?
2. What else will you or your sector commit to do?

The new NEEAP will make sustainable consumption and production issues central themes of environmental education. "Education is humanity's best hope and most effective means in the quest to achieve sustainable development" (UNESCO, 1997).

For more information on the Philippines NEEAP 2004 to 2013,
visit http://www.emb.gov.ph/eeid/neeapoutput

Environmental Education in Thailand : Policy and Practice

Athapol Anunthavorasakul*

The Development of Environmental Education Curriculum in Thailand

Environmental Education is one of the new born fields in Thai education. It was included in the Thailand National Curriculum for the first time in B.E. 2521 (A.D. 1978) in primary and lower secondary school curriculums. Three years later (A.D. 2524, B.E. 1981) it was put in the higher secondary school curriculum.

Environmental Education appeared in the curriculum not as a single subject, but as an integrative part in some core subjects. In the two secondary school curriculums, Environmental Education was integrated with the content of science and social studies. In the primary school curriculum, it was a part of the life experiences which combined science and social studies together. The content of Environmental Education included natural system, environmental problems, and environmental protection.

In B.E. 2533 (A.D. 1990), when there was a revision of the national curriculum for all levels, the role of Environmental Education in the curriculums changed as well. In the secondary school level, Environmental Education appeared as one of the elective subjects in the science and social studies groups. The subjects that are considered a part of Environmental Education are Environmental Education, Energy and Environment, and Environmental Science. In addition, Environmental Education was integrated into geography courses in Grade 7-9 and Grade 11. In the primary school curriculum, Environmental

Education was a part of the life experiences. The content of Environmental Education that appeared in the primary school curriculum was as follows: (below)

Grades	The content of Environmental Education
Grade 1-4	Unit 1 Living organisms (Growth, Reproduction, and Propagation) Benefits and Practices of the preservation of natural resources, plants, And animals Unit 2 Around us (Soil, Water, Air) The relationship between humans and the environment Consequences of environmental changes
Grade 5-6	Unit 1 Natural resources and the environment The effects of the environment and biosphere on humans, plants, Animals, and the economy Natural resource preservation and environmental protection

(Sugree and Homsanit,1998)

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The national curriculum was revised again in B.E. 2544 (A.D. 2001) after the Educational Act was passed in B.E. 2542 (A.D. 1999). Content integration was the theme of the instructional practice in this curriculum. In this, the subject matters are woven into 8 content subjects including Sciences; Mathematics; Social Studies, Religions and Culture; Thai; Foreign languages; Arts, Music, and Traditional dancing; and Health and Physical Education. In this curriculum, Environmental Education was not included in any particular content subject; it was required to be integrated into all subjects, especially in Sciences, Social Studies, Religions and Culture, and Health Education.

The integration of Environmental Education into the content subjects is accommodated well in the new curriculum. Schools are required to use the subjects in the core curriculum as curriculum framework for developing their own school curriculum. With this freedom, the schools can develop subjects related to their local environment, environmental problems, and local wisdom. In creating the school curriculum, the schools have opportunities to build learning networks and develop the Environmental Education curriculum with local communities. This relationship between schools and community is consistent with the community-based education approach practiced in several countries around the world.

The Government Policy and Support

The public sectors that play an important role in supporting Environmental Education in Thailand are the Department of Environmental Quality Promotion (DEQP), under The Ministry of Natural Resources and Environment; and the Office of the Basic Education Commission (OBEC, under The Ministry of Education. The Office of the Basic Education Commission has supported the integration of Environmental Education into the National Curriculum. DEQP has helped support the connection among schools, institutions, public sectors, local community, and NGOs. Moreover, DEQP has helped produce visual and audio media and printed materials as well as arrange educational training for teachers in the network.

During B.E. 2540-2544 (A.D. 1997-2001), the Department of Environmental Quality Promotion set the following policies in regard to Environmental Education in their national plan. The policies targeted schools, educational institutions, public sectors, private sectors, and NGOs. These policies included the following: (DEQP,1997)

(1) Administration and management of Environmental Education
(2) Building an environmental information network for education
(3) Education and training of Environmental Education
(4) Developing Environmental Education instruction and activities
(5) Non-formal Education in Environmental Education
(6) Promoting the roles of mass communication and NGOs in Environmental Education
(7) Developing physical environments of local communities
(8) Doing research in Environmental Education
(9) Producing and collecting Environmental Education materials
(10) International collaboration for Environmental Education

The implementation of the policies created many projects that promote Environmental Education in all kinds of educational forums: formal, non-formal, and informal. One successful project that promoted the development of Environmental Education was the establishment of the official Provincial Environment Education Centre (PEEC) in provincial level. This project is a collaboration between the Department of Environmental Quality Promotion (DEQP) and the Ministry of Education. The school that is selected to be the PEEC is the coordinating school for all the schools and other public and private sector groups in its province. The DEQP supports the centre with training, materials, and financial

assistance. The Ministry of Education has a supervisory unit that helps the centre in each province develop the curriculum for the schools in its network. To date there are 59 PEEC schools in Thailand. (Srisuk,2004)

Starting in B.E. 2545 (A.D.2002), the DEQP began making annual plans instead of four-year plans. At present the department is in the process of making a long-term plan that will match the Thai government's commitment to the UN Decade of Education for Sustainable Development (DESD).

Roles of NGOs and Collaborated Projects to Strengthen Environmental Education

NGOs have played an important role in developing Environmental Education in Thailand. With their efficient management system, NGOs have built networks for collaboration amongst themselves, both domestically and internationally, as well as between themselves and government. This has helped many Environmental Education projects succeed.

Examples of some successful projects include:

(1) Magic Eyes Chao Phraya Barge Program (1992-present), Thailand Environment and Community Development Association: TECDA (or Magic Eyes)

This program's primary aim is to provide unique and fulfilling experiential environmental education opportunities to students. It uses various activities and techniques to increase awareness and understanding between environment and human relationships within the Chao Phraya watershed. The main activities include a barge trip, land-based trip, and school outreach trip. Most activities focus on (1) Natural history and ecosystem studies (2) Thai culture and history (3) Natural Resources (4) Environmental awareness & understanding. Each year approximately 9,000 people and over 65 schools and organizations join this program. Past corporate sponsors of this program include: Caltex , Shell, and BP Oil, Toshiba and Thai Plastic Chemical. (Retrieved January 30, 2004, from Magic Eyes Chao Phraya Barge Program Magic Eyes Chao Phraya Barge Program Web Site: http://www.magiceyesbarge.org)

Apart from the barge program, Magic Eyes has another interesting project named "Dawn Project (Phase 2)" which is a two-year (2002-2004) national energy conservation project funded by the Office of Energy Policy and Planning and supported by the Ministry of Energy and the Ministry of Education. For Phase Two, 125 schools are encouraged to participate in energy and environmental conservation school activities that reach out to the community. Magic Eyes is responsible for developing a series of seven energy education activity handbooks designed with input from teachers. The handbooks assist teachers and schools to integrate energy education and energy conservation practices into their curriculum; management systems in turn provide them the tools to reach out to the community. (The Dawn Project phase 2. Retrieved January 30, 2004, from Thailand Environment and Community Development Association Thailand Environment and Community Development Association Web Site: http://www.magiceyes.or.th)

(2) The River and Stream Investigation Project for Youth : RSPY, Green World Foundation (1999-2002)

With funding provided by the Danish Cooperation for Environment and Development (DANCED) Denmark, this project aims to enhance environmental education among participating teachers and students with special focus on monitoring the quality of stream water, while coordinating activities with local communities and raising their responsible attitude towards their communities. In collaboration with 51 schools in the Ping River catchment area in Chiang Mai and Lumphun provinces, the main outputs of the project are (1) Co-ordination of a teacher and student network in the River Ping catchment area; (2) Production of the stream investigation package; (3) Investigation of issues related to local stream health by secondary school teachers and students; (4) Sharing information among local communities; and (5) Dissemination of information to the public and interested parties. (RSPY. Retrieved January 28, 2004, from Green World Foundation Web Site : http://www.greenworld.or.th)

(3) The "Developing EE activities with community forestry participatory case study" project (1992 - 1996)

This project was a collaboration between the Ministry of Education and Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC). Its aims were to integrate the content of forestry-community management into school curriculums. Eight primary and secondary schools in Chieng Rai and Lamphun, 65 teachers, administrators, and researchers were involved. The main activities were training teachers (focusing on case study methods, using Participatory Rural Appraisal :PRA) and networking schools, communities, and local GOs (such as supervisory units at the provincial level). Since the project finished in 1996, school networks, which was the main outcome of the project, are still active and are expanding to other schools in nearby areas. Forestry conservation is an interesting impact on communities that is occurring (Chuchart, Anunthavorasakul and Trinate, 2003)

(4) Strengthening Environmental Education in Thailand Program: SEET project (2001-2004)

SEET is a collaboration project of MOE, DANIDA (Denmark), and five NGOs who actively work with the local communities and schools in five provinces. These organizations are: Green World Foundation (GWF) in Chieng Mai; Population and Community Development Association (PDA) in Khon Khaen; Thai Education Foundation (TEF) in Chachoengsao; World Wide Fund for Nature (WWF) in Uthai Tani; and Good Governance for Social Development and the Environment Institute (GSEI) in Krabi. In each province, 7 primary schools and 2 secondary schools were selected to participate in the project, making a total of 45 schools. The targeted groups are all the teachers in the 35 primary schools and a maximum of 20 teachers from each of the 10 secondary schools.

SEET's main activities are (1) In-service training on EE concepts and methods, targeting MOE central staff as well as provincial and district supervisors, school administrators (heads) and teachers; (2) Development of an EE-related database; (3) Development of a system for action research and formative evaluation of EE experiences; (4) Development and dissemination of resource materials for supervisors, administrators and teachers; (5) National, regional and international conferences for exchange of experiences in EE; and (6) Development of EE initiatives in individual schools and with other organizations and stakeholders. SEET will run until October 9, 2004. (SEET, 1999)

EE Networking for Sustainability: From schools to communities

According to the above policies and practices, the achievement of EE programs in Thailand depends on many key factors (see Figure 1).

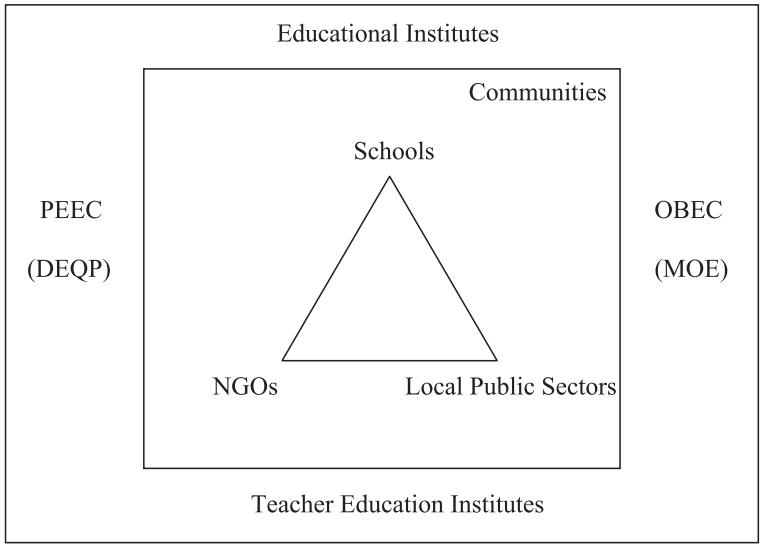

Figure 1: Key Factors to strengthen EE in Thailand

The successful EE programs have four elements:

(1) Cooperation among schools, NGOs, and local Local Public Sectors

Building a network of schools, NGOs, and local public sectors can significantly result in successful EE programs. Schools' operational programs alone mostly face unsustainable achievement. On the other hand, schools which link to local public sectors and NGOs have more chances to develop their programs. Most NGOs implement new ideas and innovations that help develop an EE program. Local public sectors are influential in supporting or facilitating schools' work with surrounding communities including other schools nearby.

(2) Community support

In many projects, we found that community links strongly strengthen the EE program, especially in communities which have worked together with their schools for a long time. Schools or EE projects that can help community agents understand EE and involve them to participate in developing and operating the projects will have a better chance of sustaining their EE programs or projects.

(3) Roles and linkages between DEQP and OBEC

As previously stated, the cooperation between DEQP and OBEC to establish the Provincial Environmental Education Centre (PEEC) is significant. At present, PEEC plays an important role to build an EE network at the provincial level between schools, their local communities and DEQP. This network is used to communicate information, share experience, and widely promote EE innovation to the 59 PEEC schools. At the same time, OBEC uses this network to support the educational reform process that emphasizes Integrated Learning and collaboration within a local community. It can change a teacher's attitude about EE, that "EE program in schools is an extra workload for them", to be more positive. The schools that closely participate with PEEC have more opportunity to create successful EE programs.

(4) Involvement of Teacher Education Institutes and Educational Institutes

At the project operation level, the involvement of teacher education institutes and educational institutes is very important because of their staff expertise. The staffs in these institutes are expert in the education field. They can help develop a training curriculum, produce teaching manuals and materials, implement innovation and ideas, and monitor and assist in the development of EE projects. This collaboration certainly strengthens the EE process.

In developing EE in Thailand, some constraints, obstacles, and problems should be considered. These include:

(1) Lack of EE central organization

Even though DEQP and OBEC are both government organizations with the responsibility to promote and to support the development of EE, they are under two different administrative systems. DEQP is under the Ministry of Natural Resources and Environment, and OBEC is under the Ministry of Education. This causes problems.

To build a stronger, more efficient network, it is necessary to have a central organization manage the EE programs.

(2) The continuum of administrators in organizations and schools

For the simple reason that most schools are government organizations, they have continuously faced the problem of administrator rotation. Therefore, EE projects face the difficulty of losing knowledgeable people who are in charge. It takes time for the new administrators to learn about the program. This rotation interferes with project development. If departing administrators or staff can train their replacements, this inefficiency can be lessened.

(3) Lack of learning the experiences from one EE program/project to each other

Some schools participate 2-3 EE project from NGOs, PEEC, and MOE, but they can't link learning experience from one to each other. For example; school A used to join in the Dawn Project phase 1 and then it involved to RSPY, they have

enough experiences and should play role as a leader in a new project but they still started over with new theme (which the project focus on) and new approach. There are many workshops in each project, but the impact to some schools is possibly same level of the achievement.

(4) Confusion about EE practices

One of the most important problems is the misunderstanding about EE instruction that some teachers, administrators, educators, as well as EE project managers have such as; an integration approach, whole schools approach, community-based learning, utilizing of learning resource in nature and community, and etc.

(5)Too narrow a focus on formal education

Most EE projects only concentrate on schools or other formal education institutes. The EE network should be expanded to cover other non-formal and informal education units.

The Challenging Mission

The Challenging Mission for EE in Thailand is "Action without a coordinated center". Even though building an EE network between the public sectors and NGOs has occurred, it just lightly influence to strengthen EE or to broaden targets involved in progress of Education for a Sustainable Development.

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Environmental Education in Wisconsin

Jennie Lane*

I. Introduction

Thank you for the opportunity to visit your beautiful country. You are such a great nation. I am very excited about visiting with your people and learning about environmental education in your country. There is so much in Japan to see and learn about.

In the United States (U.S.), I work in the Wisconsin Center for Environmental Education located at UWSP in the College of Natural Resources is one of the oldest university natural resources programs in the U.S.A. It is over 100 years old. Presently, 2000 students have major areas of study in ecology, wildlife, forestry, soils, water resources, land use planning, and environmental education. I have been with the WCEE since it began in 1990, I have a Master's degree in Environmental Education, and I direct a program within the Wisconsin Center for Environmental Education, called KEEP or the Wisconsin K-12 Energy Education Program.

In this paper, I will provide an overview of the Wisconsin Center for Environmental Education and how, through our teacher education approach, we see to improve and increase the environmental literacy of Wisconsin citizens. The Wisconsin program is considered to be one of the more advanced statewide environmental education programs in the U.S.A.

II. History or Rationale for Establishing Environmental Education

The history or evolution of environmental education in Wisconsin is similar to other states and the U.S.A. as a nation. In the 1600-1900s, most education or activity related to the environment was directed at developing, harvesting, or extracting natural resources from the environment for human use. Natural resources were viewed as abundant and even endless in supply. Our agriculture practices did not consider how soil fertility could be depleted. We harvested wildlife and fish with no concern for the ability of these species to reproduce. We dumped waste into the air, on to the lands, and into our lakes rivers, and streams without knowing these wastes would degrade the environment, kill other species, and ultimately, have a negative impact on human health and the quality of life.

In the late 1800's and on to today, we began to see the impact of past approaches to resource use. Species of wildlife and fish were disappearing. Air and water resources were identified as polluted or unfit for humans or other species. One major crisis, which swept across the U.S. in the 1930s, was the massive erosion of our fertile soils by wind and water as a result of poor agricultural practices. Farmers were losing soil - the natural resources that provided them with the basic needs to

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sustain their lives. This period of massive erosion is now identified in our history books as the Dust Bowl Era. In addition to depleting our soils, we had over harvested many of our forests. People were depleting the wealth of the land.

The general public was less aware of the large picture related to our declining natural resource base, but there were scientists, politicians, and business people who had the foresight to understand that this abuse of our natural environment could not continue because it would lead to a decline or even collapse of our economic system. They understood that natural resources or the environment is the basis of any country's economic prosperity and it contributes directly to the physical and spiritual health of a nation.

A noted early U.S. philosopher was John Muir (late 1800s), who taught that the environment was part of our spiritual well being. He ultimately founded the Sierra Club, which is very influential citizen environmental organization in the U.S. Theodore Roosevelt, one of our early presidents (1901-1909) is credited with establishing a national policy of "Environmental Conservation" meaning we must use our resources "wisely" or conserve them so that present and future generations will have them to support their quality of life.

Another influential scientist/philosopher/teacher in the mid 1900s was Aldo Leopold, a former professor at the University of Wisconsin, Madison. He proposed and taught a concept called the "Land Ethic," which stressed the fact that people are part of the environment and not separate from it. The following is a famous quote from Leopold.

> The question is, does the educated citizen know he is only a cog in an ecological mechanism? That if he will work with that mechanism his mental wealth and his material wealth can expand indefinitely? But that if he refuses to work with it, it will ultimately grind him to dust? If education does not teach us these things, then what is education for? (p. 210)

The teachings and policy positions of these historical leaders and others like them ultimately led to the acceptance by the public of the environment as an important part of public policy. In the 1970s, the U.S. experienced the passage, by our government, of many environmental laws and educational programs aimed at protecting the environment. The passage of this environmental legislation is now recognized in our history books as a major social movement. Today the debate does not question the need for protecting the environment, but rather to what degree do we protect it. Sustainability has become the goal of environmental protection today in the U.S.A. That is, developing social systems that function while minimizing negative impact on the environment and protecting it for the long term. By sustaining quality of the natural environment, we will contribute to the long-term sustainability of our economy.

III. Development of EE in Wisconsin

Environmental education (EE) in Wisconsin's schools clearly was established as a response to the growing awareness of environmental problems. It grew out of and ultimately includes three earlier education efforts or movements. The first approach in the schools to EE was nature study (1500-present). This focused on studying the natural history of plants and animals out of interest appreciation and to determine utility for human use. The next contributor to EE is "Conservation Education" which developed in the early 1900s. Classes in Wisconsin schools were developed to educate students about wise

natural resource management practices; for example, agriculture practices that minimize erosion of soil by wind and water. Conservation was taught mostly in specific courses for students that might be interested in fields like agriculture or forestry. In the 1950s to present, ecology became an important area of study within our science classrooms. Ecology is the study of how energy flows through and matter cycles within natural systems or ecosystems. In other words, how ecosystems work.

The process of environmental education evolved to include the concepts of nature study, conservation education, and ecology. However, it places an additional emphasis on involvement of each citizen in preventing and solving environmental issues. Wisconsin's definition of environmental education is as follows:

> "A lifelong learning process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, ethical awareness and sensitivity for the relationship between humans and the environment, and commitment to engage in responsible individual and cooperative actions. By these actions, environmentally literate citizens will help ensure an ecologically and economically sustainable environment."

IV. The Implementation of Environmental Education in Wisconsin Schools

Environmental education was formally established in Wisconsin through two pieces of legislation passed by the state government in 1985.

One piece of legislation or law requires that students studying to be teachers must receive formal university course work in environmental education. The other piece of legislation requires that all 400 school districts in Wisconsin develop curriculum for students that addresses environmental education. Each of these laws is more fully explained below.

Teacher Training Requirement

To become a teacher in Wisconsin, a person must attend and graduate from a four-year university teacher education program. After successful completion of the university program, they are then certified to teach in Wisconsin's schools. Certification may involve teaching one or two age groups. A teacher can be certified to teach 5-year old-13 year old students. This is called "elementary school certification." These elementary teachers teach multiple subjects such as reading, math, English, and social studies. The second area of certification is for teachers teaching 13-year-old students to 18-year-old students. This is called "secondary certification." Secondary certification involves teaching in specialty areas. At the secondary level, teachers become specialists in teaching only math or only science and usually do not teach in multiple areas as the elementary teachers do.

The 1985 law required that all elementary teachers and secondary teachers in the areas of agriculture, science, economics, civics/government, and social studies receive university course work in the following environmental areas.

a. Natural resources and their conservation;
b. Ecological principles;

c. Energy in both biological and physical systems;
d. People-environment interactions, including;
   - a historical/philosophical review of such interactions,
   - implications of human population growth,
   - natural resource management,
   - the impact of technology on the environment,
   - the impact of the environment on physical and mental health;
e. The use of affective education methods to teach about the environment; and
f. The use of cognitive education methods to teach about the environment; and
g. Methods of teaching citizen participation skills.

The above areas were collectively called environmental education training.

Wisconsin has thirty-one university and college teacher certification programs. All of these programs are reviewed on a five-year cycle to confirm that these environmental education concepts are being covered in their teacher certification programs. If they are not covered, the particular college or university in violation could lose its clearance to have a teacher certification program.

School District Curriculum Requirement

The second piece of legislation or law that established environmental education in Wisconsin schools required school districts to develop curriculum or educational plans for implementing environmental education in the classrooms. The requirement reads as follows:

- Every school district must develop and implement a written, sequential curriculum plan incorporating instruction in environmental education into all subject area curriculum plans, with the greatest emphasis in plans for art, health, science, and social studies education.

There are 2,000 schools making up 400 school districts in Wisconsin. These districts are associated with particular urban or rural communities. There may be a few too many elementary and secondary school buildings within a district. All of the school buildings within a district follow the district's classroom education or curriculum plan. The Wisconsin State Department of Education provides guidelines, which strongly suggest what should be included in the more detailed district educational plans. These state guidelines are called "Standards." For example, there are standards for mathematics, reading, science, and all the other subject areas taught in schools. Environmental education also has a set of standards (Wisconsin's Model Academic Standards for Environmental Education, 1998). If a school district does not follow the suggested standards, they could potentially lose their state funding, which supports about 60 % of their operation. The other 40% comes from local/community taxes.

There are too many standards to list here and I refer you to Wisconsin Model Academic Standards for Environmental Education, 1998 listed in the reference section of this paper. In general, the standards call for environmental education to be

integrated into the elementary and secondary level within the areas of science, agriculture, economics, civics, language arts, and social studies. All the standards can be summarized into the following categories.

A. Awareness & Investigation of Environmental Issues
B. Ecological Knowledge and Knowledge of Resource Management Practices Leading to a Sustainable Society
C. Knowledge of how citizens can participate in the prevention and resolution of environmental issues.

V. Support for Building Environmental Education in the Schools

Legislators/politicians did not feel that requiring environmental education in teacher certification programs and in district curriculum planning was enough to establish or nurture the long-term development of environmental education in Wisconsin. In 1990, the state government passed what might be called the Environmental Education Support Act. With this law, two statewide resources were established to help build environmental education programs in the schools. A Wisconsin Center for Environmental Education was established along with a statewide coordinating body called the Wisconsin Environmental Education Board. The structure and functions of each of these institutions is explained below.

Wisconsin Center for Environmental Education

The Wisconsin Center for Environmental Education (www.uwsp.edu/keep) was established to directly assist teachers in the development of environmental education, and it was placed within the state University System.

The goals of the Wisconsin Center for Environmental Education are as follows:

- To develop, offer and evaluate graduate and undergraduate credit courses in environmental education.
- To collaborate and develop partnerships with agencies, organizations and institutions on the development, implementation, evaluation and recognition of environmental education programs to benefit the state of Wisconsin.
- To develop and conduct environmental education needs assessments and program evaluations.
- To develop and conduct environmental literacy assessments of Wisconsin's students and teachers.
- To maintain an environmental education resources center or library for use by educators.

To meet these goals, the WCEE has a staff of eleven full-time faculty/staff and 15 part-time faculty/staff. A brief overview of programs that help meet the goals of the WCEE is provided below.

- An EE Masters Degree in Environmental Education Leadership for Teachers. This involves two years of advanced study beyond the four years required for teacher certification.
- An EE Resources Library was established for teachers. It contains hundreds of EE curriculum and activity guides, children's books, reference books, videos and other information that assist teachers in developing their classroom activities. It is one of the largest EE curriculum collections in the nation.
- Enrichment EE courses are offered around the state for certified teachers. Over 80 courses are offered and about 1,200 teachers participate each year. Teachers in Wisconsin are particularly interested in taking university courses because

they must have an additional 125 hours of university instruction every five years to maintain their certification.

- On an annual basis, the WCEE facilitates a high school conference on the environment. Up to 300 high school students (16-18 year olds) meet at a central location to discuss and present papers on environmental topics.
- Special Topic Programs are another area addressed by the WCEE. Programs in energy, wildlife, waters resources, and forestry are available or are being developed. Generally, these curricula follow a similar structure. They contain activities that can be taught by elementary and secondary teachers. Activities relate to four areas: human need for the natural resource, developing the resource, effects of developing the resource, and managing the development of the natural resource in a sustainable way. The energy program, the Wisconsin K-12 Energy Education Program (KEEP) started in 1995 and is described further below. A K-12 forestry education program (LEAF - Learning Experiences and Activities in Forestry) started in 2001 and is modeled after KEEP.

Wisconsin K-12 Energy Education Program

The Wisconsin K-12 Energy Education Program (KEEP) is a comprehensive teacher education program that aims to increase and improve energy literacy in Wisconsin. It accomplishes these objectives by helping teachers integrate hands-on, standards-based, energy education into classrooms. The cohesive KEEP package-Conceptual Guide, Activity Guide, and inservice course-takes teachers from "What is energy?" to "How can we manage today's energy use for tomorrow?" Nearly 1,800 K-12 teachers have participated in the KEEP inservice. In addition, KEEP provides networking, student involvement, and funding opportunities. KEEP is funded through Focus on Energy and administered through the Wisconsin Center for Environmental Education.

KEEP offers professional development opportunities, such as our introductory energy education course and an online course that covers fundamental energy concepts. KEEP is developing follow up courses that focus on specific topics such as renewable energy and school energy efficiency. KEEP provides teachers with resources, including the KEEP Activity Guide and energy education trunks will be available to teachers soon. Through the website (www.uwsp.edu/keep) and newsletter, teachers receive updates on energy happenings and events. KEEP is partnering with the Wisconsin Environmental Education Board to offer nearly $200,000 in energy education grants. Finally, KEEP involves students in energy education through a CFL fundraiser and works with the Midwest Renewable Energy Association (www.the-mrea.org) to coordinate statewide events for students.

VI. Other Environmental Education Efforts in Wisconsin

Several Organizations have contributed to the development of environmental education in Wisconsin. These are the Wisconsin Association for Environmental Education and the Wisconsin Department of Natural Resources.

The Wisconsin Environmental Education Board was established in the 1990 legislation as the second major support mechanism for coordinating the development of EE in Wisconsin. Members of the Board represent various sectors of Wisconsin's society. The Board has two primary activities it pursues to address its goals. It facilitates a $450,000 annual grants program, and it has developed a statewide strategic plan for advancing environmental education in all community sectors across the state. The second major pursuit of the WEEB is the development of a Statewide Strategic EE Plan.

This strategic plan consists of a series of recommendations for improving EE in all sectors of Wisconsin's society. The WEEB disseminates these recommendations and then uses its grant program as an incentive to encourage pursuit of the recommendations by various education programs in the state.

The Wisconsin Association for Environmental Education (WAEE) is described as a nonprofit professional organization set up and run by the volunteer efforts of its membership. Membership dues or payments serve as the primary funding base. The organization develops its own board of directors from its membership. Members include professional environmental educators, agency personnel, schoolteachers and nature center educators. The goal of the Wisconsin Association for Environmental Education is to provide networking/sharing opportunities for environmental education professionals. The WCEE sponsors annual statewide conferences for environmental educators where papers are presented on ways to develop and improve EE in the state. Often WAEE leaders sit on other influential boards such as the Wisconsin Environmental Education Board. Also, members of this organization are sometimes effective at influencing government and public policy. This organization was, in large part, responsible for promoting the legislation that created the Wisconsin Environmental Education Board and the Wisconsin Center for Environmental Education.

The Wisconsin Department of Natural Resources is the state governmental organization responsible for managing natural resources and enforcing environmental laws in Wisconsin. They have a Division of Information and Education, which places educators at natural areas and parks around the state. They are a primary source for information or publications about the status or quality of Wisconsin's natural environmental. The Wisconsin Department of Natural Resources often cooperates on various EE efforts with the Wisconsin Center for Environmental Education, Wisconsin Environmental Education Board, and the Wisconsin Association for Environmental Education.

The Global Environmental Management (GEM) Education Center at UW - Stevens Point is a unifying concept, program, and facility at the College of Natural Resources (CNR). GEM provides intercontinental learning bridges to build a sustainable future. It will serve as an international model for training leaders who think globally and act locally to make a world of difference in communities in America and abroad in the 21st century. The Education Center intersects CNR's teaching, outreach, and research components. GEM programs focus on many critical environmental issues including watershed management, smart growth land use planning, sustainable forestry, and sustainable energy systems. For more information visit the GEM website at http://gem.uwsp.edu.

VII. Evaluation of Environmental Education and Summary

The Wisconsin Department of Education cooperates with the Wisconsin Environmental Education Board to periodically evaluate the level of environmental literacy of the state's students. This is done by testing student's knowledge about the environment and their attitude towards it. The Environmental Education Academic Standards are used as a guide for the development of test questions. In general, student environmental test scores have improved and the feeling across the state is that all the efforts to improve EE are resulting in a more environmentally concerned public. The hope is that the public will continue to build this concern for the environment into their day-to-day lifestyles.

Summary

Environmental education in Wisconsin has developed in response to the awareness that the natural environment was and is being degraded and polluted by human activities. Yet, humans are dependent upon the natural environment for a strong economy and for their quality of life. Wisconsin requires environmental education in teacher training programs and in school curriculum or educational plans. These requirements have been in place for close to fifteen years in Wisconsin. To support the required EE in the schools, the state has provided resources in the form of a Wisconsin Center for Environmental Education, a Wisconsin Environmental Education Board, and its environmental grants program.

As a result of these laws and resources, environmental education is becoming a basic part of Wisconsin's educational system. The students' environmental literacy is increasing and we hope this will result in improved environmental conditions for the short and long term. The goal of a sustainable society is becoming more and more a part of public policy.

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Stakeholder Anaysis in Development of Environmental Education (EE) and Education for Sustainable Development (ESD) in Schools of Vietnam: New Approaches and Case Studies

Nguyen Hoang Tri*

Vietnam, like so many other countries in the world has adopted Agenda 21 and adapted it to the local reality in a National Agenda 21 with its 10 years strategy for social economic development (2001-2010) and poverty reduction program. A set of Sustainable Development Indicators (SDI) is being constructed, in which the education development is as vital indicator for SD of the country. There are some activities to link the implementation of the resolution establishing a UN Decade of Education for Sustainable Development (DESD) from 2005 . 2015, which commences 1 January 2005 and UNESCO initiative of the decade of ESD through the development of EE national policies on school curriculum and /or teacher education programmes (MOET, 2003).

A new Government of Vietnam Project 'Introducing Environmental Protection into the National Education System' has been implemented during 2000-2005. The National EE project was developed by four Ministries . MOET, MOSTE, MPI and MOF . in response to Decree 36 (1998) of the Vietnamese Communist Party in relation to EE. Implementation of the project applies to all sections of the formal education system in Vietnam, from kindergarten to university and post graduate and it covers areas like curriculum development, training and the development of materials with responsibility of the Department of Science and Technology within MOET (MOET/MOSTE, 2000).

The ESD is based on the idea that communities and educational system within communities need to dovetail their sustainability efforts (McKeown and others, 2002). As community development goals, local educational systems can modify existing curriculum to reinforce those goals. However, it is not easy to modify the conservative system, an initiative to integrate the EE with more involvement of local environment into current curriculum and activities is encouraged (Tri N.H and others 2002). In this paper, the case of mangroves in coastal zones is presented as 'best practices' for achieving the SD at local level and national perspectives as a whole.

Pressure-Change-Response in education system of the transition economy

As one of developing countries having the highest rate of economic growth in Southeast Asia, Vietnam has a growth rate of 5 . 7 % during the last decade. However it faces a combination of environmental problems and sustainable development. It is also associated with economic and population growth, accelerating industrialisation and urbanisation, trade liberation and rising real incomes. A long with economic development, there are a lot of problems rising from social issues, changes of values, culture and tradition.

Requirements from economic development, keeping and remaining traditional values and combating social issues, poverty reduction are pressing on the education system. There are at least three times 'Educational Reforms' during last five decades. The on-going reform is facing a big challenge in both philosophy and practice. Increased number of subjects is

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burdening school children with hard works and time.

Regarding the environmental problems and sustainable development, Vietnam's forest cover has fallen from 43 % of the total land area in 1943 to 30 % in 2000 for un-appropriate changes of land-use and patterns, especially mangrove forests of 400,00 ha in 1943 dropping 150,000 ha in present days because of shrimp farm development. In urban areas, only 23 % of the population is served by water-born sewerage waters. The general level of environmental awareness remains low and it also contributing the degradation of the environment, especially young generations, they are decision makers in the future.

The EE in the schools of Vietnam was developed late 1995. This was fundamentally a knowledge-base environmental study . simply building understanding about the environment and its problems. The UNDP-DANIDA EE project (1997-2004) and National EE project (2000-2005) are beyond this, to addressing the fundamental causes of this problems rooted in human value and behaviour . politics, economics, culture, tradition, history and the physical environment- the exploration and resolution of environmental issues in order to promote lifestyles that are compatible with the sustainable and equitable uses of resources the basic requirement for sustainable development.

Among these, EE, training and awareness are most important in providing people with about and changing their behaviour toward the environment. The development of environmental studies in Vietnam began in early 1980s, including the elaboration of curricula, textbook development, trial teaching and teacher training. By 1991 the Vietnam National Plan for Environment and SD was able to conclude that 'various aspects of the basic environmental sciences are already incorporated in the traditional education curricula in schools and colleges'.

A National Policy Statement on EE and National Implementation Strategy for EE were developed to provide a national framework and engender consensus for EE. The development process involved wide consultation nationally and internationally and the participation of a range of national cross-sectoral interests. Practical involvement in EE by providing students with opportunities for hand-on action through a 'School Greening' Program is producing immediate and highlight visible results for students, teachers and community. A national campaign 'Together for Green' 'World Environment Day' is aimed at raising general environmental awareness in schools.

EE for the ecosystem approach which is rather than simple about environment includes institutionalisation, capacity building and participatory educational methodologies to form the basis for ESD. They are practical and appropriate to the educational reality at all levels in Vietnam.

Environmental Education in Schools

We accept that the introduction of EE into the conservative system of formal education is not easy because of involving the recognition, changes of curriculum, materials, training courses and monitoring processes. The EE can be sustainable when it is integrated into both formal system of education and community awareness. The stakeholder analysis is a tool for looking at 'who is who' in a logical framework and implementation plan, especially decision making process relating the introduction of EE into the educational system.

In the management sciences, a stakeholder is a person, organization or group with an interest in a decision. Stakeholder analysis is a system for collecting information about groups or individuals who are affected by decisions, categorizing that information and explaining the possible conflicts that may exist between important groups and areas where trade-offs may be possible. By iterating the analysis over time, stakeholders may move from one category to another and vary in the degree of influence and important they have. Thus, the stakeholder analysis may be a tool to monitor the changes and related community-base education (see Table 1).

Table 1: Possession and importance of stakeholders in the integration of EE into educational system

Stakeholders	Degree of stakeholders' possession			Relative important and influence to decisions	
	Power	Legitimacy	Urgency	Influence	Important
Decision makers of national policy and strategy	Always high			Extreme high	Extreme high
School textbook developers		Always high		Very high	Very high
Material developers	Increasing			Very high	High
National /Provincial EE supervisors		High		High	High
School principals		Increasing		Extreme high	Extreme high
Teachers			Always	High	High
School students			Extreme high	High	Very high
Local associations	Medium	Increasing		High	Medium
Education groups		Increasing		High	Medium
Local communities			Increasing	Medium	Medium
Family			Increasing	Medium	High
Mass Media		Always		Very high	Very high
Equipment supply		Increasing		Medium	Low

During the implementation of the EE in schools project (1997-2004), it comprised interlinked interventions at three levels within education system.

At national/provincial level, to assist the Government in developing a national policy and implementation strategy for EE in the country as whole: The National Policy and Strategy document, Policy and EE action plan program for schools: 2001-2010 to provide the guidelines for all EE initiatives approved by MOET. A system of 38 pilot provinces covering 8 geographical regions, three EE Resources Developing Centres and National EE Certificate Courses for Teachers (6 courses with 126 teachers) have been developed for assisting the idea. A team of Provincial EE supervisors representing DOET, DOSTE and the Youth Union has been established in each of the 61 provinces and training teachers, school greening and EE campaigns.

In formal education system, at the intermediate level, especially within the teacher education sector, it develops the EE guideline and materials and building capacity for EE within teacher training institutions throughout the country. Building capacity in EE has been focussed in the teacher training sector, including EE Guidelines for Teacher Trainers and Users' Guides (Patterns for Integrating EE Modules into the General Education System) for training teachers at the Primary, Lower and Upper-Secondary levels in several subjects.

A training VCDs based on the Teaching Modules for Chemistry, Geography, Biology, Nature and Society, Moral Education, a team of Teacher Training EE Supervisors, a project Training Support Unit (TSU) of key facilitators, a system of 9 Teacher Training 'Nodes' (each with their 'cluster' of Teacher Training Institutions to support) and a comprehensive Project Training Strategy have been developed to build the EE capacity of the education system including School Textbook Developers, Material Developers, Training Provincial EE Supervisors, Education Decision makers, School Principals and teachers as long-term activities.

At the grassroots level, school and community greening programs together with the EE campaigns to promote practical experiences to students and teachers in improving local environments in every province in the country. Two School Greening Guides for Teachers, a book of photo from Environmental Photographic Competition, 12 issues of Newsletter and a Training DVD on the use of practical activities in EE . drama, pantomime, folksong and music for school activities and a network of 3,145 pilot

schools at grassroots levels have been developed to link indoor and outdoor EE activities. Besides there are annual EE campaigns for schools for World Environmental Day (5th June) with variety themes: 'Together for Green' 'Summer Thunder' 'Green Rain' 'To live economically' 'Sharing and Saving' to raise environmental awareness for people.

There are some issues during the implementation of the project. It should be given supplements on different regions and habitat of the country to give teachers to assess to materials which relate more specifically to their local environment (i.e. mountain, coastal, urban and other typical environments) and the importance of school principals to the effectiveness of EE in schools should be focussed during the implementation.

Education for Sustainable Development

The ESD carries with the inherent idea of implementing program that is locally relevant and culturally appropriate. All SD programs including ESD must take into consideration the local environment, economic and societal conditions. As a result, ESD will take many forms around the world.

In our projects, the ESD idea is to promote the SD and management of resources, through influencing people's values, attitudes and behaviours toward the environment leading ultimately to greater environmental protection. This will be done by means of engaging the formal education system at all levels to deliver a comprehensive, learner-centred, problem solving, cross curricular and practical program of ESD as an integral part of all activities, to children in every primary and secondary schools in the country.

At school and community levels, the ESD strengthen and expand school greening, develop materials to promote a sustainable management and development agenda locally link to the implementation of outdoor EE activities at all school levels and in the community by the provincial EE action plans. This is done through the curriculum, extra-curricular activities and school/community links. All educational institutions are mobilised to follow the lead of the schools in this area.

The example of selected subjects for integration EE into the current lectures at primary schools in coastal zones of mangroves is showing a 'Best Practices' in school education and the link between school and local community, especially involving community stakeholders. The current EE programme and its contribution to national and local development is promoting the ESD approach by widening the existing EE agenda to intensify the SD content.

Table 2: Selected subjects for integration EE into the current lectures at primary schools in coastal zones

Local environment	Selected subjects for integration					
	Nature & Society	Maths	Vietnamese language	History	Art & drawing	Moral education
Mangrove identification	+		+		+	
Mangrove area & distribution	+	+		+	+	+
Direct values of mangroves	+	+		+	+	+
Indirect values of mangroves	+	+		+	+	+
Root causes of mangrove degradation		+		+		+
Mangrove plantation and conservation	+	+	+	+	+	+

For achieving the effectiveness, the EE should promotes and expands the professional development in ESD at all levels within the formal education system through training programs for education professionals (Education department staff, University teachers, teacher trainers, provincial EE supervisors, school principals) through an expanded network of National EE/ESD courses, and through intensive programs of pre-service and in-service training for classroom teachers throughout the country.

Lessons learned from practices shows that intensification of institutionalisation and capacity building of whole the formal education system taking on the responsibility of delivering EE/ESD as a normal part of its activities to achieve the sustainability is critical. This includes EE/ESD in curriculum development, text book development, national examination system and the use of e-learning technology in developing a network of region-characterised EE/ESD Resource Development Centres.

Otherwise, linking EE/ESD contributes the achievement of National Agenda 21 strategy for social development and poverty reduction through contributing to changing the social context and it will enable SD can take place. The activity engages the formal education system at three levels in integrated processes of awareness raising, consensus building, institutionalisation, capacity building and practical activities. ESD component should be fully infused into the curriculum and textbooks of all subject areas at primary, secondary, high school and teacher training levels and the implementation of current EE programmes both at school and other levels of education for the UN DESD.

Conclusion

The relationship between education and sustainable development is complex. The education can improve agricultural productivity, enhance the status of women, reduce population growth rates, enhance environmental protection and generally raise the standard of living. The EE/ESD will contribute the reality of the expectation. It requires almost stakeholders to involve the activity, especially decision making process. The stakeholder analysis is tools for implementing effectively the idea by providing prioritization in relation with responsibility and needs for every people in the SD required.

The achievement of Education for Sustainable Development (ESD) contributes the realization of a sustainable society, it is an urgent subject for people all over the world, and it has been recognized that this cannot be achieved without ESD in the long term. During a decade the country has been evolving, first with the introduction of environmental education (EE) in schools and then it should continue to focus in the promotion of EE to achieve ESD in order to enjoy the achievement of a sustainable world and to overcome new challenges and problems taking place.

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Annex 1: Abbreviations /Acronyms

DANIDA: Danish Government Department Agency
DOSTE: Department of Science, Technology and Environment
DOET: Department of Education and Training
DESD: Decade of Education for Sustainable Development
EE: Environmental Education
ESD: Education for Sustainable Development
MOET: Ministry of Education and Training
MOSTE: Ministry of Science, Technology and Environment
MPI: Ministry of Planning and Investment
MOF: Ministry of Finance
TSU: Training Support Unit
UN: United Nations
UNESCO: United Nations Educational, Scientific and Cultural Organisation
UNDP: United Nations Development Program

Fig 1: School children in mangrove areas of Can Gio, Ho Chi Minh City, Vietnam

Fig 2: School students attending the 'World Environmental Day' in Hoa Binh Province

Fig 3: School students enjoying thewater supply coming to their village in Lai Chau Province

Fig 4: Living with mangroves and enjoying the forests after schooling

Issues for Development of Environmental Education for Sustainability and its Teacher Training

Kimiko Kozawa*

Environmental Education is at the stage where it is regarded as education for sustainability at the international level. While there exist several trends in Japan, the Environment Agency (2000) states that Environmental Education and environmental learning in the 21st century should be regarded as "education and learning for the realization of sustainable society" rather than as "education and learning for the environment".

How does man associates with the environment is the root problems. This problem also deeply relates to the ideal way, consideration, and the sense of values of the lifestyle, and is a problem of the civilization from which the quality of life originates. It is said now that the maintenance of the terrestrial environment is a key to continuing human race and the earth to tomorrow. Therefore, the conversion or the revolution of the lifestyle begins to be called out. It becomes important problem for environmental education to search for the method the sustainable society by cooperating. For the achievement, it is important to understand the existence of the different culture and variety and to promote the attitude of the acceptance that enables coexistence with others as declared in the final report of Thessaloniki. Environmental education should solve the problems on human rights, the different culture or the way of coexistence with nature again now.

As it is clear from the discussion, the concept of environmental education has been historically and socially constructed. Given this fact, it is crucial that we engage in discussions that carve and polish concepts, and realities of environmental education, through critical examination.

The following issues are given for further development of environmental education and its teacher training in Japan.

1) Many of the teachers recognize the need for environmental education, however, actual class practices are different by persons. The reason is the difference in cognition, information and knowledge. In other words, teachers divide into two poles.
   Therefore, we need to consider correspondence to the two different groups. Firstly we have to cope with the teachers who have already been doing practices of environmental education and want to better environment
   for practices. And secondly, we have to cope with the teachers who think they should practice environmental education but they do not know how to do it and want to get some help from their first step.

   Connection between teaching experience and environmental education practice was found. Ability is needed for teachers to make up own curriculum.

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2) Since "environment" is cited as one of the contents in "Period of Integrated Studies," the "Period of Integrated Studies" will play an important role in promoting environmental education. More fruitful learning activities will be done if teachers make teaching plans with connections between "Period of Integrated Studies" and other subjects. Also in-service training is needed for teachers who have low interest and low knowledge about environmental education to improve their awareness.

3) Environmental education is practiced in class and then outside of the class. As the result of learning, some children send their message to their community, or some children make actions to improve their surrounding environment. When we look at successful practices in some schools, not only children but also adults in the community change and the schools become "opened school for community." In other words, to build "opened school for community", making curriculum from the view of learning, not from the view of learning, is very important. That is why improving teacher's ability to make curriculum is a key factor.

4) It is not usual in the problem based learning that the learning leader like teacher has the obvious and correct answer for problem, because learner often chooses the problem that isn't shown as an example in the text or guide book. However, even if learner decides the theme in problem-based learning, leader has the great role when learners step up next problem. Leader of environmental education has to understand the goal of environmental education, consider the learning situation in class or course, and examine approach to gain the goal. We must understand not only what is learner's request in the next study but also what is necessary for learning goal for environment.

5) The results of the policy on environmental education in 1990's were that many education leaders have understood the necessity of environmental education, and environmental education has been recognized as one of the present-day issues of education. The promotion of environmental education training for teachers has a big role in the expansion of environmental education in the schools in 1990's.

6) Some training courses held by organizations other than Monbusho and boards of education have problem that there is not much teacher participation. Unless they have the special support of educational board such as the encouragement to participate in training courses other than those held by education board, the teachers have to participate in courses by using vacation days and without financial support.

   Otherwise, the members of non-governmental organizations also have the international relationship in term of practice of education, so they have good methods and materials. It is desirable that the ability and influence of universities and NGOs is introduced into the teacher training of environmental education.

7) The analysis on teacher training course showed the following issues. One of them is the necessity of the reexamination of concepts on environmental education, since the environmental education has strengthened the relation to sustainable society. Second, it is necessary that the training course offers the program to understand the concept of problem-based learning and the comprehensive idea of environmental education based on the experience learning, workshop, fieldwork and inquiry process. Third is infusion of environmental education into the subjects.

8) In Japan, professional development exists in other or organizations. They are: the national and local workshops or conferences held by teachers unions; the national and local workshops by teachers association of each subject; the workshops for education leaders by NGOs; the advice by supervisors in school class; and participation of pilot projects for environmental education. The chance for the professional development for environmental education has expanded. The dissemination of information about various professional developments is necessary.

Developing and Implementing an Inquiry Based Global Environmental Education Program of Omose Elementary School through collaboration with community, specialist organization and American School

Yukihiko Oikawa*

Good afternoon. I am delighted to have the opportunity to share my activities and perspectives with many specialists from Asian /Pacific countries and Japanese educators today. I would like to thank Miyagi University of Education, Fulbright Memorial Fund, United Nation University and other institutions for the collaboration to hold this conference.

Kesennuma Omose Elementary School aims to design a global inquiry-based environmental education program. Omose Elementary School researched and developed an international collaborative environmental education program with Lincoln Elementary School in Madison WI USA, linking with Miyagi University of Education and other institutions to draw on expertise from environmental and educational specialists.

Today, I will focus and discuss the significance of this program and these linkages, the steps in forming our network, and how we developed and carried out our Master Teacher Program project thanks to these linkages.

Introduction:

Schools need to link with outside organizations such as universities.

School education in Japan is undergoing huge reforms. In keeping up with a changing society, the government has recognized the need to train children to be rich in heart and able to contribute to society, acquire the basic skills for educating themselves, and cultivate their "zest for living." The New Course of Study, in effect April 2002, addresses these needs by implementing a complete five-day school week and requiring schools to set aside time for integrated studies.

In order for schools to realize and reap the benefits of these reforms, it is essential that teachers go beyond school walls, establish links with community and specialist organizations and institutions, and promote educational activities with the support of a broad partnership framework. In particular, with integrated studies programs such as environmental education and international understanding, schools devise and implement their own original learning programs, creating and realizing distinct, unique educational activities. By involving universities and other specialist organizations in this process, teachers can apply the latest expert knowledge, techniques, data, information, and research findings to their teaching and curriculum in pursuit of more in-depth and comprehensive learning programs.

When all parties form linkages, collaborate to create and implement learning programs, and cultivate these relationships, we realize learning programs tailored to the individual learning styles and educational needs of each child, expanding possibilities and opening doors for our students and education. Building this new education networks meets the needs of the future.

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Section 1 Developing and Implementing a Global Environmental Education Program Supported by Linkages with Specialist Organizations: Omose's Linkages with Miyagi University of Education, other organization and community through the M.T.P.

1. Outline of the Omose Elementary and Miyagi University of Education Connection

In 2002, with the complete implementation of the New Course of Study for schools in Japan, public elementary and junior high schools were required to establish Integrated Studies periods based on their own creative initiative.

Also in 2002, Omose Elementary School participated in the Fulbright Memorial Fund Master Teacher Program (MTP) and carried out environmental education projects.

At Omose Elementary, we centered our Integrated Studies Period on the development and implementation of our international E.E. projects. We expanded the curriculum and the MTP project to incorporate environmental education, previous international understanding and information education curricula. We aim to build a comprehensive Global Inquiry Environmental Education program, that embraces the environmental education project, international understanding activities and information education.

To realize our learning program, we established linkages with environmental and education specialists, beginning with Miyagi University of Education, to support our new program.

Starting this project, Kesennuma City Board of Education and Miyagi University of Education formally promote the development and growth of the linkage between Miyagi University of Education Environmental Education Center (EEC) and Omose Elementary School.

From 2002 to now 2004, Omose Elementary School formed a partnership with Lincoln Elementary School in Madison, WI with the aid of the Fulbright Memorial Fund, Japan-U.S. Educational Commission. Under the Master Teacher Program, Omose and Lincoln engaged in joint environmental projects. We based our collaboration on U.S. (Wisconsin) and Japan (Miyagi) water environments and their effect on human life. Each grade level decided on a theme for their project, created a pair project, interacted via the Internet and engaged in joint learning activities.

In order to launch this project, we had instructors from the Miyagi University of Education Environmental Education Center, Sendai-City Science Museum, Shizugawa Nature Center participate in each project. We also had many volunteers from city office, industrial company, nature school, and volunteer party in community cooperate on our project. They offered advice and support from their respective fields of expertise. They support us in all aspects of tour projects, providing us information and technology support and giving us access to a wide range of resources, information, and materials. Their resources in turn help Omose Elementary engage in sophisticated and effective research and learning in our Inquiry Based Global Environmental Education Project.

Furthermore, through our MTP pair projects with Lincoln Elementary School and Miyagi University's International Environmental Education Symposium, we came to develop a linkage with Lincoln Elementary School's supporting institute, the University of Wisconsin

2. Promoting the Omose Elementary Connection with Miyagi University of Education and other specialist institutions through the Master Teacher Program

The collaboration with Miyagi University of Education through MTP project is as follows.

1) Experts guided and advised us on the development of our MTP project and environmental learning program.
2) Omose sought instructors to teach and facilitate
3) University instructors taught as guest teachers in Omose classrooms.
4) Experts provided advice and guidance on the use of information technology such as Cyber Maps and Web Pages in environmental education.
5) Professors shared research with Omose to serve as a reference and example.
6) Omose and Miyagi University of Education presented the MTP project and linkages to the public at some conferences and symposium.

3. Lincoln Elementary School and University of Wisconsin-Madison Connection.

In December 2002, we invited Dr. Paul Williams, Director of the Center of Biology Education for the University of Wisconsin-Stevens and Professor Jennie Lane from the University of Wisconsin-Steavens Point Wisconsin Center for Environmental Education to take part in Miyagi University of Education's "International Environmental Education Symposium", co-sponsored by FMF. Through establishing a linkage between the University of Wisconsin-Madison, Lincoln Elementary School, Miyagi University of Education, and Omose Elementary School, we created an international connection between universities and schools. In doing this, we lay the path to a real "Global Knowledge Creating Web."

<u>Section 2</u> Developing and Implementing our Pair Projects with Support from Outside Institutions: Linkages for

1. Developing Pair Project with Lincoln Elementary School

Omose is the perfect place to learn about nature and the environment. Omose Elementary's home, Kesennuma City, is situated on a rias or saw-toothed coastline area within the National Park. Rivers flow from the green Mountains through the city to Bay. Forests, rivers and ocean surround us, all interconnected by water.

Our partner, Lincoln Elementary School, located the northern Midwestern U.S., is in a similar location. Although Madison is far from the nearest large body of water, Lake Michigan, the city is surrounded by two lakes. The area is known for its many "potholes" or glacially carved lakes.

Omose is on the ocean and Madison is surrounded by lakes. So we agreed to center our environmental learning on water. Through interactions based on our learning, we compare the similarities and differences between our two environments.

Our pair project is based on the common:

(1) Theme

Water Environments and Human Life: The Interactions and Effect

(2) Goal

Through hands-on, experience-based inquiry learning, students hunger for knowledge and discovery. Through web-based interactions, students develop a mutual understanding about each other's environments. This in turn develops their understanding of the earth's systems and opens up their eyes to the global world.

(3) Outline and support of grade level projects

Our pair project is an all school effort, incorporated at all grade levels. In developing our projects for each level, we carefully consider student developmental stages and circumstances and targeted abilities and perspectives. We select level-appropriate topics for each grade and develop and implement projects with the help of specialist institutions.

2. Summary of our Main Project Design

(1) Environmental Cyber Map, 3rd Grade

Students created cyber maps based on observations of living thing around Omose River such as insects, birds, fishes and so on. And they are going to share and compare information via the Internet.

(2) Omose Sanctuary Center Project, 4th Grade

Through gathering, observing, and cultivating Omose River aquatic life, students learned the connections between living things and understood the conditions necessary to preserve an abundant environment.

Students created " Miniature aquarium" and "Sanctuary center".

(3) Sea and Lake Museum Project, 5th Grade

Through observing and experiencing shoreline marine life, students learned the connections between living things and the ecosystem. From now on, they compared their observations with Lincoln Elementary School students' observations of a pothole, freshwater life. Also, they considered the connections between human life and the ocean environment and planning to make "Sea and Lake Museum".

(4) Waterfront Future City Project, 6th Grade

Students thought about how Kesennuma's city, forest, river, and ocean can best co-exist with nature and planned a future Kesennuma City. The sixth grade students applied what they learned in previous years and contributed their individual ideas to planning a waterfront city of the future. The students made a diorama of their waterfront future city.

(5) Integrated Studies Project

○ Children Global Environmental Forum

Omose and Lincoln connected via an online video conference. U.S. and Japan elementary students held an online forum on the global environment.

3. Forming the Links and program(2002-2004)

We linked our linkage with Miyagi University of Education, other institutions and community over the course of several years, meetings, and events.

June 21, 2002	**Project Meeting for "Designing the Project 2002"** We held this meeting at Omose Elementary School and invited professors from the Environmental Education Center and experts from the Shizugawa Nature Center to offer advice on developing our environmental education projects.
July 4, 2002	"**Environmental Education in Wisconsin**" Rebecca Rosenberg, teacher at Omose MTP partner Lincoln Elementary School, gave a talk at Miyagi University of Education. Teachers from the University Environmental Education Center and Omose Elementary attended.
July 11, 2002	**Visit to the President of Miyagi University of Education** Representatives from the Environmental Education Center, Kesennuma City Board of Education, Omose Elementary School and Lincoln Elementary School visited the president to formally request Miyagi University of Education's cooperation with our linkage.
August 20, 2002	**Study Group on the MTP Project and Linkage Consultation** Omose Elementary consulted with Miyagi University of Education Environmental Education Center.
August 22, 2002	**Computers in the MTP Project** Professor Ugawa from Miyagi University of Education Environmental Education Center facilitated this study group at Omose Elementary School
October 18, 2002	**Future City Project Study Group** Professor Koganezawa of the Miyagi University Environmental Education Center guest taught Omose Elementary students.
October 22, 2002	**Fish Living in the Omose River** Sendai City Science Museum Curator Takatori guest taught this class for Omose Elementary Students.
October 29, 2002	**Omose River's Micro biotic World and Food Chain** Professor Mikami of the Miyagi University of Education Environmental Education Center guest taught this class for Omose students.
December 4, 2002	**International Environmental Education Symposium, Miyagi University of Education** We presented Omose Elementary School's project and linkage at this international symposium.
January 24, 2003	**Education Reform Forum, Miyagi Prefecture and Sendai City Boards of Education** We presented Omose Elementary School's project and linkage to local education administration, schools and organizations.
February 7, 2003	**Public Presentation on International Education of Environment 2003** Omose and Lincoln shared the results of their pair projects.

March 22, 2003	**FMF Japan-U.S. Teacher Conference (Washington DC)** Paper Presentation :Yukihiko Oikawa (Omose Elementary School)Panel-discussion panelist :Kazuyuki Mikami (Miyagi University of E.)Becky Rosenberg (Lincoln Elementary School)
March 23-31,2003	**Omose Elementary School & Miyagi University of Education Group's Joint Study Trip to Madison Wisconsin** Omose: Yukihiko Oikawa, Keiko Chiba, Rie Sugawara University: Kazuyuki Mikami, Takaaki Koganezawa
April 23, 2003	**Visit to the President of Miyagi University of Education and round-table Meeting with Environmental Education Center for the cooperation of Omose's Project** University: Yokosuka Kaoru (President), Kazuyuki Mikami(Drector) Takaaki Kanazawa(Professor), Jinichi Matsumoto(Chief) Omose: Toshiro Kikuchi (principal), Yukihiko Oikawa
June 24, 2003	**Project Meeting for "Designing the Project 2003"** We held this meeting at Omose Elementary School and invited professors from the Environmental Education Center and experts from the Sendai Science Museum and other institutions to offer advice on developing our environmental education projects.
July 4, 2003	**Symposium of EEC in Miyagi University of Education** "International collaboration and environmental-education practice - in elementary schools" - Example of Kesennuma Omose Elementary School and Lincoln Elementary School in United States -
July 7, 2003	**Ocean Project in Shizugawa Nature Center(5th grade)** Students researched living things on the seashore and made seaweed craft. They also learned food chain in the ocean receiving lecture of Dr.Yokohama who is director of Nature Center.
August 1, 2003	**Special Lecture at Omose Elementary School** "How we organize the lessons that foster children's awareness for nature. Lecturer : Dr. Kenichi Tabata (Miyagi University of Education)
September 1,2003& December 1,2003	**BUGS Project (3rd grade) " Research Dragonflies in Omose River and Ponds and making BUGS map"** Dr. Yoshihiro Ugawa and Koji Mizota (Miyagi University of Education)
September 3-4, 2003	**Ocean Project in Ichinoseki Nature Center (5th grade)** Students researched the relationship between Ocean and Forest through the water with Dr. Hirabuki Yosihiko (Miyagi University of Education)
September 11, 2003	**Future City Project(6th grade)** "Research of Water Quality of Omose River" with Dr. Takashi Muramatsu (Miyagi University of Education)
September 22, 2003	**Fish Living in the Omose River(4th grade)** Sendai City Science Museum Curator Takatori guest taught this class in Omose River for Omose Elementary Students.
October 14, 2003& December 3, 2003	**Nature & Festival Project at Omose School(1st and 2nd grade)** Miyagi University of education Dr. Masaaki Oka guest taught "Vegitable Cultivation" for Omose students.
October 21, 2003	**Omose River's Micro biotic World and Food Chain(4th grade)** Professor Mikami of the Environmental Education Center guest taught aquatic livings and food chain for Omose students.
October 21, 2003	**Future City Project Study Group(6th grade)** Professor Koganezawa of the Miyagi University Environmental Education Center guest taught the concept of Future City.
October 21, 2003	**Meeting for Promoting collaboration of Omose's Project** Members discussed possibilities of project and collaboration

November 3-5, 2003	**International Symposium on Environmental Endocrine Disrupters sponsored by Ministry of Environment** "Perspectives on Chemical Substances Fostered via Environmental Education -Through Inquiry Based Global Environmental Education Program" Lecturer: Yukihiko Oikawa (Omose Elementary School)
February 11-14, 2004	**UNESCO/Asian-Pacific Environmental Educational Research Seminar, 2004, sponsored by Japanese National Commission for UNESCO, Miyagi University of Education**
February 12, 2004	**Public Presentation on International Education of Environment 2004Sponsored by Omose Elementary School.** This conference was held under the joint auspices of UNESCO Seminar

Conclusion Possibilities and Directions for our Omose's Inquiry Based Global Environmental Learning Program

1. Master Teacher program and Omose's international EE project make effective global inquiry based learning possible.

First of all, Master Teacher Program brought Omose Elementary and Lincoln Elementary students and teachers together to collaborate face-to-face. Despite being in different countries, we worked close together to learn about the global environment and international understanding. Although interactions were international, they were still personal, helping students realize that national boundaries and distance do not limit learning or collaboration.

Secondly, this project provided very real environmental learning opportunities. It introduced the U.S.'s progressive methods of teaching about the environment to Omose Elementary. Our learning program requires teachers and students to utilize live and local subjects, information technology, and hands-on experiences in the learning process. This helps to make Omose Elementary's environmental education more real.

Thirdly, our new challenge opened children's eyes to the world, allowing for connections with diverse people and environments on the other side of the globe. Through this, children will develop the ability to think about matters from a variety of perspectives and make decisions from many angles. Namely, they will acquire the true capacity to be global citizens and the strength to discover the future direction for our environment.

Lastly, our new project helped Omose to collaborate internationally on our environmental learning program and global linkage. We bring that network to life by using it in the classroom, using it in environmental education, and sharing knowledge and resources from all over the world with our students. This international linkage and collaboration open doors for amazing possibilities in environmental education.

2. We emphasize shared experience on global scale through Inquiry Based Global Environmental Education

A few years ago at University of U.S, I had an opportunity to talk with U.S. teachers about the problems today's schools and teachers face. Both U.S. and Japanese teachers brought up same problems children have, such as the increase in lack

of motivation or interest for learning, and class disruption. Children in both countries also lack respects for others and their life.

I suggested that these problems all result from "a lack of experience." In both countries, children live in a virtual world. They are engrossed in video games, cartoon animation, and the Internet. Children are not in touch with the outside world. Years go by while they do not gain the natural and social experiences crucial in their growth and development. Without the chance to explore nature using all five senses, they do not develop inquiring minds or keen senses. Without meaningful interactions in the home, children do not learn love or discipline. Without personal friendships and interactions in society, children do not develop social skills. As a result, we see children become young adults without acquiring basic life skills. Our children determine the future. By raising children who do not understand their natural and social environment, the world risks the danger of further damage to the environment and humanity.

To avoid this, we, as teachers, must give children experiences that foster inquiring minds and respect for life through school education. Omose's Inquiry Based Global Environmental Learning Program is very important and significant. The pair project with Lincoln School and our learning program require children to learn about their local environment firsthand and then use information technology to share what they have learned with peers in the U.S. This puts children in touch with the mysteries of nature and takes them outside to observe nature. In sharing their experiences, children exercise both their minds and souls through meaningful personal and intellectual interactions. They develop a mutual understanding with children in the U.S.

We believe Omose's Inquiry Based Global Environmental Education Program realizes the slogan, "Think globally, Act locally". Our project centers learning on experiences in children's local environment and then has children synthesize and express what their new knowledge on a global scale.

As Rachael Carson once said, this process fosters a "Sense of Wonder" in each individual child. Children in the U.S. and Japan share their "Sense of Wonder" and come to understand each other across national boundaries – what a "wonder-full" opportunity!

UNESCO/ Japan Asia Pacific Environmental Education Research Seminar 2004 Report of the Expert Workshop

Masahisa Sato*, Kazuyuki Mikami**, Lucille Gregorio***, and Kip Kates****


Masahisa Sato


Lucille Gregorio


Kip Kates

I. Introduction

The Seventh UNESCO/ Japan Asia Pacific Environmental Education Seminar was held in Kesennuma, Japan, on 11 to 14 February 2004. It was organized by the Miyagi University of Education and the Japanese National Commission for UNESCO, within the framework of the 7th Programming Cycle (2002 - 2007) of the Asia Pacific Programme of Educational Innovation for Development (APEID), Asia and Pacific Regional Bureau for Education, UNESCO Bangkok, and in collaboration with Kesennuma City and the Asia / Pacific Cultural Centre for UNESCO (ACCU). An open forum held on 11 February 2004, had international participants as speakers, and the audience composed of local people and their government and school leaders. The participants had a chance to visit the Omose Elementary School, a model school for "Education for Sustainable Development" on 12 February 2004. The Expert's workshops and roundtables were organized on 13 and 14 February 2004. The deliberations were focused on the in-service teacher training in Environmental Education and some suggested actions for the celebration of the International Decade for Education for Sustainable Development (IDESD, 2005-2015).

There were 40 participants from 13 countries, namely, Afghanistan, Cambodia, China, India, Japan, Laos, Malaysia, Nepal, New Zealand, Philippines, Thailand, Vietnam, and USA. Some international organizations were also represented, namely: United Nations University (UNU), UNU-Institute for Advanced Studies (UNU-IAS), Institute for Global Environmental Strategies (IGES), and Asia / Pacific Cultural Centre for UNESCO (ACCU), and UNESCO APEID, Bangkok.

The expert workshops consisted of two parts. Part I was focused on in-service teacher training for the implementation of Environmental Education in the Asia Pacific Region, while Part II discussed and prioritized the actions and means for the implementation of Environmental Education for the DESD.

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** Miyagi University of Education, Japan
*** UNESCO Bangkok, Thailand
**** Tottori University, Japan

The discussion on in-service teacher training in the field of Environmental Education was preceded by presentations for direction setting and case studies, presented by resource persons and selected participants. The roundtables were organized as face to face and interactive workshops conducted to actively involve the participants in sharing and exchanging their views on in-service teacher training and some actions to be implemented in preparation for the celebration of the International Decade on ESD.

II. Objectives of the Expert Workshop

The main objectives of the Workshop were:

1. to analyze current situation of in-service teacher training for Environmental Education in the region, and
2. to discuss and prioritize actions for the implementation of the IDESD.

Specifically, the workshop was organized to share and analyse the current status of in-service teacher training in the field of Environmental Education and come up with an analytical framework; and to discuss and prioritize the actions for Environmental Education as one of the preparatory work for the implementation of the IDESD.

The Workshop provided the opportunities for information sharing and discussion on a common concern - the effective implementation of in-service teacher training for Environmental Education, and to facilitate the building of a stronger network among environmental educators and policy makers in the Asia Pacific Region.

III. Agenda of the Expert Workshop

The agenda of the workshop were as follows:

1. Opening Ceremony
2. Direction Setting Presentations
3. Case Study Presentations
4. Analysis of current status of In-service Teacher Training in the field of Environmental Education:
   Constraints and Countermeasures of In-service Teacher Education or the Implementation of Environmental Education and Recommended Actions of In-service Teacher Education for the Implementation of Environmental Education
5. Prioritized actions and means of implementation of Environmental Education for the International Decade of ESD
6. School Visit
7. Closing

The annotated agenda and detailed schedule of work is in Annex 1.

IV. Presentations for Direction Setting and Case Studies

(1) Presentations for Direction-Setting

Four presentations set the tone of the meeting. One, on the APEID actions on Environment Education and Education for Sustainable Development by Mrs. Lucille Gregorio Programme Specialist; two, on the Japanese current teacher training activities for environmental education by Prof. Kimiko Kozawa of Tokyo Gakugei University, an Associated Centre of APEID; three, on the research findings of the study on Environmental Education at the tertiary level in the Asia-Pacific Region by Dr. Masahisa Sato of the Institute for Global Environmental Strategies (IGES); and four, on lessons learnt from the past UNESCO/Japan Seminars on Environmental Education by Prof. Eiichiro Harako, the coordinator of the seminars organized by Tokyo Gakugei University.

Paper 1: APEID actions on Environment Education and Education for Sustainable Development
by Mrs. Lucille Gregorio Programme Specialist, APEID, UNESCO Bangkok

The paper provided the experts meeting with the background, short history and institutional framework and management of UNESCO-APEID. The programme areas in the 7th APEID Programme Cycle (2002 - 2007) were also mentioned. Some future actions were proposed based on experiences learned from implementing previous activities. For the implementation of the International Decade of ESD, some key lessons from past UNESCO activities were enumerated as follows: (1) ESD as an emerging but dynamic concept; (2) basic education providing the foundation for all future education endeavours; (3) the need to refocus many existing education policies, and practices to build the concepts, skills, motivation and commitment needed for sustainable development; (4) education as the key to rural transformation which is essential to ensuring the economic, cultural and ecological vitality of rural areas and communities; (5) life long learning, appropriate technical and vocational education, higher education and teacher education as vital ingredients of capacity building for a sustainable future. As action agenda, the importance of inter-linkages (policy linkages, governance to improve coordination between implementation bodies), individual capacity building (teachers who are the key to learning and promoting quality of education), institutional capacity building (professional development process, planning & strategies, management, networking and decision making) were proposed The presentation also stressed that to respond to the challenges, UNESCO-APEID have given priority to community empowerment, teacher training and material development projects in its Main Line of Action - considering that UNESCO is not a funding agency, but could provide catalytic and advisory role in educational innovation for development, especially through APEID.

Paper 2: Japanese Current Teacher Training Activities for Environmental Education
by Prof. Kimiko Kozawa, Tokyo Gakugei University, Japan

Issues were presented on Environmental Education for sustainability and its implication to teacher training. Based on lessons learnt from the Japanese experiences, one statement of the Japanese government was cited, which stressed that Environmental Education in the 21st century should be regarded as "education and learning for the realization of the sustainable society" rather than as "education and learning for the environment". The presentation also mentioned that it is important to understand the different cultures of societies, and to promote attitudes which are acceptable based on the

context of particular situations. After the current status of Environmental Education in Japan was presented, and some points to be considered for further development of Environmental Education and teacher training were proposed: (1) connection between teachers' teaching experiences and Environmental Education practices; (2) in-service teacher training for developing environmental knowledge and skills, and the planning and implementation skills; (3) development of "open school for community" which enables teachers to be more active, the curriculum locally oriented, and communities more involved; (4) understanding the goal and concepts of Environmental Education as well as identifying learners' interest and needs; (5) consideration of policy influences for the promotion of Environmental Education; (6) special support by the educational board by taking part in in-service teacher training courses; (7) infusion of Environmental Education into all subjects, and (8) provision of opportunities for the professional development of in-service teachers and educators.

Paper 3: Research Findings of the study on Environmental Education at the tertiary level in the Asia-Pacific Region by Dr. Masahisa Sato, Research Associate, Institute for Global Environmental Strategies (IGES)

Presented were some research findings from the study on 'Environmental Education at the Tertiary Level and Teacher Education in the Asia-Pacific Region. The research elucidates the sub-regional diversity in terms of the introduction of Environmental Education programmes in higher education, curriculum topics and inter-institutional co-operation. Trow's theory (1974) was found to explain the diversity of educational targets, delivery styles, and inter-institutional co-operation and networking among Environmental Education Centres and Environmental Information Centres. There are some exceptions found in the delivery styles and institutional networking at the elite phase. These findings indicate that it is important to consider sub-regionality and higher education development phases in producing region-wide policies.

Paper 4: Lessons Learnt from the past UNESCO/Japan Seminars on Environmental Education by Prof. Eiichiro Harako, Associate Professor, Tokyo Gakugei University.

The presentation pointed out the necessity to consider carefully the real problems and constraints, of countries in the region and how these problems can be solved for the effective implementation of in-service teacher education, and other activities. Some of the problems are related to policies, while others are related to programmes. The Asia Pacific region is very diverse - yet there are commonalities in developing environmental education, for a strengthened regional networking and cooperation.

(2) Case-study Presentations

Four case studies were presented. One, by Prof. Takaaki Koganezawa from a Japanese experience of implementing environmental education in a primary school; two, Ms. Jennie Lane from the USA, presenting an analytical review of current environmental education for in-service teacher training; three, Mr. Athapol Anunthavorasakul from Thailand presenting a case on pre-service and in-service teacher training for Environmental Education in the University setting, and four, Mr. Amba Jamir from India, giving the NGO perspective on teacher training in environmental education.

Case Study 1: Prof. Takaaki Koganezawa, Professor of Miyagi University of Education (Japan), presented some teacher training activities on environmental education in Miyagi prefecture. These included features of Environmental Education

in Omose Primary School, the subjects of teacher training in Environmental Education, the ways of resolving the subjects, support systems for teachers provided by the Miyagi University of Education, and other supports provided by the university. The importance of involving local people and local stakeholders (local NGOs, media, locally-based companies, local governments, museums, universities) and organizing teamwork were stressed. It was also suggested that higher education institutions should take active roles in providing information, sending experts, jointly developing educational materials, developing network, and providing opportunities for the re-training for teachers.

Case Study 2: Ms. Jennie Lane, Director of the Wisconsin Centre for Environmental Education, University of Wisconsin School of Steven Point (UWSP), presented an analytical view of current Environmental Education in the United States, and some cases on in-service teacher training. She talked about environmental education projects such as: Learning, Experience and Activities in Forestry (LEAF), Wisconsin K-12 Energy Education Programme (KEEP). Specifically, KEEP was introduced as one of professional development programmes which includes energy courses (face to face, on-line, some special topics), workshops and conferences - Energy Fair. In addition, in-service training programme by the University of Wisconsin for qualified teacher / educators and / or resource managers was also mentioned. The course logistics included: implementing the UWSP extension/ credit outreach; providing one credit course; setting 16 hours of contact time; supporting by tuition waiver and stipend; and marketing and evaluation. The delivery approaches employed the activity guide developed with teachers / educators and were provided to in-service teachers / educators via the extension course.

Case Study 3: Mr. Athapol Anunthavorasakul, Lecturer at Chulalongkorn University, Thailand, presented some programmes and activities on pre-service and in-service teacher training for Environmental Education in his institution. It was introduced in the undergraduate pre-service programmes and related activities have been implemented in the areas of humanities, social science, and science. In-service teacher training have been organized by the university, in cooperation with the Ministry of Education, Department of Environmental Quality Promotion (DEQP), Teacher Education Institutes and other Educational Institutes, with special attention to the storyline approach, community based learning, and whole school approach.

Case Study 4: Mr. Amba Jamir, Director of an NGO, "the Missing Link, Society for Environment and Communication" in India , stressed the importance of identification of appropriate "teachers", before discussing the issues. They maybe university graduates, committed practitioners, job-seeking individuals; or responsible leaders who are shaping the future of the nation. The presentation also stressed that individuals promoting non-formal education as well as teachers in formal education need to be highly recognized as facilitative teachers. There are issues to be considered: (1) linking lessons learnt from social experiences such as livelihood and food security, market impact and globalization; and (2) linking global issues to local issues such as deforestation and biodiversity, cultural heritage and traditions, indigenous knowledge and ownership of resources, as key points when promoting in-service teacher training for ESD.

V. Roundtables for Active Interaction

Roundtable 1: Analysis of In-service Teacher Training for the implementation of Environmental Education

Framework

The participants were divided into five groups based on the sub-region they represent. Each group discussed constraints and countermeasures for the implementation of in-service teacher training in Environmental Education. Recommendations for further improvement of in-service teacher training were also identified. The analytical framework with four components proposed include: (a) support systems; (b) institutional capacities; (c) in-service teachers' capacities; and (d) programme / curriculum contents. Figure 1 shows the analytical framework and the components for each component.

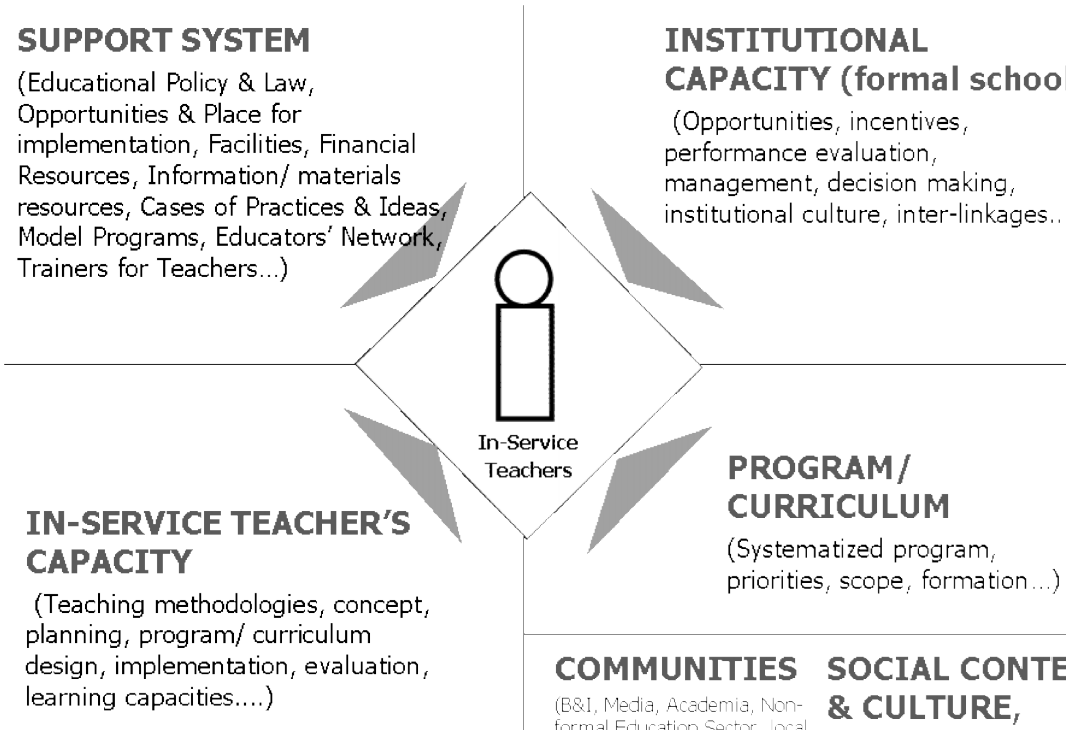

Figure 1: Analytical Framework on In-service Teacher Education

The main items covered by the presentation on in-service teacher training for Environmental Education were based on above figure. The group reports are attached as Annex 3.

Constraints

The constraints of in-service teacher training for Environmental Education, common to the countries of the region are:

(1) Support systems

- lack of adequate policies
- lack of facilities
- lack of financial resources
- lack of information & material resources
- lack and/or weak network of educators
- lack of trainers of environmental education teachers

(2) Institutional Capacities

- unclear institutional vision and mission
- lack of incentives and recognition
- unsystematic/lack of monitoring and evaluation
- faulty or lack of decision making process,
- weak institutional culture
- weak or lack of inter-linkages

(3) In-service Teachers' Capacities

- Conventional/traditional teaching methodologies

(4) Programme / Curriculum Contents

- lack of scope and formation
- limited programme content
- lack of examples of practical programmes,
- irrelevance to "real life"
- unsystematic programming,
- lack of priorities

The above-mentioned constraints are very similar to the general in-service teacher training in many countries of the region. In the area of "programme / curriculum contents", the irrelevance to real life could be explained by the countries 'importing' Environmental Education materials and approaches following programmes from western countries.

Roundtable 2: Prioritized actions of Environmental Education for the International Decade on ESD

The participants were again divided into four groups to discuss the designated topics. The main items covering the implementation of Environmental Education were: (1) overarching efforts; (2) project implementation process; (3) national level recommendations; (4) institutional efforts; (5) approach based recommendations; and (6) topic based recommendations. After the discussion of the designated topic in each of the four groups, a representative from each group reported back the group outputs in the plenary session. In order to synthesize points recommended, group reports were integrated into one table by each item. The highlights of presentation are as shown in Annex 4 A (Regional Recommendations) and Annex 4 B (Recommendations for National Implementation).

Regional Level Priority Actions

- Institutional coordination,
- Organization of a series of workshops
- Information and experience exchange
- Setting / linking regional centres of excellence,
- Mobilization of technical & financial resources,
- Partnership between government & donor Agencies
- Partnership between different agencies & practitioners and networking

National Level Priority Actions

- Formulation of national action plans and political negotiations
- Institutionalization, development if innovative curriculum, teaching and learning materials, and strategies

It is also shown in Annex 4 that further actions for DESD is needed at the regional, national, local and institutional efforts following project management cycle, e.g. designing stage, planning stage, implementation stage, evaluation stage, and the approaches to be employed for the implementation, e.g. open communication structure, collective decision making, inter-linkages, participation, joint implementation and dialogue. In considering the actions for DESD, the approaches needs to be carefully considered as a tool of knowledge and skill acquisition (not as the transformation), the behaviour change, reformation of learning style and decision making, and social structure reformation, rather than the topics which might not important as the nature of environmental issues are so inter-related.

VI. Recommendations

1. General Recommendations for Regional Actions

- Institutional coordination to avoid overlapping efforts
- Organize a series of regular seminars / workshop for exchange of experiences
- Creation of an on-line exchange of information and experiences
- Setting / Linking Regional Centres of Excellence, by promote regional centres of excellence, developing links with existing educational institutes / centres of excellence, and the regional clearinghouse
- Mobilization of Technical & Financial Resources
- Partnership between government and donors in implementing national action plans
- Co-ordinating activities between different agencies and practitioners
- Creating an effective mechanism for setting-up new networks or maintaining and strengthening existing networks for,
    a. sharing ideas and innovations in EE / ESD throughout the decade 2005/2015
    b. educational institutes, schools and communities through EE (focused on community-based learning and

research)

c. multi-level forum including educators, teachers, community representatives, NGOs and government representatives.

2. Recommendations for the Project Implementation Process

Category 1: Design and Planning Stage

(1) Concept and Approach for ESD

- Emphasize the International Decade for ESD as a "Peoples Decade" not just a "UN/UNESCO Decade"
- Clarify the distinction between EE and ESD
- Avoid SD jargon and message fatigue
- Identify organic "on the ground" ESD initiatives which "capture the representation of diverse audiences"
- Find the "missing link" in the planning stage
- Envision uncertainties
- Revisit histories and learn from the past
- Arouse the "refilling" of the Decade
- Establish a focus at the regional & country level to co-ordinate Programmes on ESD
- Learn from what already exists (stock taking)
- Stock taking activities should include not only EE but also ESD
- Build capacity for Member countries
- "Meet people where they are" to understand and build relationships

(2) Needs Assessment

- Each sub-regional, regional and country level about ESD implementation. How can we help each other?
- Country / community consultations
- Consult widely to build partnerships

(3) Marketing

- Identity possible key agents to implement DESD
- Review the current capacity / situation
- Assess the strengths and weaknesses of ESD

(4) Regional Strategy and Implementation Plans

- Formulate Regional and Sub-Regional strategies
- Conduct Country / community consultations
- Develop and set a common agenda & strategies for ESD at the regional level

(5) Research

- What research is available in EE / ESD that identifies teaching & learning for change?

Category 2: Implementation and Follow-up Stage

(1) Capacity Building, Education & Literacy Promotion

- Promote distant on-line learning through the Global Virtual University (GVU)
- Promote Type II Initiatives, Asia-Pacific Initiatives
- Establish a good knowledge base through the Toolkit project

(2) Literacy promotion and Material Production

- Regional book production on certain topics.

(3) Accumulation of Lessons from Experiences

- Use grassroots successes to advance systemic changes
- Need to develop a strong network of sharing ideas & innovations in EE / ESD
- Through-out the decade 2005/2015, identify 'best practices' and lessons learnt

(4) Public Relations and Outreach

- Popularize DESD
- Publicity and awareness campaign for DESD
- Spread the ESD message as widely as possible
- Need for acceptance at the public level. There is a need for a public forum

(5) Evaluation and Assessment

- Develop and share examples of evaluation and assessment

3. Recommendations for National Implementation

- Development of National Action Plans
- Conduct political negotiations by sensitizing politicians and policy makers to the vitality of ESD (to muster their support)
- Institutionalization, by making Education for Sustainable Development a foundation course in all teacher training programmes, and organization of short courses and materials on ESD for the reorientation of teacher educators in colleges and universities, and promote ESD as a course of education
- Identify teaching and learning strategies, methods and programmes that focus on change

> If education is to be the agent of change, then we need to adopt teaching and learning strategies that focus on change, help learners, and reflect our altitudes and values

- Curriculum and Materials Development - reviewing the present curriculum, making ESD as an overarching

theme, developing Curriculum tools for ESD especially during the decade, sensitizing curriculum developers how to integrate ESD into learning curricula at different levels, and providing toolkits for different target groups

4. Recommendations for Institutional Efforts

(1) Ways of Implementation

- Setting-up a Coordinating Body, national level (meeting 2/3 times per year), and regional level (meeting once per year), membership comprising representatives of schools, communities and NGOs. Core groups could be set-up, and regular consultations conducted
- Opening Communication Structure, to evaluate and discuss issues and promoting ESD messages and models that work
- Organizing public relations and outreach activities
- National commitment to maintain the network
- Setting - up national/sub-regional networks or centers for ESD and linking to other networks, also strengthening existing networks
- Promoting regional centres of excellence
- Setting up a monitoring system to monitor progress of ESD projects, to identify obstacles and characteristics of success

(2) Research

- On ESD / EE teaching and learning, networking and coordination
- Action and Documentary research
- Project Implementation: Pilot projects (focusing on ESD); Strengthening of networks and partnerships; Regional launch, country launch, local launch of the Decade, and donor-supported projects

(3) Information Exchange by On-line Basis

- Setting up on-line exchanges at educational institutes

(4) Database

- Sharing practices that work

(5) Partnership

- Promoting bilateral / multilateral national efforts for co-operative activities
- Bringing together different ESD partners to transfer ideas and activities to countries where ESD initiatives are not working

(6) Regular Regional Workshops and Seminars

- Holding regional / sub-regional workshops & seminars for needs assessment and sharing ideas
- Collecting and sharing feedbacks on the network by regular seminars / workshops for a step-wise approach

- Holding workshops and training in for different venues, especially in countries with effective models or examples for the promotion of ESD
- Inviting representatives to share information and develop networks on ESD

(7) Regional Planning Workshops for scenario building and planning for uncertainties

(8) Regular evaluation workshops

(9) Regional Media Workshops, to identify and utilize media tools, promote media awareness information and involvement of stakeholders

5. Recommendations for Topic-Oriented Efforts

(1) Book and Material Production

- Development of different materials and guides for different audiences (policy, private, NGO, community, etc.)
- Preparation of low-cost / low technology awareness materials
- Provision of basic tools (materials, guidebooks…) for developing countries (to create a knowledge base)

(2) Curriculum Development

- Regional workshop on development and matrix for incorporating EE into existing curricula / teacher training

(3) Regional Training Workshop

- Regional workshops on teacher training for adapting curriculum and materials to local needs

Annex 1: Annotated Agenda and Schedule of the Expert Workshop

1. Opening Ceremony
2. Direction-setting Presentations
   - An Orientation to APEID and ESD by Ms. Lucille C. Gregorio, UNESCO BKK
   - Challenges for Future Environmental Education & Its Teacher Training. by Prof. Kimiko Kozawa, Tokyo Gakugei University
   - Environmental Education at the Tertiary Level in the Asia-Pacific Region, with a focus on Teacher Training. by Dr. Masahisa Sato (IGES)
   - Revisiting 'Teacher education which promotes Environmental Education - What should it be like' by Prof. Eiichiro Harako, Tokyo Gakugei University

(1) Case-study Presentations
   - Teacher Training in Environment Education: Case Study of Omose Elementary School by Prof. Takaaki Koganezawa, Miyagi University of Education
   - Environmental Education in Wisconsin: A Teacher Education Approach by Ms. Jennie Lane, University of Wisconsin, USA
   - Teacher training for EE and ESD in Thailand: Pre-service and In-service, by Athapol Anunthavorasakul, Chulalongkorn University, Bangkok
   - Learning Together: Teaching" for a Sustainable Future" by Mr. Amba Jamir , NGO representative, The Missing Link, Society for Environment and Communication, India

(2) Roundtable 1: Analysis of Current Status of In-service Teacher Training in t Environmental Education
   - Group Work: Constraints and Countermeasures of In-service Teacher Education for the Implementation of Environmental Education
   - Group Work: Recommended Actions of In-service Teacher Education for the Implementation of Environmental Education

(3) Roundtable 2: Prioritized Actions and Means of Implementation of Environmental Education for the International Decade of ESD
   - Group Work: Prioritized Actions and Means of Implementation of Environmental Education for the International Decade of ESD

Schedule of Expert Workshop

13th February 2004

0900	**PLENARY SESSION: Direction-setting Presentations**
0900-0920	● An Orientation to APEID and ESD. Lucille C. Gregorio (UNESCO BKK)
0920-0930	<Discussion>
0930-0950	● Challenges for Future Environmental Education & Its Teacher Training. Kimiko Kozawa (Tokyo Gakugei Univ.)
0950-1000	<Discussion>
1000-1020	● Environmental Education at the Tertiary Level in the Asia-Pacific Region, with a focus on Teacher Training. Masahisa Sato (IGES)
1020-1030	<Discussion>
1030-1050	● Revisiting 'Teacher education which promotes Environmental Education - What should it be like'. Presentation by Eiichiro Harako (Tokyo Gakugei Univ.)
1050-1100	<Discussion>
1110	**IN-SERVICE TEACHER EDUCATION: Case-study Presentations**
1110-1130	● Teacher Training in EE: Case Study of Omose Elementary School (tentative). Takaaki Koganezawa (Miyagi Univ. of Education)
1130-1150	● Environmental Education in Wisconsin: A Teacher Education Approach. Jennie Lane (The Univ. of Wisconsin)
1150-1210	● Teacher training for EE and ESD in Thailand: Pre-service and In-service. Athapol Anunthavorasakul (Chulalongkorn University)
1210-1230	● Presentation by Amba Jamir (The Missing Link, Society for Environment and Communication)
1330	**GROUP WORKSHOPS on In-service Teacher Education (Part I)**
1330-1345	<Introduction>
1345-1445	● Group Workshop: Constraints of In-service Teacher Training in EE
1455-1555	● Group Workshop: Countermeasures of In-service Teacher Training in EE
1610-1720	● Group Workshop: Recommendations for Best Practices of In-service Teacher Training in EE
1720-1800	**PLENARY SESSION: Group Presentation**

14th February 2004

0900-0910	<Introduction>
0910	**GROUP WORKSHOP on UNDESD (Part II)**
0910-1040	● Group Workshop: Recommendations for Prioritized Actions for the Implementation of UNDESD in the Asia-Pacific Region
1040-1100	**PLENARY SESSION: Group Presentation**
	<Break>
1120-1130	**SUMMARY SESSION**
1130	<Closing remarks: Kazuyuki Mikami (Miyagi Univ. of Education)>
1130-1230	<Seminar Evaluation>
1330	● Bus Excursion to Izunuma Wetland (from Hotel Kanyo 1F)

Annex 2: Composition of the groups

South Asia:	India**, Afghanistan*, Nepal, UNU (Chowdhury), IGES (Bhandari), Takeda (assistant)
Southeast Asia (1)	Philippines**, Thailand*, Malaysia, UNU (Suzuki), Miyagi Univ. (Mizota), Taka (assistant)
Southeast Asia (2)	Cambodia**, Vietnam*, Laos, UNESCO (Gregorio), Miyagi Univ (Mikami), Kamii & Tamura (assistant)
Northeast Asia	UNU(Fadeeva)**, IGES(Sato)*, Japan (Harako), Japan (Kozawa), China, Miyagi Univ(Koganezawa), Japan (Oikawa), Y. Shouji (assistant)
Pacific New	Zealand**, UNU(Babikwa)*, USA, UNESCO(Elias), Miyagi Univ. (Saitou), Tottori Univ. (Kates), K.Shouji (assistant)

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Annex 3: Sub-regional Group Reports
Constraints and Countermeasures of In-service Teacher Education for the Implementation of Environmental Education

South Asia

A. Constraints

CONSTRAINTS (South Asia)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Lack of Adequate Policies] ● Lack of adequate policy ● Poor policy implementation ● Poor political will **[Lack of Facilities]** ● Lack of infrastructure **[Lack of Human Resources]** ● Lack of skilled resource persons / professionals / expertise **[Lack of Information & Material Resources]** ● Poor resource needs ● Lack of resources (teaching materials) **[Lack of Financial Resources]**	**[Lack of Incentives]** ● Low salary / wages ● No (lack of) team spirit in training institutions **[Lack of Monitoring & Evaluation]** ● No consistent evaluation mechanism for teachers **[Lack of Decision Making]** ● No involvement in policy formulation **[Lack of Practical Training Programmes]** ● Lack of basic training
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME, CURRICULUM
[Conventional Teaching Methodologies] ● Talk and chalk method still rules ● Textbook-based and examination-oriented ● Top down Programmes / curriculum design **[Action – Knowledge Gap]** ● Gap between teacher knowledge and content **[Low Capacity of Curriculum / Programme Design]** ● Poor capacity to design curriculum / programme **[Low Esteem]** ● Low esteem / status for teaching profession.	**[Lack of Scope & Formation]** ● Lack of EE component ● Not holistic (enough!) (too much subject content and methodology) ● Formal / non-formal 'marriage ' **[Limited Programme content]** **[Lack of examples of practical Programmes]** **[Irrelevance to "Real life"]** **[Systematized Programme]** ● Top down approach ● Lack of participation by stake holders (in curriculum / programme) **[Lack of Priorities]** ● Teacher training is a low priority **[Lack of Scope & Formation]**

B. Countermeasures

COUNTERMEASURES (South Asia)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Setting Adequate Policies] ● Formulation of national plans / policy for teacher training: ● National consultations, Advocacy, SAARC **[Financial Resources]** ● Resource (finance) ● Common pool / fund from Education Ministry and from other allied ministries **[Shared item with "Institutional capacity"]** ● Judicial activism **Note: Issues to be thought about;** ● Development of integrated training curriculum (National level / state) ● Inter-sectional linkages (cooperation) for teacher training ● Regional resource centres for teacher training & ESD (RCE)	**[Monitoring & Evaluation]** ● Evaluation framework that involves peers, community members and others **[Decision Making]** ● Involve teachers in policy formulation and consultations **[Inter-linkages]** ● Co-ordination between different 'stages' of education (horizontal and lateral)
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME , CURRICULUM
● Due recognition for the teaching profession in terms of salary / shelter / support ● Improve and provide periodic training ● Update teacher training curricula in tune with UNDESD	● Bottom up approach (needs-based) ● Sharing of EE teacher training curricula from other countries

Southeast Asia (Group 1)

A. Constraints

CONSTRAINTS (South-East Asia (1)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Lack of Adequate Policies] ● EE curriculum framework available but circulation is limited. (Philippines). ● No master plan or directed unit to support teacher training for EE. (Thailand). ● Policy exists, but implementations are limited. ● EE training is NOT a priority. **[Lack of Facilities]** ● No directed Centre / Unit to manage or operate teacher training for EE (Thailand). ● Absence of a focal point or person in main government agencies promoting EE (Philippines). **[Lack of Financial Resources]** ● Lack of financial resources (UNU). ● Lack of financial support (MUE).	**[Unclear Institutional Vision / Mission]** ● Lack of awareness of importance of EE (ESD) (UNU). ● Institutional mission. Awareness of management (UNU). **[Lack of Monitoring & Evaluation]** ● There are many interesting innovations and teaching tools but we lack a promotion and monitoring system to support EE implementation (Thailand). ● Monitoring evaluation scheme not present (Philippines). ● Evaluation of criteria for school teachers (UNU). **[Lack of Guidelines to Operationalise the**

● Limited financial resources and annual allocation (Malaysia). **[Lack of Educators' Network]** ● School – community linkage limited. (Philippines). ● Networks between schools and educational universities are limited (MUE). ● In some provinces, teacher networks have been formed but play a small role in promoting teacher training for EE (Thailand). ● EE network exists but membership is limited to a few Teacher Education Institutes / Universities / Schools (Philippines). **[Lack of Teachers' Trainers]** ● EE network exists but membership is limited to a few Teacher Education Institutes / Universities / Schools (Philippines). **[Lack of Coordination]** ● Lack of coordination between lead agencies promoting EE.	**Vision / Mission]** ● No "specific" documents to empower school administrators to infuse EE in the teaching / learning process (Malaysia).

CONSTRAINTS (South-east Asia (1)	
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME, CURRICULUM
[Frequency / Mode of Training] ● Training not institutionalized (Philippines). ● Lack of manpower to conduct in-service training (Malaysia). **[Limited Training Providers]** ● Limited number of EE teacher trainers. Most trainers are in NGOs (Thailand). **[Less Content of Training]** ● Lack of experience in infusing EE in the teaching/learning process (Malaysia). ● Most teachers still have limited ideas of how to integrate EE into the school curriculum. Creating! Creating! (Thailand) ● Misconceptions about integration of EE into curriculum and instruction (Thailand). ● Lack of knowledge and experience in EE (MUE). ● Insufficient access to information by ordinary school teachers (UNU). **[Pedagogical Beliefs]** ● Field activities limit knowledge acquisition. ● Expanding teacher training for EE in each subject. Teachers believe that EE should be infused only in science and social studies (Thailand). **[Less Incentives / Opportunities]** ● Teachers are forced to attend in-service training (Malaysia). ● Training opportunities limited, and training activities are not free (Philippines). ● Insufficient training opportunities (UNU).	**[Lack of Scope & Formation]** ● Curriculum overloaded EE integration not practiced as mandated (Philippines). ● No specific curriculum for in-service training.(not needs-based) (Malaysia). **[Lack of Needs Assessment]** ● Lack of community based research. **[Lack of Curriculum Development Team]** ● Lack of involvement among people in society (Malaysia). ● Minimal involvement of sectors, national companies (Malaysia). **[Lack of Articulation across Sectors]** ● Curriculum of in-service training focused on knowledge acquisition, limited real life problem-solving skills (Philippines). ● Lack of coordination among different levels of education (UNU).

B. Countermeasures

COUNTERMEASURES (South-east Asia (1)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Setting Adequate Policies] ● Prepare National (ESD) Action Plans (national-regional-local). ● Prepare an ESD plan/Programme monitoring system (national-regional-local). **[Educator's Network]** ● Identify regional centres of excellence (RCE) **[Coordination]** ● Establish a national coordinating body for ESD (Philippines). **[Building Facilities]** ● Identify regional centres of excellence (RCE) **[Human Resources]** ● Identify regional centres of excellence (RCE) **[Information & Material Resources]** ● Identify regional centres of excellence (RCE) **[Financial Resources]** ● Mobilization of financial support from different sources.	**[Institutional Vision / Mission]** ● Clear vision / mission statement. **[Monitoring & Evaluation]** ● Change of criteria evaluation.
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME , CURRICULUM
● Integrate EE Training into existing INSET. ● Involve professional teacher organizations. ● Mobilize financial support from different sources.	● MOE (Ministry of Education) should try to promote EE through each subject teachers' organization (Thailand). ● Strengthen EE networks not only among teachers but also school administrators, NGOs, community representatives. How are they involved in teacher training for EE? (Thailand) ● National curriculum focuses on integration so related sectors should try to help teachers by using EE as an integration unit (Thailand). ● More resources for teachers. ● Collaboration across grade levels. ● Mobilize financial support from different sources.

C. Recommendations

RECOMMENDATIONS FOR BEST PRACTICE & INNOVATION (South-east Asia (1)	
● Collaboration of schools and their communities. ● Teachers as researchers, community as eco-researchers. ● EE should be part of examinations.	● Focus on Core Messages. ● Whole –school approach. ● Sharing practices that work.

Southeast Asia (Group 2)

A. Constraints

<table>
<tr><th colspan="2">CONSTRAINTS (South East Asia (2)</th></tr>
<tr><td>SUPPORT SYSTEM</td><td>INSTITUTIONAL CAPACITY</td></tr>
<tr><td>[Lack of Adequate Policies]
● Lack of national policy for EE
● Ineffective / inefficient implementation of EE policies.
● Management of natural resources limited due to population growth, modernization ideas.
[Lack of Coordination]
● Lack of participatory approach involving stakeholders in EE programming.
● Lack of co-operation / coordination between primary and secondary school levels.
[Lack of Facilities]
● Lack of physical facilities for EE training (central / provisional / rural).
● Shortage of infrastructure (transportation / school buildings) for promoting EE in schools.
[Lack of Financial Resources]
● Unite financial for EE (Cambodia)
[Lack of Human Resources]
● Unite technical for EE (Cambodia)
[Lack of Information & Material Resources]
● Lack of / insufficient EE materials for teachers and students.</td><td>[Unclear Institutional Vision / Mission]
● Schools should have an institutional mission.
● Lack of institutional mission.
[Lack of Incentives]
● Lack of insufficient economic rewards and incentives to do effective EE work in schools.
[Lack of Monitoring & Evaluation]
● School should have monitoring measures.
● Lack of monitoring system.
[Institutional Culture]
● Economic pressure creates different points of view between school and community.</td></tr>
<tr><td>IN-SERVICE TEACHER'S CAPACITY</td><td>PROGRAMME, CURRICULUM</td></tr>
<tr><td>[Lack of Teacher Trainers]
● Lack of teacher trainers in EE promotion.
[Over flood subjects to be Implemented]
● Too many subjects for teachers to integrate (Cambodia).
[Lack of Curriculum Development Team]
● Lack of support from school administrators / principals / other personnel.

* In-service teachers are not free of charge.
* In-service teachers don’t know what EE / ESD is.
* Teaching and learning style
* Teachers are forced to take other training.</td><td>[Lack of examples of practical Programmes]
● Lack of EE training for teachers.
● Lack of programmes for EE teacher training.
[Irrelevance to “Real life”]
● Limitations for local action due to centralized curriculum planning.
● Lack of community based.
● Limited knowledge for implementing imported curricula.
● Curriculum imported from developed countries, so locals can’t fit to own needs.
[Systematized Programme]
● Lack of curricula on EE.</td></tr>
</table>

B. Counter measures

COUNTERMEASURES (South East Asia (2)

SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Setting Adequate Policies] ● Develop a national action plan on EE with provision of technical / financial resources. ● Include EE in national EFA action plans. **[Coordination]** ● Establish a national mechanism to undertake coordination role in EE. ● Strengthen the involvement of stakeholders in EE programming. **[Information & Material Resources]** ● Provision of technical and financial assistance.(Cambodia) **[Financial Resources]** ● Provision of technical and financial assistance.(Cambodia) ● Donor / international organization support. **[Teachers' Trainers]** ● Provision of technical and financial assistance.(Cambodia) **[Educators' Network]** ● Linkage with institutions providing training. (H.E, NGO's, int'l organizations) ● Donor / international organization support. **[Facilities]** ● Negotiate with donors to provide training facilities. (JICA) *Schools should have support from other sectors such as finance, intellectual, etc. *Implementation of action plan has some constraints. *National mechanism faces problems in terms of consent. *Develop training for principals, school administration on EE.	**[Decision Making]** ● Local community support / contributions. **[Inter-linkages]** ● Partnerships are better than relying on donors.

IN-SERVICE TEACHER'S CAPACITY	PROGRAMME , CURRICULUM
● Organize regular professional development for EE trainers Programme. ● Organize and conduct environmental seminars for teachers / trainers (Cambodia). ● Develop teacher training curricula at school level for EE (Laos). *Decentralize: integrate EE programmes to regions and locally. *Introduce past experiences on EE disasters to developing countries to their EE Programmes. *Encourage NGOs to contribute activities in providing in-service teacher's capacity. *Introduce successful approaches to in-service teachers.	● Set up centres for EE. (national , regional , local) ● Develop / upgrade / update EE TT Programmes. ● Core / educational / institution link to teacher's in-service training ● Incorporate EE components into existing curricula and materials examination. ● Develop a series of EE materials. ● Existing teacher upgrade training courses. *Recognize / integrate indigenous knowledge in non-formal education Programmes

C. Recommendations

RECOMMENDATIONS FOR BEST PRACTICE & INNOVATION (Southeast East Asia (2)	
● National project on EE (2000-2005), UNDP-DANPA Project on EE 1997-2004, 2004-2007. ● Develop a matrix for incorporating EE into existing curricula / teacher training. ● Develop teacher guidebooks on "Designing EE models". ● Schoolteachers should design and implement EE models and incorporate into their teaching. ● Inter-ministerial steering committee for EE to develop national Programmes (Cambodia). ● Formation of local associations by NGOs and religious groups for EE in the community (Cambodia).	● Self-learning on EE encouraged / motivated by job opportunities (Cambodia). ● Partnership between Min of Science, Technology, Environment + MOE in implementing national action plan (Laos). ● Special events to promote environment awareness (e.g. Eco-clubs, Greening). ● Provision of scholarships / incentives for students going to Universities of Education / Teacher Training Colleges (Vietnam / Laos / Cambodia). ● Incentives for extra teaching locally. ● Additional support for female teachers in rural / remote areas. ● Incentives provided for regular teachers assigned to difficult situations and remote areas as well as for contract teachers. ● Flexible curriculum for minority children based on local needs (Laos).

Northeast Asia

A. Constraints

CONSTRAINTS (North-East Asia)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Lack of Information & Material Resources] ● Lack of Information on EE (as teaching material) (Japan). **[Lack of Adequate Policies]** ● No quality control of EE (Russia). ● Japan doesn't have a systematic EE Programme (Japan). **[Lack of Facilities]** **[Lack of Financial Resources]** ● No specification of funding at the national level (financial allocation) ● Lack of budget to do EE Programmes (Japan). **[Lack of Educators' Network]** ● Institutions don't know how to support schools. ● Schools aren't able to find institutions to support them. ● Institutions wonder what contents to contribute to school (Japan). **[Lack of Coordination]** ● Lack of connection and support between schools, universities and other institutes (Japan). ● Universities and NGOs don't know much about "school" and "school	**[Lack of Incentives]** ● Few incentives for in-service teachers because low priority in schools (Japan). **[Lack of Inter-linkages]** ● Existence of conditions which constrain originality of teachers in class (e.g. principal, college, parents) (Japan). ● It is difficult for Japanese schools to give consent for management. **[No time to design / research / develop EE Programmes]** ● No time for research (Japan). ● Lack of time to study EE by oneself. ● Teachers can't afford to do "Integrated Studies" classes (Japan). ● Teachers have no time to discuss curriculum design with other teachers at school or with

children"(Japan) ● Distance between specialists and teachers (Japan). ● Distance between professors, teachers and students (Japan). **[Low priorities and Status of EE]** ● Low priority on Environmental Education (Russia). ● Low status of EE / no social support ● China has a large population and it's difficult to put E.E. into effect so should carry out tests in some small countries (China). ● The system for EE is very limited. Not many people are interested in supporting EE (China). ● Most citizens are not conscious of the importance of EE (China). **[Examination System]** ● In school, both teachers and students focus on education for tests and the examinations (China). ● Problem of the content of examinations (Japan).	specialists (Japan). **[Class size]** ● Class-size is too large for experimental learning (Japan). *Schools don't know how to get institutional support (Japan).

CONSTRAINTS (North-East Asia)	
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME , CURRICULUM
[Lack of teacher leadership] ● Too much reliance on textbooks (Japan). ● Too much reliance on expert views (Japan). **[Lack of learning ability]** ● Gaps between new knowledge and teacher's training (Russia) **[Lack of concepts, contents, ideas]** ● The main idea of EE in elementary school and middle school is not clear yet: focus + contents + concepts (China). ● Teachers don't know ESD concepts, so they can't design curricula. **[Lack of creative ability / possibility]** ● Power of teachers' supervision of EE is not strong (China). ● Teachers lack ability to build a creative learning (Japan). ● Teachers don't have the opportunity to organize programmes (Japan). ● Low quality of teachers for implementing EE in schools (China). **[Lack of EE Experience]** ● Lack of experience in E.E. for school teachers (Japan). **[Lack of Social Experience]**	**[Limited Programme content]** ● The contents of EE are not enough. Just stay at the basic line. We need to improve it (China). **[Lack of examples of practical Programmes]** ● Lack of examples of practical programmes on EE (Japan). **[Irrelevance to "Real life"]** ● EE taken outside of context of actions (Russia). ● The balance of EE is not good. It differs depending on different areas (China).

B. Counter Measures

COUNTERMEASURES (North-East Asia)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Educator's Network] ● Linkage between universities and educational administrators to build a teacher learning system and support. **[Human Resources]** ● Fellowship with colleagues (Japan). ● Increase the number of "Tutors" in schools (Japan).	**[Institutional Vision / Mission]** ● Engage teachers, decision makers and people in discussion about the future of EE. **[Decision Making]** ● Create an open communication

[Facilities] ● RCE (Regional Centres of Excellence) & Global learning space. **[Financial Resources]** ● More financial support for EE, careful money usage (China). **[Teachers' Trainers]** ● Create a teacher learning system for learning how to design and coordinate EE Programmes. **[Incentives]** ● Official recognition of achievements through "EE Awards" ● Introduce sabbaticals (half a year every 5 years) (Japan). ● Introduce a sabbatical system for teachers (Japan). ● Share social experiences during the sabbatical term. ● Try to reduce the burden of study for students, so students will have more time to focus on EE (China). **[Publicity]** ● Pay more attention to publicizing EE through media, PR. (China) ● Need for PR about good role models - persons like Socrates. **[Examination Reformation]** ● Change the content of examinations (Japan).	culture, public space (Japan). ● Engage teachers, decision makers and people in discussion about the future of EE. **[Institutional Culture]** ● Create an open communication culture, public space (Japan). **[Inter-linkages]** ● Engage teachers, decision makers and people in discussion about the future of EE.
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME , CURRICULUM
[Leadership training] ● Self-discipline on the teacher's part. ● Help teachers to become independent from the textbook. **[Higher Education Reformation]** ● Change the learning system in higher education from "what to know" to "how to learn" (Japan). **[Incentives]** ● Increase the salary of teachers (Japan). ● Incentives to complete Programmes of EE (Japan).	● Ask children! (Russia) ● Make a link between EE and stage /style /kind of development. ● Make better textbooks or other materials for EE in order to make it easier for students to study (China). ● To build a systematic EE curriculum, import from advanced countries (Japan). ● Discussion between teachers and students (Japan).

C. Recommendations

RECOMMENDATIONS FOR BEST PRACTICE & INNOVATION (North-East Asia)	
● Community based and locally owned resource centres. ● Teacher training for adapting curricula to local needs. ● Integrate EE content into relevant subjects or develop EE as supplementary materials. ● Set up a national coordinating body	● Develop ESD as a core subject ● Update training curriculum and manual. ● Institutionalize teacher training. ● Due recognition of teaching profession in terms of salary, social status, respect. ● National consensus on training policy

Pacific States

A. Constraints

CONSTRAINTS (Pacific)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Lack of Adequate Policies] ● Ministry of Education emphasizes "education for the future" but does not support "futures education" at all levels. ● Lack of policy at government level to guide EE or put it on the agenda. ● Lack of assessment standards for EE/ESD. ● EE guidelines exist for schools but are not mandatory. ● EE not being included in school curriculum. **[Lack of Financial Resources]** ● No money available for support , monitoring ● Financial support provides only for limited implementation of EE/ESD. ● EE budget being reduced or eliminated. ● Dependency on external funding of Programmes. ● Lack of funds to support teacher professional development. **[Lack of Information & Material Resources]** ● No information available to develop capacity to teach EE **[Lack of Coordination]** ● Delivery, communication of support is very difficult (includes linguistic aspect) **[Low priorities and Status of EE]** ● Environmental Education not included in state government educational institutions ● Lack of priority ● Competing priorities **[Examination System]** ● Overemphasis on examinations	**[Lack of Management]** ● Lack of support for EE/ESD by institutional management teams. ● Professors and administrators are not environmentally literate.

CONSTRAINTS (Pacific)	
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME, CURRICULUM
[Conventional Teaching Methodologies] ● Teachers don't understand EE/ESD. ● Learning style conflict between traditional note-taking and action-based learning approaches. ● Teachers over whelmed by curricular demands. ● Lack of time for in-depth curriculum planning for EE/ESD. ● Lack of money, training expertise available. ● Teachers don't see relevance of EE to their topic. ● In some instances, EE still narrowly defined. ● System of training teachers has emphasized traditional disciplines, so teachers are challenged when expected to teach integrated content. ● Social issues component of EE - EE could address societal issues (e.g. Environmental justice) ● Poverty, drug use, discrimination	**[Irrelevance to "Real life"]** ● Curriculum not locally relevant, i.e.: Pacific region EE is driven by the USA, Australia, NZ and France. ● Curriculum does not build on local knowledge of environment, sustainable resource management systems. **[Systematized Programme]** ● EE/ESD is often viewed as the responsibility of the formal education system thus making cross-sectoral collaboration is difficult in regards to planning for ESD.(NZ) **[Lack of Priorities]**

● Teachers entering the field without EE experiences.	● Lack of sustained support. **[Lack of Scope & Formation]** *Lack of time for EE/ESD because of on overcrowded curriculum. *Discipline-based approach discourages inter-disciplinary education such as EE/ESD. *Formal-non-formal work together. *Material/resources extraneous to cross curriculum. *Inaccurate resources, poorly mode, questionable motives (USA) *Ownership of Programmes, lack of sharing information cost for purchasing NGO Programmes.

B. Counter Measures

COUNTERMEASURES (Pacific)	
SUPPORT SYSTEM	INSTITUTIONAL CAPACITY
[Setting Adequate Policies] ● Stakeholder policy ensures research to support ESD. ● Make education a priority in government ● Assessment tools **[Incentives]** ● Make education a priority in government	**[Incentives]** ● Create an inbuilt system for individuals to take action and respond to challenges without exception (autonomy). **[Monitoring & Evaluation]** ● Teachers, professors, administrators need to pass an environmental literacy screening test. **[Decision Making]** ● Coordination: team members placed in teachers in-service support teams that work regionally (NZ). **[Institutional Culture]** ● Establish a new school culture. **[Management]** ● Institutional management, lack of funds, not separate discipline-based approach. ● Coordination: team members placed in teachers in-service support teams that work regionally (NZ). ● Recognizing teacher commitment to ESD by allocating staff management units (NZ). ● Model schools: *Enviro-schools* concept that links curriculum organizational principles, operational practices and school ground management.
IN-SERVICE TEACHER'S CAPACITY	PROGRAMME , CURRICULUM
● Revisit the conceptual / philosophical basic of teacher training. ● Research on new teaching and leaning approaches for EE / ESD that focus on student action (NZ). ● Expose teachers to practical implications.	● Respect and support non-formal knowledge ● Flexible contexts ● Relevant evolving ● ESD/EE is the “core curriculum”. ● ‘good’ education

● Able to account / access student learning qualitatively. ● Is accepted by stakeholders	● Effective professional development experiences (sustained practice). ● Regional EE/ESD Programmes that provide or allow for flexible contexts should be encouraged. ● Formal vs. non-formal, lack of sustained support inadequate resources. ● Environmental schools that "walk their talk" to teachers who make it happen for students.

C. Recommendations

BEST PRACTICES, RECOMMENDATIONS, INNOVATIONS (Pacific)	
● Promote ESD as a core of learning. ● Support actions on ESD to promote public understanding, advocacy, literacy and awareness. ● Identify + set priorities in consultation with stakeholders. ● Needs assessment ● Documentation of success stories on ESD from various cultural contexts. **[Support system]** ● Encourage the development of national EE/ESD co-ordination teams that support in-service training. ● More financial support for research to support ESD will make things go smoother. ● Try to do more PR activities (e.g. advertising, media work, etc.) to stimulate citizen participation in EE.	**[In-service teacher's capacity]** ● Encourage further research on effective teaching and learning strategies for EE/ESD. ● Effective centralization of research outcomes to promote educational innovations on ESD: (formal and non-formal) ● Encourage participatory action research in teacher training and learning in formal or non-formal EE. **[Institutional capacity]** ● Develop opportunities for formal education system to link with community partners in supporting initiatives in EE/ESD. ● Blend formal, informal and non-formal approaches together. **[Programme/Curriculum]** ● Examples of cross-curricular assessment for ESD should be shared among Asia / Pacific nations during 2005-2015. ● Stakeholder participation in curriculum development, implementation and assessment.

Annex 4 A: Regional Level Recommendations

1. Overarching Efforts

	REGIONAL LEVEL
Overarching Efforts	**[Institutional Coordination]** ● Institutional coordination to avoid overlapping efforts. **[Organization of a Series of Workshops]** ● Organize regular seminars / workshop for exchange of experiences. **[Information & Experience Exchange]** ● Create an on-line exchange of information and experience. **[Setting / Linking Regional Centres of Excellence]** ● Promote regional centres of excellence. ● Develop links with existing educational institutes / centres of excellence. ● Clearinghouse at regional level. **[Mobilization of Technical & Financial Resources]** ● Mobilize resources, both technical and financial. **[Partnership between Government & Donor Agencies]** ● Partnership between government and donors in implementing national action plans. **[Partnership between Different Agencies & Practitioners]** ● Co-ordinate activities between different agencies and practitioners. **[Networking]** ● Create an effective mechanism for maintaining existing networks. ● Strengthen networks based on existing initiatives. ● There is a need to develop a strong network for sharing ideas and innovations in EE / ESD throughout the decade 2005/2014. ● Strengthen educational networks (educational institutes), schools and communities through EE (focus on community-based learning and research). ● Strengthen networking by creating a multi-level forum including educators, teachers, community representatives, NGOs and government representatives. ● Promote networking at the sub-regional level.

2. Project Implementation Process

A. Design & Planning Stage

	REGIONAL LEVEL
Design Stage	**[Concept & Approach for ESD]** ● Emphasize the UNDESD as a "Peoples Decade" not just a "UN/UNESCO Decade". ● Clarify the distinction between EE and ESD. ● Avoid SD jargon and message fatigue. ● Identify organic "on the ground" ESD initiatives which "capture the representation of diverse audiences". ● Find the "missing link" in our planning. ● Envision uncertainties. ● Revisit histories and learn from the past. ● Arouse the "refilling" of UNDESD. ● Establish a focus at the regional & country level to co-ordinate Programmes on ESD. ● Learn from what already exists (stock taking). ● Stock taking activities should include not only EE but also ESD. ● Build capacity for developing countries. ● "Meet people where they are" to understand and build relationships. **[Needs Assessment]** ● Needs assessment at each sub-regional, regional and country level about ESD implementation. How can we help each other? ● Country / community consultations. ● Consult widely to build partnerships. **[Marketing]** ● Identity possible key agents to implement DESD. ● Review the current capacity / situation. ● Assess the strengths and weaknesses of ESD.
Planning Stage	**[Regional Strategy & Implementation Plans]** ● Formulate Regional and Sub-Regional strategies. ● Country / community consultations. ● Develop a common agenda & strategies for ESD at the regional level. ● Set a common agenda. **[Research Plans]** ● What research is available in EE / ESD that identifies teaching & learning for change.

B. Implementation & Follow up Stage

	REGIONAL LEVEL
Implementation Stage	**[Capacity Building, Education & Literacy Promotion]** ● Promote distant on-line learning through the Global Virtual University (GVU). ● Promote Type II Initiatives, Asia-Pacific Initiatives. ● Establish a good knowledge base through the Toolkit project. ● Literacy promotion. **[Material Production]** ● Regional book production on certain topics. **[Accumulation of Lessons from Experiences]** ● Use grassroots successes to advance systemic changes. ● There is a need to develop a strong network of sharing ideas & innovations in EE / ESD. ● Through-out the decade 2005/2014. ● Identify best practices **[Public Relations & Outreach]** ● Popularize DESD. ● Publicity and awareness campaign for UNDESD. ● Spread the ESD message as widely as possible. ● Need for acceptance at the public level. There is a need for a public forum.
Follow Up Stage	**[Evaluation & Assessment]** ● There is a need to develop and share examples of assessment.

Annex 4 B. Recommendations for National Implementation

A. General

	NATIONAL LEVEL
Others (National Level)	**[National Action Plans & Political Negotiations]** ● Develop national-level action plans. ● Sensitize politicians and policy makers to the vitality of ESD (to muster their support). **[Institutionalization]** ● Make Education for Sustainable Development a foundation course in all teacher training institutions. ● Organize short courses and materials on ESD to reorient teacher educators in colleges and universities. **[Teaching & Learning Strategies]** ● There is a need to identify teaching and learning strategies, methods and Programmes that focus on change. ● If education is to be the agent of change, then we need to adopt teaching and learning strategies that focus on change, help learners, and reflect our altitudes and values. **[Curriculum / Material Development]** ● Review the present curriculum. ● There is a need to promote ESD as a course of education. ESD is not added to the curriculum. It is the context or overarching theme of the curriculum. ● Curriculum tools for ESD during the decade. ● Sensitize curriculum developers to how to integrate ESD into learning curricula at different levels. ● Provide toolkits for different groups.

B. Institutional Efforts.

	Ways of Implementation
Institutional Efforts	**[Setting Coordination Body]** ● Country coordination team (meets 2-3 times per year). ● Regional coordination team (meets 1 time per year). ● Coordination teams should include formal education and community / NGO educators. ● Set-up core groups. ● Regional / Sub-regional / In-country consultations. **[Open Communication Structure]** ● Evaluate and discuss channels opened in order to promote the ESD message and workings models. **[Public Relations & Outreach]** ● PR activities. **[National Commitment to Keep the Network]** ● Commitment to maintain the network by individual nations. **[Setting/ Linking Regional Centres of Excellence]** ● Establish regional/sub centres for ESD. ● Promote regional centres of excellence. **[Setting Monitoring System]** ● Monitor progress of ESD projects (network, field project, media…) to identify obstacles and characteristics of success.

C. Approach

	Ways of Implementation
Approach Based	**[Research]** ● Research ESD / EE teaching and learning, networking and coordination. ● Documentation research (Action). **[Implementation of Project]** ● Pilot project (focusing on DESD). ● Strengthening of networks and partnerships. ● Regional launch, country launch, local launch. ● Donor-supported projects. **[Information Exchange by On-line Basis]** ● Set up on-line exchanges at educational institutes. **[Data Base]** ● Share practices that work. **[Partnership]** ● Promote bilateral / multilateral national efforts for co-operative activities (partnerships). ● Bring together different ESD partnerships to transfer ideas and activities to countries where ESD initiatives are not working. **[Regular Regional Workshop & Seminars]** ● Hold regional / sub-regional workshops & seminars for needs assessment and sharing ideas. ● Feed the network by regular seminars / workshops. ● Sub-regional to regional workshops, on a regular basis for a step-wise approach. ● Workshops and training for different effective countries. ● Invite representatives to share information and develop networks on ESD. **[Regional Planning Workshop]** ● Scenario building. ● Plan for uncertainties (through scenarios). **[Regional Evaluation Workshop]** **[Regional Media Workshop]** ● Tools for media, media workshops. ● Media awareness information and involvement of stakeholders.

D. Topic Based.

	Ways of Implementation
Topic Oriented Efforts	**[Book & Material Production & Its Workshop]** ● Develop different materials and guides for different audiences (policy, private, NGO, community, etc.). ● Prepare low-cost / low technology awareness materials. ● Provide basic tools (materials, guidebooks…) for developing countries (to create a knowledge base). **[Curriculum Development & its Workshop]** ● Regional workshop on development and matrix for incorporating EE into existing curricula / teacher training. **[Regional Training Workshop]** ● Training workshops to update training curricula and manuals at the regional level. ● Regional workshops on teacher training for adapting curriculum to local needs.

1. Theme

Environmental Education for a Sustainable Society: Principles and Practice of Environmental Education for School Children

2. Purpose of this seminar

The establishment of sustainable societies, which cannot be achieved without various long-term educational efforts, is a pressing subject common to human beings.

The purpose of this seminar is to bring together different activities on supporting school education by specialists in the field of environmental education, especially the training of teachers which is of pressing importance. Further goals are to urge information exchange among participants, to grasp the present situation, and, in view of DESD, to clarify the objectives of the Asian area to be achieved within the next ten years.

3. Sponsorship

Japanese National Commission for UNESCO, Miyagi University of Education

4. Joint auspices

Kesennuma-City, Asia/Pacific Cultural Centre for UNESCO

5. Dates

11 - 14 February, 2004

11 February	Open session: Keynote lecture and reports on environmental education in foreign countries
12 February	Study of the inspection of educational activities of a school with the support of Miyagi University of Education: Participating in an open study group of Kesennuma municipal Omose elementary school
13 February	Conference of specialists (about 60 participants, at a hotel in Kesennuma city)
14 February	Conference of specialists (about 60 participants, at a hotel in Kesennuma city)

6. Venue

Kesennuma-City (Kesennuma-city central public hall, Omose elementary school and Kesennuma Hotel Kanyo)

7. Expected Participants

A total of 16 persons are planning to attend; one each from China, Fiji, India, Indonesia, Malaysia, Nepal, New Zealand, Philippines, South Korea, Thailand, Afghanistan, Mongolian, Laos, Vietnam, Cambodia and UNESCO.

In addition, about 15 Japanese related to this seminar and some 20 Japanese and non-Japanese general participants would be expected to join.

8. Organization

Chief Officer

Kaoru Yokosuka (President of Miyagi University of Education)

UNESCO APEID Seminar Committee

Chairman

Kazuyuki Mikami (Director of Environmental Education Center,Miyagi University of Education)

Committee Members

Kosei Izawa, Masaharu Yasue, Yoshihiro Ugawa, Chiemi Saito, Takashi Muramatsu, Takao Watanabe, Takaaki Koganezawa, Toshio Kawamura, Yoshihiko Hirabuki, Kiyoshi Saijo, Masaaki Oka, Makio Taira, Yoshiharu Ito, Naoya Komatsu, Koji Mizota, Yoshinori Sato (Environmental Education Center), Hidenori Sugawara (Manager of the General Affairs Division), Toshihiko Ota (Manager of the Finance Division), Jinichi Matsumoto (Manager of the Academic Affairs Division)

Outside committee

Eiichiro Harako (Professor of Tokyo Gakugei University)

Observer

Takamori Hongo (Member of International Exchange Committee, Miyagi University of Education)

Executive Office of Committee

Noriko Memezawa, Keiko Fukui, Kumiko Suganami

Cooperating professors at Miyagi University of Education

Masako Sato (The headmistress of Kindergarten affiliated to Miyagi University of Education)

Morihiro Aoki (The principal of School for Mentally Retarded Children affiliated to Miyagi University of Education)

Cooperating committee members outside of Miyagi University of Education

Katsunori Suzuki (The United Nation University/ Institute of Advanced Studies)

Masahisa Sato (IGES)

9. Special Cooperating institutes

UNU, Kesennuma UNESCO, IGES, FMF

Kessennuma Omose elementary school

10. Supporting institutes

Miyagi-prefecture, Sendai-city, Miyagi-prefecture Board of Education,

Sendai-city Board of Education, newspaper companies, Broadcasting companies (under arrangement)

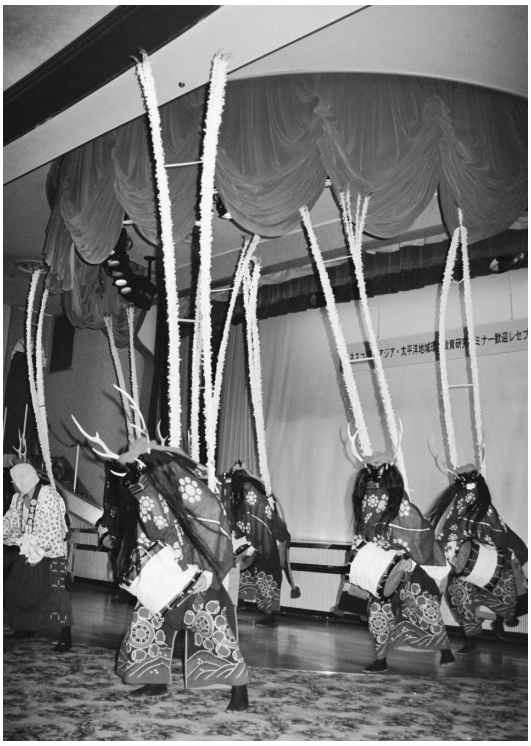
11. Expenses

Concerning the invited guests from abroad, the sponsor is to cover return airfares and expenses for the stay during the seminar. The total amount of expenses is decided by the sponsor.

Concerning the invited Japanese guests, the sponsor is to cover transportation fees and part of the expenses during the seminar.

The coverage of part of the expenses related to the open conference by Kessennuma city is under consideration.

"Waseya Shishiodori"



"Waseya Shishiodori" is traditional deer dance and the dance has been performed for a long time in Iwate-prefecture and Miyagi-prefecture. "Waseya Shishiodori is said to have been introduced to Iwate-prefecture about 170 years ago. It is also said that the dance was originally made in Miyagi-prefecture.

"Waseya Shishiodori" has a legend. The legend goes like this.

Once upon a time, there was a deer hunter. His son didn't like him killing innocent deer and wanted him to stop. One day the son wore deer skin and got shot by the hunter who had no idea that the deer was his son. Eight deer came toward the dead son who sacrificed himself in order to save deer. Those eight deer were very thankful for the son and walked around him as if they were dancing to console his soul.

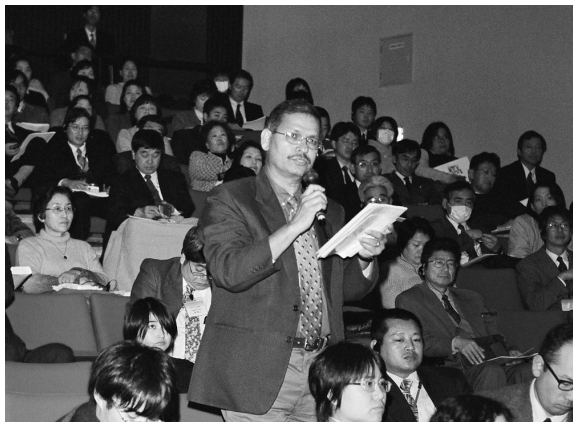
The hunter saw the scene and got enlightenment. He stopped killing animals and created deer dance to console his son's soul.

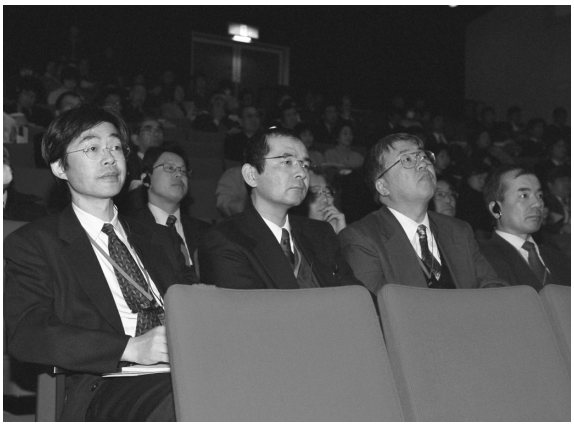
Now "Shishiodori" is performed to console ancestors' souls and also to protect people from all sorts of diseases. The trousers-like costume of deer dance has patterns of waves on them and the pattern might show the connection between the dance and ocean. There is a possibility that "Shishiodori" was transferred from seaside areas to mountainous places through "Salt Road" which was made in order to transfer salt to inlands. In a way, deer dance was created by the cultural exchange between seaside culture and mountain culture.

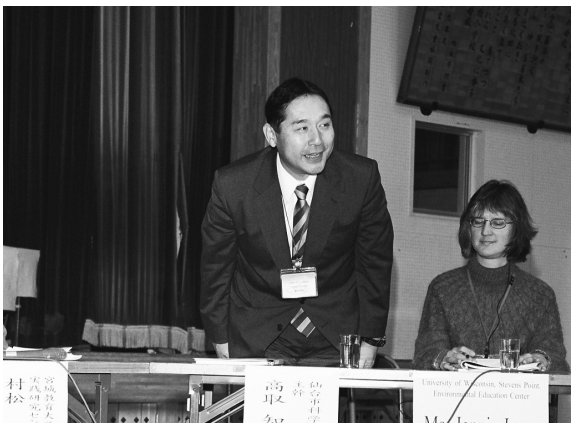
The performers of "Waseya Shishiodori" dance and sing playing drums and their movement is not only dynamic but also very graceful.

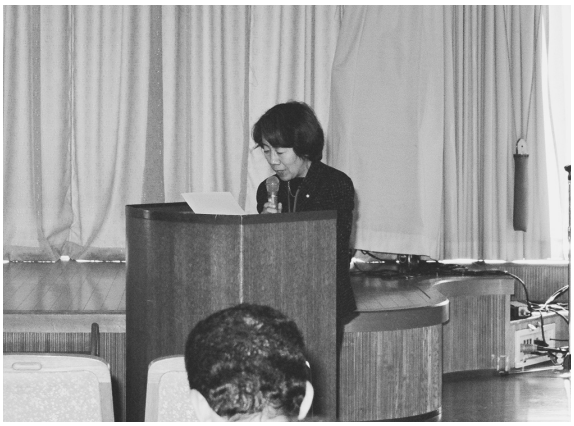
Snapshot


Asian-Pacific Environmental Educational Research Seminar, 2004







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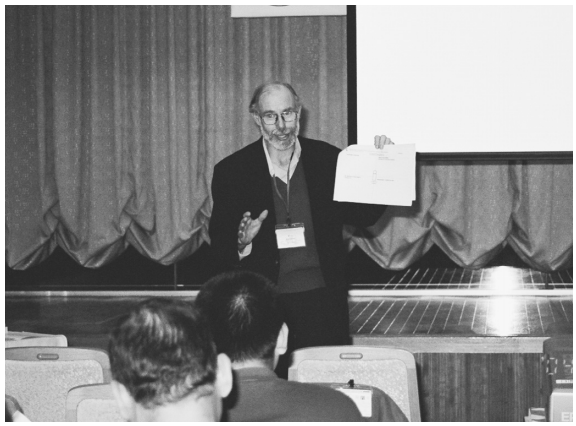

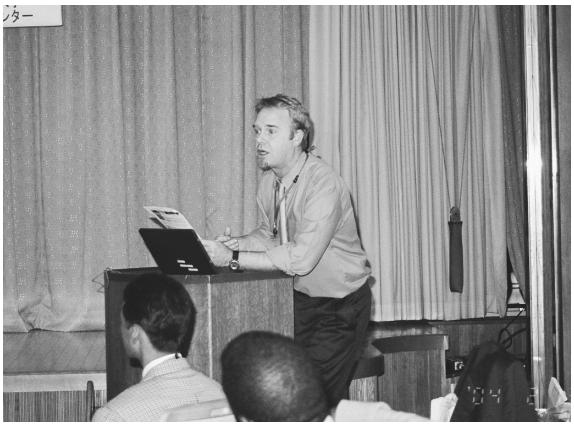


North-East
Asia


Asian-Pacific Environmental Educational Research Seminar, 2004


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