

Environmental Education at the School Level in Bangladesh: Observations with Reference to the National Curriculum

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Abstract

This paper attempts to examine the features of formal environmental education in Bangladesh at the school level with particular reference to the national curriculum. The main objective of the study is to see to what extent the contents of the school textbooks for primary and secondary grades reflect contemporary environmental issues.. Attempt has also been made to examine the structure and sequence of the textbook contents. . The overall finding is that the textbook contents on environment are not well-structured and lack in integrity and logical progression. Critical emerging issues such as climate change and human adaptation are not given attention in the curriculum. Redesigning and revision of the curriculum and textbooks with an interdisciplinary and holistic approach are strongly recommended.

Keywords: Environmental education, ethics, climate change, ecosystems and sustainable development.

Introduction

Environmental education (EE) refers to organized efforts to teach about how natural environment function, and particularly, how human beings can manage their behaviour and ecosystems in order to live sustainably. According to UNESCO Tbilisi Declaration (1977), the world's first intergovernmental conference on environmental education, EE 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*. It means enhancing the capacity of an individual to understand the complex environmental problems and equip oneself better for analysis, synthesis, evaluation, and ultimately sound decision making at a citizen's level.

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Modern EE focuses on how ecological realities and human desires to increase their material standard of living often clash, leading to phenomena we call “environmental degradation.” EE makes people conscious about the environment both scientifically and socially. It helps one discover the symptoms and root causes of environmental degradation and aims to create consciousness about environmental ethics. It fosters understanding about the ecological inter-dependence and of related economic, social and political factors. Enhanced knowledge about the environment brings attitudinal and behavioural changes, leading to community empowerment and mobilization. Changes in values, attitudes and individual behaviour towards the environment can result in a better corporate behaviour. Some ecologically damaging activities could stop if people who indulge in such activities were better informed about the consequences of their action.

EE is evolving to be the education for life – not just confined to school. It prepares people to plan and undertake appropriate measures for addressing most pressing challenges of our time. EE has become a new paradigm of development thinking to meet the challenges of a rapidly changing world. It is an important education policy concern at the national level due to the global agenda and demand for ‘sustainable development’ - a term first used by the World Commission on Environment and Development in its seminal report “Our Common Future” (WCED, 1987).

Elements of sustainable development includes protection of the environment, the maintenance of ecosystems and responsible attitudes among members of society including the business community. It is expected that EE will foster a behaviour pattern leading to responsible utilization of environmental and natural resources. EE seeks to provide facts and information, generate awareness, and develop skills to make rational decisions and take environmentally sound actions, weighing various sides of an issue. It helps promote understanding and cooperation among people to face ecological challenges. It is irrational to expect people to act in an appropriate manner without awareness of the problem, and understanding of causes and consequences of alternative actions, EE, therefore, is not merely the conveyance of knowledge, but a process of learning about responsible political action (Miller, 1996).

The goals of EE indicated above are reflected in the U.S. National Environmental Education Act, 1990. To realize these, the U.S. Environmental Protection Agency (EPA) proposed some specific objectives which may be of wider interest. These include: (i) an awareness and appreciation of our natural as well as socio-culturally influenced human-built environment; (ii) knowledge of natural systems and basic ecological concepts; (iii) acquaintance with a broad range of current and emerging environmental issues; and (iv) experience and the ability to use analytical skills (investigative and critical-thinking) in solving environmental problems. The ultimate purpose of EE is to give one as a learner an analytical framework and a set of concepts that one can use to judge environmental issues, to guide his/her own life, and discharge one’s responsibility to future generations. (Cunningham, 1997).

The Educational System

The three main educational streams in Bangladesh, in order of importance by the numbers of students each serve are: General Education, Madrasa Education, and Technical – Vocational/Professional Education. EE is taught formally at 3 levels under General Education : Primary, Secondary, and Colleges and Universities. There are comparable levels in the other two main streams of education This paper focuses on EE at school level under the general education stream, which is largely supported by the Government, and shares the same national curriculum and textbooks approved by the National Curriculum and Textbook Board.

Objectives, materials and method of the study

The objectives of this paper are three-fold: (i) to examine the nature of environmental education in Bangladesh at school level, (ii) to assess the national curriculum requirements for different levels of school education, and finally (iii) to suggest some policy recommendations for improving formal environmental education in Bangladesh.

Data and relevant information materials for this paper have been collected from different sources: official and semi-official records, published reports, books, journals and newspapers, and a wealth of materials available through the Internet. The method followed in the study involved the survey of school textbooks on environmental education for each grade, as prescribed by the National Curriculum and Textbook Board. Information provided in Table 1 and Figure 1 were generated after survey and review of relevant textbooks contents, conducted in collaboration with the Principal and Vice-Principal, CDA Public School and College, and Chittagong University School and College. Guided by the prior knowledge and experience of the researchers, a number of focused interviews were conducted with some key informants and resource persons including Principals, Vice-principals, and teachers in Chittagong Metropolitan City (where the researchers are based).

Discussion of Findings

The survey brought out interesting points about the nature of environmental education in Bangladesh. In general, the school textbooks on environment in Bangladesh are rich in the scope of materials covered and their detailed treatment and explanation. These are well written in a manner that can be easily understood by the learners. The aim is to enable young learners to get to know about natural environment, be aware of human use of the environment and the impact of human action on it, and understand the need to conserve and preserve natural non-renewable resources.

On the whole, however, the effort falls short of the aim. There appears to be a mixing up of ends and means. The contents are presented as an end in themselves rather than as a means to the multifaceted end of change in knowledge, awareness, values and behaviour from the perspective of sustainable development. The information and knowledge aspects of the contents have been emphasized within the confines of traditional academic disciplines (such

as, physics, chemistry, biology, etc.). These have not been introduced in an interactive manner that brings out the dynamic human- -environment relationship. EE has not received its proper weight as yet in the National Curriculum. The EE syllabus has not only been brief, random, and fragmented but also incomplete. There is a general lack of continuity and logical progression. The goal in respect of learning outcomes and the intellectual destination for learners are not clear. The curricular content does not permit student learning to be easily assessed by the well established criteria of environmental literacy.

The textbook contents on environment are broadly organized in two distinct categories under the labels of ‘General Science’ and ‘Social Science’ which are used at three levels: Primary school (grades 1-5), junior high school (grades 6-8) and secondary high school (grades 9-10). Content analysis of these text books reveals that they represent an array of traditional natural science themes such as, air, water, soil etc., with some contemporary environmental issues such as pollution and natural disasters thrown in.. Although the physical geographical aspects of the environment have been the main focus of the textbooks, environmental problems such as natural resources degradation and depletion including topics like biodiversity, energy, and urbanization are not well represented. The only major environmental problem which is well covered in the text is natural disasters in Bangladesh. Emerging environmental issues such as climate change and human adaptations, however, did not receive any attention at all, and are missing from the texts (Table 1).

Table 1. Topics on environment under ‘General Science’ and ‘Social Science’ at school level (approved by the National Curriculum & Textbook Board)

Grade level	General Science Topics	Social Science Topics
4	Air; water; soil; population and health	Env. pollution; impact of population growth
5	Health; weather & climate; Env. pollution; population	Environmental conser-vation; population
6	Water; Earth’s crust, land development; population; health	Natural disasters in Bangladesh
7	Rocks; atmosphere, climate; population; env. pollution; forests	Environment and society
8	Animal & environment; forests & environment	Regional geography: Europe, America
9	Population; disaster management and Bangladesh (DMB)	Physical geography; population; DMB
10	Population; disaster management and Bangladesh (DMB)	Physical geography; population; DMB

Furthermore, the frequency distribution of listed topics under ‘General Science’ category indicates that environmental themes in the text books are less significant in terms of weight (only 10 percent) in the secondary high school (grades 9-10) compared to primary and junior high schools (Fig. 1). Of the 21 Chapters under secondary ‘General Science’, only 2 Chapters are devoted to environmental topics. Similarly, frequency distribution of secondary ‘Social Science’ topics appears even more striking. Although grades 4, 5 and 7 report only 10-11 percent representation of environmental topics, in the case of grade 6 it is less than 1 percent. Out of 14 Chapters in junior high “Social Science”, only one chapter namely ‘Natural Disasters o Bangladesh’ in Standard 6, has been devoted to environmental studies.

On the other hand, environmental topics including physical geography under secondary ‘Social Science’ (Standard 9-10) take up 37 percent of the text their representation is seriously problematic. The topic listed under secondary ‘Social Science’ in Chapter 8 (printed in 2010), entitled “Disaster Management and Bangladesh” is the identical topic which was also listed under secondary ‘General Science’ (printed in 2009). Why is this duplication? This may be due to the fact that the authors and editors of the secondary ‘General Science’ (5 authors and 4 editors) and secondary ‘Social Science’ (3 authors and 5 editors) were not the same people. Whatever may be the reasons, it is apparent that the National Curriculum and Textbook Board missed the chance to check out the redundancy in the distribution of environmental topics in the textbooks for each grade (Table 1 and Figure. 1).

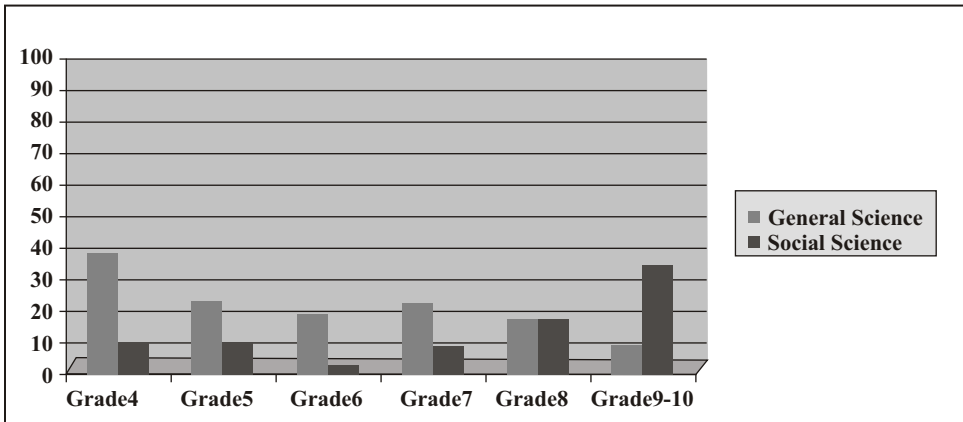


Figure 1: Percentage distribution of environmental topics under General and Social Science at school level in Bangladesh

There is also a gross organizational problem in the arrangement of topics such as lack of sequence and continuity in the contents by chapters for each grade. The themes are neither systematic nor well-integrated and articulated to reach an aspired goal. Further, there are themes that are taught at the primary level and also found to be continued till the end of the secondary stage. This itself is not necessarily a problem, but there has to be a progression in terms of complexity and scope of the content related to maturity and prior knowledge and understanding of students. An integrated content area or subject on Environment would help overcome this problem. In a multidisciplinary setting, a project approach or an activity-oriented method of teaching could be applied, which is generally lacking in the present school curriculum and pedagogic practices.

The absence of an integrated approach and project or activity-based teaching-learning is the result of various factors which were highlighted in focused interviews with school authorities and teachers: (i) lack of efficient, experienced and well qualified/trained teachers who could take the lead in carrying out an integrated pedagogical approach, (ii) lack of basic educational infrastructure such as suitable classroom, lab. facilities and work space, (iii) lack of teaching aids/ educational equipments, audio-visual materials, etc, and (iv) inadequate provisions for necessary teacher training. These factors are also related to the way the curriculum is structured and the textbook contents are organised and presented, which did not encourage or promote an activity- and project-based pedagogy.

Modern EE is increasingly becoming interdisciplinary, preparing people for global citizenship, and training them to be flexible, yet competent, analysts and decision makers. These are not objectives that can be easily fitted into the traditional subject-wise structure of the curricular content and textbooks.

A distinction is made between the interdisciplinary approach and the multidisciplinary approach for study and problem solving. The former draws upon common themes of processes and changes embracing both physical and social systems, and calls for team work and close collaboration between teachers, students, and phenomena under study. On the other hand, the multidisciplinary approach draws upon a variety of disciplines for information, analysis and insight, but does not seek to create a broader and more integrated understanding of what and why (Riordan, 1995). The EE curricular approach in Bangladesh appears to be an attempt to take a multidisciplinary approach, but the dominance of a traditional disciplinary structure and the didactic pedagogic approach that is commonly followed prevent even the potential of a multidisciplinary approach being realised effectively in the classroom.

It appears that the Curriculum and Textbook Board and the textbook writers and contributors remain wedded to a narrow and traditional view of a general/liberal education program rather than taking to heart the demands of education for sustainable development. The curricular approach and the pedagogy that follows cannot assure EE to be a systematic study

of our environment and our proper place in it. Environment from a human development perspective embraces both worlds - natural and social. The study of environment, therefore, has to be defined and viewed in its totality - as the aggregate of all external factors and conditions that influence the activities and existence of all living things including human beings. Therefore, one should be looking for an integrated view and continuity in EE course contents, particularly in the organization of materials, and the pedagogy that would effectively achieve the curricular goals.

Need for Climate Change Education

Bangladesh faces a number of interconnected environmental and resource problems. The challenge of climate change due to global warming is undoubtedly the single most pressing environmental issue of our time (Fig 2). In the past three decades, concern has grown over the trend in global warming; the general trend of a persistent warmer world has given rise to this concern. However, this important topic has been missing from the school textbooks of Bangladesh. There is ample scope in the textbooks for the inclusion of climate change topic with human adaptation measures.

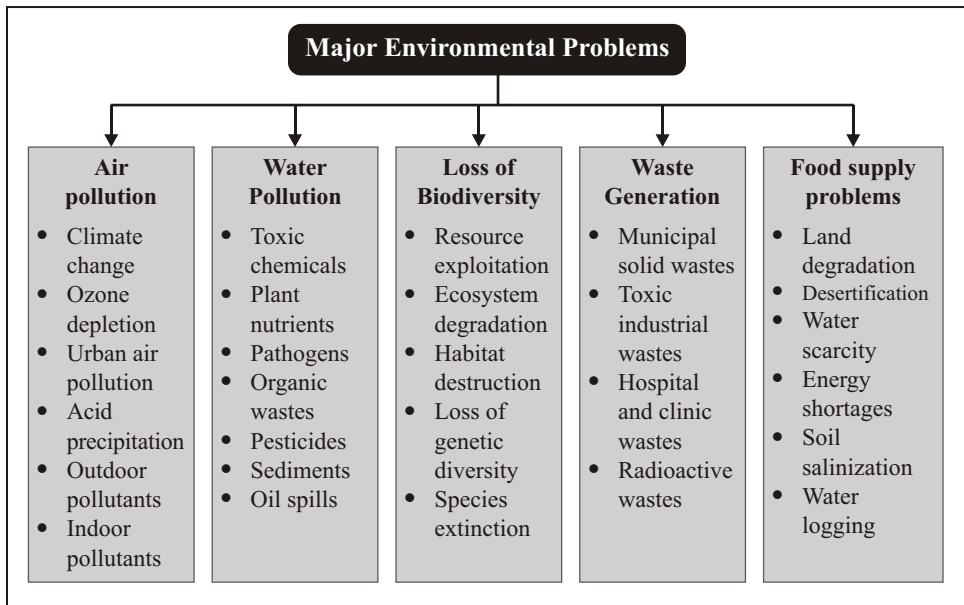


Figure. 2: Dimensions of Environmental Problems

Bangladesh has frequently been cited as one of the most climate vulnerable countries in the world, and that it will be even more so as a consequence of climate change. There are predictions that natural extreme events such as floods, tropical cyclones, storm surges and droughts will become more frequent and severe in the coming years (Ahmed, 2006; Huq, 2007; Alam, 2010). The impacts are multi-dimensional; many of the anticipated adverse effects of climate change such as higher temperature induced monsoon precipitation, increase in cyclone intensity, saline intrusion, and sea level rise and so on will further aggravate existing ecological stresses. The affected sectors which have been identified so far are: (i) agriculture and fisheries; (ii) forestry and biodiversity; (iii) hydrology and water resources; (iv) coastal zones; (v) urban areas; (vi) human health; and (vii) particularly vulnerable groups (Rasheed, 2008). The impacts could be severely detrimental to the people of Bangladesh. These phenomena will not only threaten the achievements Bangladesh has made in increasing income and reducing poverty over the last 35 years, but also will make it more difficult to achieve the Millennium Development Goals (MDGs).

Vulnerability of Bangladesh to climate change is rooted in its ecological and socio-economic context: disadvantageous geographic location, high population density, scarce natural resources, poor socio-economic conditions, extreme poverty, reliance of many rural livelihoods on climate sensitive sectors and inefficient institutional structures. Bangladesh, therefore, has to adapt herself to the changing circumstances, and safeguard the well-being of its citizens (Rahman & Alam, 2003). The Government of Bangladesh has expressed its commitment to deal with the threats of global climate change. In 2005, the Government launched its National Adaptation Program for Action (NAPA). In 2008, the Government prepared and adopted the Bangladesh Climate Change Strategy and Action Plan (BCCSAP). The document indicates the changing needs and the development priorities of the country. The six pillars of action of BCCSAP are: (i) Food security, social protection and health; (ii) comprehensive disaster management; (iii) infrastructure; (iv) research and knowledge management; (v) mitigation and low carbon development; and (vi) capacity building and institutional strengthening (GoB, 2009). The Government has made climate change an integral part of the Poverty Reduction Strategy Paper (PRSP) and the Sixth Five Year Plan (2011-2016), which outline the short-run and longer term strategies, and lay the foundation for continuing efforts to achieve MDGs, and build a fair, equitable and just society.

Conclusion

This article argues the case for an integrated and comprehensive approach to accomplish the aim and promise of environmental education in Bangladesh. There is an urgent need to create countrywide awareness about EE with a focus on climate change and human adaptation to support and promote necessary change in values, knowledge and behavior of young people. To this end, a number of initiatives deserve special attention:

- (i) Revising and updating the national school curriculum considering environment in its totality from the perspective of the principles and goals of sustainable development;

- (ii) Forming editorial panels comprising experts in their respective fields to review and redesign EE curricular structure and textbook contents; the experts must be reselected for their professional integrity and commitment to serve;
- (iii) Rewriting and reorganizing textbooks with an interdisciplinary but holistic approach, maintaining logical sequence and continuity (e.g., series for grades 1-8; 9-10 and 11-12), and re-defining attainable competencies;
- (iv) Reflecting in the curricular contents major environmental issues from local, national, regional and global points of view, emphasizing current and potential threats;
- (v) Supporting and encouraging changes in pedagogic approaches and practices and assessment of learning so that the criteria of a broad-visioned environmental literacy at each level of education are fulfilled; and
- (vi) Finding and preparing qualified teachers to achieve the EE curricular aims.

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