Evolving Environmental Education and its relation to EPD and ESD
Overview of the Conceptual Development based on a series of International Discussion on Environmental Education

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The concept of Environmental Education (EE) has evolved since the name of EE was used in the world community. It seems that the evolution has been strongly reflected from the needs and interests for the achievement of sustainable development and for the enhancement of quality education. In this paper, it describes its historical development of EE in terms of thematic areas and approaches, and the relation to Education and Population and Information for Human Environment (EPD) and Education for Sustainable Development (ESD).

I. The Evolution of Environmental Education

The concept of EE was first formalised by the International Union for the Conservation of Nature and Natural Resources (IUCN), in 1970 at a meeting in Nevada, USA. At that meeting, Environmental Education was defined as:

A process of recognising values and classifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental Education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality.

(IUCN, 1970²)

Recommendation 96 from a conference on the Human Environment held by the United Nations in Stockholm during 1972 stated that the Secretary-General, the organisations of the United Nations system, especially the United Nations Educational, Scientific and Cultural Organisation (UNESCO), and other international agencies concerned should, after consultation and agreement, take the necessary steps to establish the International Environmental Education Programme (IEEP), inter-disciplinary in approach, in-school and out-of-school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizens living in rural and urban areas, young people and adults alike, with a view to educating them as to the simple steps they might take to manage and control their environment (United Nations, 1972³). Thus Environmental Education was recognised and its development was recommended by the world community as a measure for the understanding, protection and improvement of the environment and its quality (United Nations, 1972⁴; UNESCO-UNEP, 1976⁵). The International Environmental

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Education Programme (IEEP) was established in 1975 and became a co-operative activity between UNESCO and UNEP, which had the following objectives: (1) access to information; (2) research and experimentation; (3) educational programmes and teaching materials; (4) training of personnel; (5) technical and vocational education; (6) educating and informing the public; (7) general higher education; (8) special training; and (9) international and regional cooperation. The IEEP organised many international and regional conferences and workshops such as the 1977 Tbilisi and the 1987 Moscow congress developed programmes for delivering Environmental Education, developed the concept and meaning of Environmental Education, and proposed many recommendations and strategies.

The IEEP has supported a large number of projects in many countries. In its first ten years, it went through three phases of development. **The first phase of the IEEP (1975-1977) contributed greatly to the development of global Environmental Education awareness.** In this phase, as a part of the follow-up to the 1975 UNESCO-organised international Environmental Education workshop held in Belgrade, regional meetings were held during 1976 and 1977 in Africa, the Arab States, Asia, Europe, Latin America and North America. These meetings brought together representatives from all over each region to review and evaluate the Belgrade Recommendations in more specific regional contexts prior to the **Inter-governmental Conference on Environmental Education which was convened in Tbilisi, USSR in 1977.**

At the 1977 UNESCO-UNEP sponsored Tbilisi conference a fairly coherent concept of Environmental Education as regards its goals, objectives, guiding principles, and models of implementation was drawn up. In cognisance with IUCN’s definition (IUCN, 1970), Environmental Education was defined as:

> A process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has knowledge, attitudes, motivations, commitments and skills to work individually and collectively towards solutions of current problems and the prevention of new ones.

(UNESCO-UNEP, 1978)

Further, regarding the aim of Environmental Education, the conference stated that:

> [...] a basic aim of Environmental Education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic and cultural aspects, and acquire the knowledge, values, attitudes and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and the management of the quality of the environment.

(UNESCO-UNEP, 1978)

This definition of Environmental Education formed the basis of the Tbilisi Declaration, which identified five main objectives, i.e. awareness, knowledge, attitudes, skills and participation, and actions (UNESCO-UNEP, 1978), as shown in Table 1.

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Table 1: Objectives of Environmental Education

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>• To help social groups and individuals acquire an awareness of and</td>
</tr>
<tr>
<td></td>
<td>sensitivity to the total environment and its allied problems.</td>
</tr>
<tr>
<td>Knowledge</td>
<td>• To help social groups and individuals gain a variety of experience in, and</td>
</tr>
<tr>
<td></td>
<td>acquire a basic understanding of, the environment and its associated</td>
</tr>
<tr>
<td></td>
<td>problems.</td>
</tr>
<tr>
<td>Attitudes</td>
<td>• To help social groups and individuals acquire a set of values and feelings</td>
</tr>
<tr>
<td></td>
<td>of concern for the environment, and the motivation for actively</td>
</tr>
<tr>
<td></td>
<td>participating in environmental improvement and protection.</td>
</tr>
<tr>
<td>Skills</td>
<td>• To help social groups and individuals acquire the skills for identifying</td>
</tr>
<tr>
<td></td>
<td>and solving environmental problems.</td>
</tr>
<tr>
<td>Participation</td>
<td>• To provide social groups and individuals with an opportunity to be</td>
</tr>
<tr>
<td></td>
<td>actively involved at all levels in working towards the resolution of</td>
</tr>
<tr>
<td></td>
<td>environmental problems.</td>
</tr>
</tbody>
</table>

Source: UNESCO-UNEP (1978)"}

The 1977 Tbilisi conference also stated that Environmental Education stems from the reorientation of various disciplines and the establishment of links between them, to facilitate an integrated and comprehensive perception of environmental issues and to encourage more rational actions to satisfy the needs of society (UNESCO-UNEP, 197811). Therefore, the second phase of the IEEP (1978-1980) was primarily devoted to the conceptual and methodological development of Environmental Education (UNESCO, 198512).

In 1980, IUCN, UNEP and WWF published a report entitled The World Conservation Strategy (IUCN, UNEP and WWF, 198013). The report also contributed to the development of the concept of Environmental Education. It addressed for the first time the issues of the conflict between environmental conservation and development. The strategy introduced “development” as an important means of achieving conservation (Eliott, 199414), that they were mutually dependent and hence introduced the concept of “Sustainable Development” (Sterling, 199215).

During the third phase of the IEEP (1981-1985), emphasis was placed on the development of content, methods and materials for Environmental Education practices and training activities (UNESCO, 198516). This was the period in which an increasing number of countries realised the need to upgrade their own environmental programmes to deal more effectively with environmental problems and to officially introduce Environmental Education into their educational plans and reforms (UNESCO, 198517). As a result of the practices, the concepts were further developed at the UNESCO-UNEP Congress on Environmental Education and Training held in Moscow in 1987. The congress document emphasised the needs and priorities in developing Environmental Education and training and suggested 42 international actions required in Environmental Education and training for the 1990s. The global strategy was provided to member states and institutions with a framework.

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10 UNESCO-UNEP. 1978. Ibid.
11 UNESCO-UNEP. 1978. Ibid.
16 UNESCO. 1985. Ibid.
17 UNESCO. 1985. Ibid.
for preparing their own national strategies for Environmental Education and training for the 1990s (UNESCO-UNEP, 1987\textsuperscript{18}). Since the 1987 Moscow congress, which reflected on a series of IEEP activities, there seems to have been a shift in the emphasis of the IEEP. The shift saw more emphasis put on the educational activities involved in Environmental Education rather than on the development of the concept and classroom activities in schools which had been promoted in the first ten years of the IEEP.

In the same year as the Moscow congress, 1987, the ideas detailed in the World Conservation Strategy were substantiated by the publication of *Our Common Future*, often referred to as the Brundland Report, by the World Commission on Environment and Development (WCED). Basically, this report called for a massive long-term campaign of awareness-raising on environmental issues and the importance of sustainable development. the theory being that, if the public was better informed, then attitudes would change and people would feel a responsibility for the environment and take the necessary actions and decisions (UNESCO-UNEP, 1988\textsuperscript{19}).

In 1991, *Caring for the Earth: A Strategy for Sustainable Living* was published by IUCN, UNEP and WWF. This was a follow-up to the World Conservation Strategy and was targeted at policy- and decision-makers. The strategy emphasised the importance of Environmental Education for sustainable development and was based on a “conviction that people will alter their behaviour when they can see that it will make things better, and can work together when they need to” (IUCN, UNEP and WWF, 1991\textsuperscript{20}).

International debate and discussions on the environment and sustainable development arising from the reports and publications, such as “Caring for the Earth” (1991), “Our Common Future” (1987), led to the second major conference of the United Nations, two decades after Stockholm, the United Nations Conference on Environment and Development (UNCED) – the Earth Summit in Rio de Janeiro, Brazil in 1992. In consequence, the Earth Summit resulted in five major achievements: (1) Agenda 21; (2) The Rio Declaration on Environment and Development; (3) a set of principles for the Sustainable Management of Forests; (4) the Convention on Global Climate Change; and (5) the Conservation of Biodiversity (Palmer and Neal, 1994\textsuperscript{21}). Agenda 21 is a comprehensive account of actions needed in order to work towards sustainable development. In particular, with regard to the education, public awareness and training, Environment and Population and Information for Human Development (EPD) was launched by UNESCO after the UNCED, where Agenda 21 was adapted as a global plan for sustainable development. It provided a comprehensive set of principle to assist governments and other institutions in implementing policies and programmes. The plan was to include economic, social and environmental considerations intertwined with issues of poverty, equity, the quality of life and global environmental protection.

Fien (1999) stated that the theme of education has been central to discussion of sustainable development since the Earth Summit in Rio de Janeiro in 1992. “Education” or a synonym (e.g. awareness and training) is the second most used noun in Agenda 21 – second only to the word “government” (Fien, 1999\textsuperscript{22}). Chapter 36 (Promoting education, public awareness and training) of Agenda 21 is based on the principles laid down at the 1977 Tbilisi conference and states that:


Education including formal education, public awareness and training should be recognised as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues.

(United Nations, 1992\textsuperscript{23})

EPD was formally adopted by the 27\textsuperscript{th} session of the UNESCO general Conference in 1993, when it was identified as one of UNESCO’s immediate priorities, taking into account the recommendations of UNCED and the first International Congress on Population Education and Development, Istanbul (ICPED) in 1993. It was developed to focus on: (1) sustainable development taking into account the importance of human dignity in improving the quality of life and of the environment, while promoting a culture of peace, solidarity and international understanding; (2) the diversity of life and the balance between reasonable human activities and the need to preserve natural ecosystem; (3) a global and local perspective with regard to the impact of global environment and population change; (4) building human capacities, promoting people participation and cooperation among people and institutions, (5) re-orienting and improving the quality of education and the means to disseminate knowledge on aspects of human sustainable development (NIER, 2004\textsuperscript{24}). Further, Three principles were made the basis for the implementation strategies of EPD: (1) refinement of the knowledge-base and development of action framework; (2) development of new or re-orient education training and information programmes and materials and strengthening of capacities of member states; and (3) mobilisation of support of decision-makers and opinion leaders at international, regional and national levels in favour of project actions, with the cooperation of major news agencies.

Since 1992, much work has taken place around the world, especially within UNESCO in Paris and the Commission for Sustainable Development (CSD) in New York, to develop a clear vision of the roles for education fulfilling such high hopes (Fien, 1999\textsuperscript{25}). However, the IEEP came to end in 1995; after that UNESCO, by itself, has continued to promote international activities under the name of EPD. There has been a related change in the size of conferences and workshops, from the large scale of international UNESCO-UNEP conferences in the 1970s and 1980s to the small scale of regional or sub-regional conferences such as the Thessaloniki conference held in 1997.

At the 1997 Thessaloniki Conference, the early concept of Environmental Education based on the improvement of environmental quality was further developed. This conference followed on from major meetings relevant to education for sustainable development held in Tbilisi in 1977, Jomtien in 1990, Toronto in 1992 and Istanbul in 1993 as well the series of United Nations conferences beginning in 1992 with Rio (environment and development) and followed by Cairo (population) in 1994, by Copenhagen (social development) and Beijing (women) both in 1995, and by Istanbul (human settlements) in 1996 (UNESCO, 1997\textsuperscript{26}). The Thessaloniki conference was designed to highlight the role of education and public awareness for sustainability, to consider important contributions in this context, and to mobilise action to this end (UNESCO, 1997\textsuperscript{27}). The conference discussed the concept of education for sustainability, along with terms such as education

\textsuperscript{25} Fien, J. 1999. Ibid.
\textsuperscript{27} UNESCO. 1997. Ibid.
for sustainable living, education for sustainable development and education for a sustainable future. A significant outcome of the conference was the adoption of a series of declarations collectively known as the Declaration of Thessaloniki.

According to Declaration 10 from the Thessaloniki conference, the concept of sustainability encompasses not only the environment but also poverty, population, health, food security, democracy, human rights and peace. Sustainability is, in the final analysis, a moral and ethical imperative in which cultural diversity and traditional knowledge need to be respected. Also, Declaration 11 stated that Environmental Education, as developed within the framework of the Tbilisi recommendations and as it has evolved since then, addresses the entire range of global issues included in Agenda 21 and recognised by the major UN conferences, and has also become recognised as education for sustainability. This allows that Environmental Education may also be referred to as education for environment and sustainability (UNESCO, 1997\textsuperscript{28}). This means that it is clear that the roots of education for environment and sustainability are firmly planted in Environmental Education.

However, whilst the Thessaloniki conference was attended by 600 people, there were fewer than 10 delegates from the Asia-Pacific Region, which is perhaps an indication of the level of interest in Environmental Education in the region at that time. However, other possible reasons for the absence of delegates from the Asia-Pacific Region include: (1) distance; (2) lack of financial support; and (3) language problems. This suggests that much work remains to be done to reorient education in order to develop a regional perspective. After the Thessaloniki conference, inter-governmental organisations, governmental organisations and NGOs held many conferences and implemented programmes with the aim of developing practical actions at national, sub-regional and regional levels.

This review of international activities over the three decades revealed that the concept and meaning of Environmental Education has been defined and discussed by a series of international conferences supported by the IEEP and publications on sustainable development. IEEP activities have contributed to society in terms of developing recognition of the importance of Environmental Education, and also orienting the concept of Environmental Education and developing methods for its promotion. In addition, it can be said that the IEEP contributed to the integration of Environmental Education into existing educational programmes in various countries.

The third major conference of the United Nations, third decade after the Stockholm, the World Summit for Sustainable Development (WSSD) - Johannesburg Summit was held in Johannesburg, South Africa in 2002. Based on such movements on education towards sustainable development, establishing the United Nations Decade of Education for Sustainable Development (UNDES, 2005-2014) was proposed by Japanese Government and Japanese NGO network and endorsed at the WSSD in 2002, and in December of the same year, adopted by the UN General Assembly with UNESCO designated as the lead agency.

\textsuperscript{28} UNESCO. 1997. \textit{Ibid.}
II. United Nations Decade for Education for Sustainable Development (UNDESD)

UNDESD International Implementation Scheme (UNDESD-IIS) states that ESD has its roots in history of two distinct areas of interest of the United Nations: (1) quality basic education; and (2) environmental education for sustainable development (UNESCO. 2005a29). Quality basic education rooted for the promotion of basic education with universalizing access and promoting equity. It was developed based on a series of discussion: (1) the Declaration of Human Rights (1948); (2) Convention on Right of the Child – CRC (1989); (3) WCEFA and Jomtien Declaration on Education for All – EFA (1990); (4) WEF and Dakar Framework of Action (2000); (5) Millennium Development Goals, MDG 2-3 (2000-2015) and (6) United Nations Literacy Decade, UNLD (2003-2012). While the environmental education for sustainable development rooted environmental education with some historical changes from EE, to EPD and ESD (in detail, see Chapter I. “the Evolution of Environmental Education”).

According to the UNDESD-IIS, it is noted that the overall goal of the Decade is:

“...to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This education effort will encourage change in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations”.

(UNESCO, 2005a30)

Further, UNDESD-IIS states that the objectives of the UNDESD are to: (1) facilitate networking, linkages, exchange and interaction among stakeholders in ESD; (2) foster an increased quality of teaching and learning in education for sustainable development; (3) help countries make progress towards and attain the millennium development goals through ESD efforts; and to (4) provide countries with new opportunities to incorporate ESD into education reform efforts.

As ESD is concerned with education of high quality, UNDESD-IIS emphasizes the following features to be demonstrated (see table 2).

In particular, focus is given to the Asia-Pacific regional level, situation analysis was conducted in 2004, in cooperation with appointed researchers, for the identification of issues and situation in line with ESD in the Region. It states that preliminary finding from the situation analysis is that ESD is still predominantly conceptualized in the context of Environmental Education by many key stakeholders and decision makers, though much can be learned from the experience of successful EE initiatives, especially at the grassroots level. Further, it is noted that moving EE to ESD will be a key challenge for the Decade (UNESCO, 2005b31).

30 UNESCO. 2005a. Ibid.
Table 2: Features to be demonstrated under the Project

<table>
<thead>
<tr>
<th>Education for Sustainable Development:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• is based on the principles and values that underline sustainable development;</td>
</tr>
<tr>
<td>• deals with the well being of all three realms of sustainability – environment, society and economy;</td>
</tr>
<tr>
<td>• promotes life-long learning;</td>
</tr>
<tr>
<td>• is locally relevant and culturally appropriate;</td>
</tr>
<tr>
<td>• is, but acknowledges that fulfilling local based on local needs, perceptions and conditions needs often has international effects and consequences;</td>
</tr>
<tr>
<td>• engages formal, non-formal and informal education;</td>
</tr>
<tr>
<td>• accommodates the evolving nature of concept of sustainability;</td>
</tr>
<tr>
<td>• address content, taking into account context, global issues and local priorities;</td>
</tr>
<tr>
<td>• builds civil capacity for community-based decision making, social tolerance, environmental stewardship, adaptable workforce and quality of life;</td>
</tr>
<tr>
<td>• is interdisciplinary. No one discipline can claim ESD for its own, but all disciplines can contribute to ESD;</td>
</tr>
<tr>
<td>• uses a variety of pedagogical techniques that promote participatory learning and higher-order thinking skills.</td>
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</tbody>
</table>

Source: UNESCO, 2005a

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Based on the situation analysis and a series of regional meetings conducted, Asia-Pacific Regional Strategy for ESD was developed in 2005. Core ESD issues in the Region were identified under the strategy, which are as follows (see table 3):

Table 3: Core ESD Issues in Asia-Pacific

<table>
<thead>
<tr>
<th>Issues</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Awareness</td>
<td>• Eco-media, media literacy, ICT</td>
</tr>
<tr>
<td>Knowledge Systems</td>
<td>• Learning for local and indigenous knowledge, integrating traditional and modern technologies</td>
</tr>
<tr>
<td>Environmental Protection and Management</td>
<td>• Biodiversity, climate change, natural resources, conservation</td>
</tr>
<tr>
<td>Peace and Equity</td>
<td>• Conflict resolution, peace, equity, appropriate development, democracy</td>
</tr>
<tr>
<td>Local Context</td>
<td>• Community development, empowerment</td>
</tr>
<tr>
<td>Transformation</td>
<td>• Rural transformation, urbanization, sustainable habitat, water, sanitation, public infrastructure</td>
</tr>
<tr>
<td>Culture</td>
<td>• Diversity and intercultural / interfaith understanding</td>
</tr>
<tr>
<td>Cross Cutting Issues and Themes</td>
<td>• Human rights, citizenship, gender equality, sustainable futures, holistic approaches, innovation, partnerships, sustainable production and consumption, governance</td>
</tr>
<tr>
<td>Health</td>
<td>• HIV/AIDS, malaria</td>
</tr>
<tr>
<td>Environmental Education</td>
<td>•</td>
</tr>
<tr>
<td>Engagement of Leaders</td>
<td>• Professional training course, executive education, partnerships, networking</td>
</tr>
</tbody>
</table>

Source: UNESCO, 2005c

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8
III. Evolving Environmental Education  
– with regard to thematic areas, approaches.

III-1. Historical Development - Thematic Areas

In focusing on thematic areas covered by EE, EPD and ESD, it can be seen some historical changes (see Figure 1). EE focuses on the improvement of environment and its quality, then EPD focuses on the three aspects: (1) environment (quality and quantity); (2) development (economic, education, social services, and capacity building); and (3) population (size, growth, distribution, and structure).

ESD expanded further, it includes three perspectives with diversified thematic areas: (1) environment\textsuperscript{34}, e.g. natural resources, climate change, rural development, sustainable urbanisation, and disaster prevention and mitigation; (2) socio-culture\textsuperscript{35}, e.g. human rights, peace and human security, gender equality, cultural diversity and inter cultural understanding, health, HIV/AIDS, and governance; and (3) economy\textsuperscript{36}, e.g. poverty reduction, corporate responsibility and accountability, and market economy (UNESCO, 2005d\textsuperscript{37}). It can be said that the thematic areas of ESD are comparatively diversified than the conventional thematic areas of EE.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Historical Development of Environmental Education (Thematic Areas)}
\end{figure}


\textsuperscript{34} Environmental Perspective: an awareness of the resources and fragility of the physical environment and the affects on it of human activity and decisions, with a commitment to factoring environmental concerns into social and economic policy development (UNESCO. 2005d).

\textsuperscript{35} Socio-Cultural Perspective: an understanding of social institutions and their role in change and development, as well as the democratic and participatory systems which give opportunity for the expression of opinion, the selection of governments, the forgoing of consensus and the resolution of differences (UNESCO. 2005d).

\textsuperscript{36} Economical Perspective: a sensitivity to the limits and potential of economic growth and their impact on society and on the environment, with a commitment to assess personal and societal levels of consumption out of concern for the environment and for social justice (UNESCO. 2005d).

III-2. Historical Development - Approaches

With regard to the approaches employed, Figure 2 shows the historical development. Special focus for EE was given to top down approach, quantity focused, knowledge transfer, formal education (FE) as major focus, cause-effect relationship and problem solving, which were emphasised under the theory of RDDA (Research, Development, Dissemination, Adoption). The RDDA approach is characterised by a managerially-hierarchical system, technocracy, and positivistic epistemology, that learners were regarded as defective model, that experts and researchers take a role of knowledge / skills / awareness providers (see Figure 2). In consequence, teachers as passive technicians are dis-empowered and come to have recourse to technocracy.

While, in case of ESD, special focus is given to participatory learning, high-order thinking and action research which enable to promote bottom-up approach, quality focused, knowledge acquisition and its connection, construction of values and ethics, attitude change, life long learning through formal education (FE), non-formal education (NFE) and in-formal education (IFE). It also respects the accommodation to the evolving nature of concept of sustainability.

By implementing with participatory learning, high-order thinking and action research, “teachers” (school teachers, non-formal mobile teachers, NGO facilitators) are able to take initiative in organising and improving their educational activities. Further, the “teachers” are expected to be learners as well as facilitators, and to share the learning opportunities and implement collective actions and decision making. In this approach, individual capacity (value, ethics, high-order thinking, attitude), institutional capacity (project management, institutional arrangement, e.g. partnership, networking and inter-linkages), civil capacity (participation and collective decision making), participatory teaching / learning methods and its process, decision making process and social support system, are the points to be considered for the promotion of quality education. The points described need to be inter-linked to the conventional points which encompass: content, teaching / learning methods and its process, teachers’ capacity, learning environment and its access.