ISSN : 2278 – 5639
Global Online Electronic International Interdisciplinary Research Journal (GOEIIRJ)
{ Bi-Monthly} Volume-I, Issue-I June 2012

ENVIRONMENTAL STUDIES AND GLOBAL PEACE

Dr. Chandrakant Borse
Associate Professor
College of Education, Nashik

Abstract :

Our culture teaches us to revere our Mother, and also the Mother Earth, for we are her loyal sons. In the meantime, we had been not so loyal to safeguard her till the Supreme Court of India had to remind us of protecting her and the environment. It has recommended a study subject.

The paper briefly reviews the pedagogical considerations for Environmental studies. At school-level, incidental teaching for the core element 'Protection of Environment, and at the undergraduate level, the UGC syllabus are the current practices. The subject, Environmental studies, is chiefly concerned with environmental crises that are marked by the exponential growth of quantity which leads to human misery and restlessness. This growth is noticed in four mega phenomena. They are – concentrations of carbon dioxide, extinction of species, production and consumption of goods, and human population.

The paper describes environmental threats in each of those four mega phenomena by citing examples of juvenile asthma, acid rain, threats to biodiversity etc. and how they adversely affect life-quality.

After reviewing briefly the current efforts to save environment, the paper describes the role of the subject, Environmental studies, in maintaining global peace. It can bring about related cognitive enrichment, create awareness about crises, inculcate proper attitude and mindset and prompt all to abide by environmental ethics. And soon every learner should and will say, "I have seen a Protector of Environment and it is me".

Key Words : Environmental Studies, Global Peace, Pedagogy, Environmental Crisis, Environmental Threats, Human Misery.

Introduction :

Our cultural heritage teaches us to revere our Mother, and often we pray, '*Matrudevo Bhav'* i.e. Let my Mother be God unto me! But as usual, our culture shows such broad-mindedness and liberality of thinking that the concept, Mother, is looked upon with broader connotations and perspectives. It is widened to mean the Mother Earth. We have a Sanskrit verse – '*Mata bhoomi putro-aham pruthivya'* i.e. My mother is this country and I am the on of this earth. Indeed, my age-old culture teaches me to cherish this spiritual Mother -Child relationship, and to be loyal to my motherland. We all are her daughters and sons. And one of the significant parameters of loyalty is to protect our motherland and safeguard her from all the risks, danger and hazards. We need to do this, for the prayer of Sant Dnyaneshwar is the very wish of the Mother Earth :

Sarve Sukhina Santu ।

Sarve Santu niramaya ॥

i.e. May all have perfect bliss and may all enjoy excellent health.

However, for quite some time, it seems this loyalty to our Mother Earth had been relegated into the background, if not totally forgotten. And now, we have now been activated and prompted to action by the Supreme Court of India. In 1991, the Supreme Court of India passed the landmark judgment. An extract of the judgment is as follows :

------ for more than a century there was a growing realization that mankind had to live in tune with nature, if life was to be peaceful, happy and satisfied. In the name of the scientific development, man started distancing himself from nature and even developed an urge to conquer nature. Our ancestors had known that nature was not subduable and, therefore, had made it an obligation for man to surrender to nature and live in tune with it. (Rajagopalan, R. 2005, P. 5)

In this very judgment, the Supreme Court of India had prescribed a course on the environment for colleges, and to consider the feasibility of making it a compulsory subject at every level in college education. The University Grants Commission had promptly acted and devised the syllabus for Environmental Studies.

In fact, Environmental Studies had its initiation in the National Policy on Education 1986. For curriculum planning and for teaching-learning processes, it had recommended ten

core elements, and it may be recalled that 'Protection of Environment' is one of the core elements.

Now that there is a greater awareness about the crisis of environment and urgent need to protect it, we cannot totally distance ourselves from environment and shake off our obligations. Like the three wise monkeys, can we afford 'not to see' the sorry state of environment, 'not to hear' about the crisis of environment, and 'not to talk' about the hopeful future? Is it prudent and wise to linger and wait till the following Native American prophecy comes true?

Only after the last tree has been cut down,
Only after the last river has been poisoned,
Only after the last fish has been caught,
Only then will you find that money cannot be eaten.

This paper concentrates on Environmental Studies which can significantly contribute to the global peace.

Concept of Environmental Studies and other Terms :

This section provides definition of the concept, Environmental Studies and other related terms that are often used co-terminously.

According to Rajagopalan, R. (2005), "There are two ways in which we use the term *environment*" (p.12). The author further clarifies it:

In one, the term refers to what surrounds an entity. Any entity, say a person, a living organism, a citizen, a company etc. has its environment. We thus talk of home environment, the business environment, the political environment, and, of course, the natural environment.

In the second way, we use the word environment by itself. Here we mean the natural environment : the air, water, soil, living beings, plants, trees, mountains; oceans etc. (p.12)

From this clarification, it is clear that an entity interacts with its environment. This interaction consists of influencing others and getting influenced by its environment. It is also clear that this process can be positive or negative. For instance, the natural environment affects human beings, their life-styles etc. We in turn have an impact on the natural environment. For example, man changes the courses of rivers, builds dams across them, pollutes air and water etc. It is more negative in its quality.

The Oxford Advanced Learner's Dictionary defines the concept 'environment' as the 'natural world in which people, animals, and plants live' (p.452)

The two terms, '*Environmental Science*' and '*Environmental Studies*' are often used interchangeably. There is some distinction between the two.

Environmental Science is the systematic and scientific study of our environment and our role in it. The concept, *Environmental Studies*, has been defined as follows :

Environmental Studies can be defined as the branch of study concerned with the environmental issues. It has a broader canvas than environmental science and includes the social aspects of the environment. It does deal with science where necessary but at a level understandable to the non-scientist. (Rajagopalan R., 2005, pp. 12 - 13)

There are two more related terms, viz. *ecology and ecosystem.*

"*Ecology*", according to Rajagopalan, R.(2005)," is the science that studies the relationships between living things and their environment. It is often considered to be a discipline of biology (p.368).

We come to the second related term. It is defined as follows:

Ecosystem is a defined area in which a community (with its population of species) lives with interactions taking place among the organisms and between the community and its non-living physical environment. (Rajagopalan R., 2005, p.368)

More of such related terms could be identified. However, three unique attributes of Environmental Studies need to be enlisted and considered. They are:

(i) It is a broader concept than Environmental science,

(ii) It is more concerned with the Environmental issues and crisis, and

(iii) It considers the social aspect of the environment.

On the bases of the second and the third features, this paper is being considered.

Environmental Studies: A Pedagogical Consideration :

It was stated that Environmental Studies is taught at the school level and the undergraduate level. This section deals with teaching-learning of the subject by delimiting itself to the content and the teaching of the content.

At the school-level, Environmental Studies enters the syllabus via a core element viz. *Protection of Environment*. There are three objectives prescribed for teaching-learning of this core-element.

(i) To create awareness about the need for protecting the environment.

(ii) To help the pupils understand that protection of environment is not only a local or national problem but also a global problem, and

(iii) To impress the pupils about the precautions necessary for protecting the environment. (Introduction to Core Elements, 1990 p. 151)

At the school level, there is no special subject, Environmental Studies. It is integrated into different subjects such as Geography, Science, languages etc. The curriculum and syllabus planners and the text book writers are instructed to infuse the core elements into the content. The teachers integrate the core elements into the textual contents and provide learning experiences for internalization of core elements. Three media, viz. formal teaching, curricular activities and school environment, are used. In conclusion, it can be said that teaching-learning of Environmental Studies is incidental to a great extent.

We now come to Environmental Studies at the undergraduate level.

Even as you cover the entire UGC syllabus learn the concepts, and try the short-answer and essay questions, you will:

- learn about the major environmental problems, such as runaway growth, imperiled ecosystems, disappearing forests, endangered species, dwindling natural resources, escalating pollution, growing population, dangerous toxins, green lawns, etc.,
- find out what is being done about the problems,
- discover how you can make a difference to the state of the environment.
- savour reading over one hundred short environment-related stories about crises, solutions, successes, failures, interconnections, and inspirational individuals; and
- reflect on the prologues, quotations, poems and deeper issues.

We believe in power of education, for it is an instrument of social change. We place all hopes in this subject and hope for a better place, better earth in near future.

Environmental Crisis and its Nature :

There can be no denying of the fact there exists *Environmental Crisis*, and that we all are heading for environmental disasters.

Man has all the natural resources at his disposal. Since he has considered himself the Master of the World, he has taken enormous liberty to use, abuse, misuse and overuse the natural resources deliberately or inadvertently. There are tremendous human interventions in the environmental factors. Therefore, land, water, energy resources, air and space have all been adversely affected by human activities. There are some people who argue that the earth has absorbed all the crises, disturbances and disasters in the past. The environment maintains its balance. Those people seem to suggest that the earth will survive all the current environment crises, and that there is no threat to human life.

This, however, is not true. In the olden days, the changes in environment were few and slow. Therefore, those changes were almost unnoticeable and perhaps had no drastic consequences. But unfortunately, the things are not the same again. Human activities have multiplied drastically. They have left no environmental factors untouched. Therefore, the pace at which environment is adversely affected has increased.

The nature of the present environmental crisis can be explained by the phrase the *Exponential Growth* of quantity. In the exponential growth, the growth of a quantity with time increases in such a way that the growth curves is relatively flat in the beginning, but becomes steeper and steeper with time. The growth curve of such a phenomenon shows a 'J' type curve.

There are exponential growths in almost all the environmental factors. But there are four mega phenomena that reveal tremendous exponential growth and they should be a matter of serious concern for us, for they have serious implications for human life. Following four quantities are growing exponentially :

- Concentrations of carbon dioxide gas in the atmosphere.
- The number of biological species becoming extinct every year.
- Production and consumption of goods and services.
- The size of the human population.

What after all makes this environmental crisis grow more serious and dangerous? Man probably misuses the model of three wise monkeys when he comes to environment and its crisis. We turn blind, deaf and mute, and remain inactive with folded hands. We distance ourselves from environment and its crisis. This kind of separation, lethargy is indeed a human crisis. Therefore, we have instructional inputs through this subject so that young, energetic people receive motivation to act.

Environmental Threats and Human Misery:

It may be recalled that three features of Environmental Studies were mentioned earlier. In this section, we tackle the two features – environmental crisis considerations and inclusion of social aspect. These two features are coupled with the four mega phenomena that have serious and crucial implications. These combinations are used to show how man, the doer (of harm to environment) is the ultimate suffer who still takes time to learn lessons.

The first mega phenomenon can be broadly treated entitled as the *Atmospheric hazards*. We all are familiar with the concept of air pollution. Air pollution is said to exist if the level of harmful gases, solids or liquids present in the atmosphere are high enough to affect humans, other organisms, buildings, monuments etc. Long back in 1972, Mrs. Indira Gandhi had reminded the participants of the Stockholm Conference on Human Environment that poverty was the worst form of pollution because it leads to *juvenile asthma* cases. When air pollution and poverty come together, the human misery is doubly tragic. The World Health Organization estimates that 10-15 percent of Indian Children in the five-eleven year old age groups suffer from asthma.

How about *acid rain*? When atmospheric water droplets combine with a range of man-made chemical air pollutants, acid rain is formed. The main pollutants involved are oxides of nitrogen and sulphur. Volcanoes, fires, decomposing matters, industries, and automobiles are the main causes.

Acid rain ultimately falls on the ground. Soil is acidified and it loses productivity. The acidification damages plant roots and makes them incapable of drawing nutrients to survive and grow. The forests decline. Acid rain falling on lakes and rivers destroys fish populations and other species. Acid rain harms people when they breathe in the acidic air. The old buildings are threatened by acid rain.

Who is not familiar with the phenomenon of *Global warming*? It is the occurrence of higher temperatures on the earth due to an abnormal increase in the concentration of greenhouse gases. It is estimated that by 2030, the average temperatures around the world will rise by 1.5^0C to 4.5^0C. This increase will have adverse effects. There will be longer warm seasons and shorter cold seasons. Seasonal and regional weather patterns will change. Floods and droughts will occur more frequently. The accelerated soil erosion will disrupt world agriculture and threaten food security. The Polar ice caps will melt and coastal areas will be flooded, and some of the islands might disappear.

We now come to *Ozone Layer Depletion*. The ozone layer in the atmosphere absorbs most of the harmful ultraviolet- B (uv-B) radiation from the sun. It also completely screens out the deadly uv-c radiation. The ozone shield is thus essential to protect life. In the 1970s, scientists had discovered that when CFCs (chloro fluro carbons, used as refrigerants and aerosol propellants), finally break apart in the atmosphere and release chlorine atoms, they cause ozone depletion. Bromine atoms released by halons have the same effect. Depleting the ozone layer allows more UV-B rays to reach the Earth. The result is an increase in skin cancers, eye cataracts, weakened immune system, reduced plant yields, damage to ocean ecosystems, and reduced fishing yields and adverse effects on animals.

The second mega phenomenon with exponential growth is the loss of biological species. It is an area related to the *Ecosystem and biodiversity*.

The term 'Ecosystem' had been defined earlier. Biodiversity refers to the numbers, variety and variability of living organisms and ecosystems. The term includes all the terrestrial, marine and other aquatic organisms. It also covers diversity within species, between species as well as variations among ecosystems. It deals with the complex ecological interrelationship of species. Biodiversity is the Earth's primary life support system and is a precondition for human survival.

The best guess states that there are about 10-14 million species inhabit the earth. So far, about 1.8 million species have been identified, named and catalogued. The value of biodiversity is immense. We get food, fuel, timber, paper, various medicines, recreation etc. The aesthetic pleasure cannot be valued in terms of cash.

This biodiversity is lost due to habital loss and degradation. Destruction of forests,

coral reefs, wetlands, ploughing of grasslands, damage to rivers and lakes through pollution are some of the causes. The second set of causes is habital fragmentation i.e. species get divided into smaller populations and cannot sustain themselves.

The first to suffer from loss of biodiversity are the poor people who directly depend on biodiversity. Then the industrialized nations will suffer. There will acute shortage of food, medicines, textiles, spices and the other necessities.

Production and consumption explosion is the third mega phenomenon with exponential growth. The levels and speed of production, consumption of natural resources and services have shown a steep upward trends since 1900. There has been unsustainable consumption unfortunately, the levels of production and consumption can be seen, they are visible but their effects on environment are partially noticeable. There is a mad race to produce more and consume maximum. There is an increasing number of automobiles everywhere in the world. This industry will soon make the world oil resources run out of stock. The Earth's finite resources such as topsoil, water, forests are being used extensively and faster than they can be regenerated.

The fourth spike viz. *Population Explosion* is perhaps the most well-known phenomenon. It is the topic to which everyone is exposed from the highschool-level studies. The exponential growth in human population began in 1650. Now, every three days, the size of the world's population increases by as much as it did in a whole century throughout most of human existence. The equivalent of seven Kolkata's (about 80 million people) are added to the world's population every year. It is enough to remark that population explosion adds to the pressures on the environment and quality of living goes down to miserable level.

Efforts to Resolve Environmental Crisis :

It would be a gesture of appreciation to think and put on record some of the efforts to save the Earth from the environmental crisis. In 1960s, the dissatisfaction with the Idea of Progress and Development began to emerge in the public mind. The books such as *Silent Spring* by Rachel Carson set the tone for the environmental movements. Some of the international efforts are as follows :

- The first international initiative to discuss environmental issue – in 1972 – The United

Nations Conference on Human Environment.

- In 1983 – the World Commission on Environment and Development.
- The United Nations Conference on Environment and Development – in 1992 – in Rio de Janeiro. It developed several documents such as –
- 27 principles of sustainable principles
- 'Agenda 21' – Action plan for development
- 'The convention on Biodiversity'.
- Rio+10 conference – in 2002 – in Johannesburg – It recommended more concrete plans for actions.

Role of Environmental Studies for Maintaining Global Peace :

We are the functionaries engaged in the educational field. We firmly believe and we are highly certain that education is a powerful instrument of social change which works through desirable modifications in human personality. This faith and determination are enough to bring home the relatedness of the two.

Cognitive Enrichment :

When Environmental Studies or other environment-related subjects are taught, the provide knowledge and information about the environment and its aspects. It helps the learners to understand the value and significance of environment for human life. It teaches how human life depends on biological diversity. At a higher level, the learners come to know different technical terms and concepts such as habitat, ecological footprint, ecosan, eutrophication etc. These examples could be multiplied to reveal that the first and foremost role is to provide proper knowledge of environment and its various aspects.

However knowledge of environment is crucial, for it marks the beginning of more crucial changes that need to follow. Therefore, to treat knowledge of environment as an end in itself would be too shallow an objective.

Awareness of Consequences :

As stated earlier, Environmental Studies is chiefly concerned with the environment

crises and their impacts on human society. Therefore, cognitive enrichment in environment phenomena should lead to awareness of environmental crises. The learners should be aware of the mega phenomena that have exponential growth. They should be more conscious about the causes of this type of growth and how it has made human life poor, nasty and miserable. The learners should be awe-stricken when he listens to the miserable facts.

It is very easy to point a finger at others. In this case, the most supreme awareness would be to think, "Yes, I am neglecting my environment. I am equally responsible for deeds that destroy the environment and for the deeds which I should perform, but never think of". It should also encompass recognition and appreciation of social workers who have made protection of environment their life mission.

Attitude Inculcation :

We as teacher-educators, realize that attitude formation is related to the *Affective Domain* of instructional objectives.

A very common example is quoted. A child has learnt to write. It shows that he has mastery in the cognitive and the psycho-motor domains. But the child writes only when he is forced to write. It means an important affective educational objective has not been achieved. In fact, Krathwohl (1964) has stated, "Nearly all cognitive objectives have an affective component if we search for it." (p 142)

Therefore, if teaching-learning of Environmental Studies proceeds through the following stages of attitude formation, it would surely have better instructional impacts.

- Receiving (Awareness and willingness to receive instructional inputs related to environmental subject)
- Responding (Willingness to respond positively and actively to the inputs received)
- Valuing (Preference in actions, realising the value of one's actions and commitment to act for protection environment)
- Characterisation (Assimilating environment related values into one's personality)

It is clear that attitude formation would be the supreme objective of teaching-learning of Environmental studies. It would surely create a new mindset.

Albert Einstein, the great scientist had said, "You cannot solve a problem with the same mindset which created it in the first place". This mindset would make everyone turn inward and say (as the cartoon character Pogo says), "I have seen an enemy of environment, a polluter and destroyer and it is me". But it would also make him say, "I have seen a protector of environment and it is me."

How could this new mindset of learners reveal itself ?

- By doing the related project work in the most sincere spirit. The subject, Environmental Studies, prescribes the project work. It is the best learning experience to understand the environmental phenomena.
- By joining the social movements for protecting the environment. They can make the people aware of environmental crisis and human misery.
- By making career in environment-related services. There are numerous environment related careers such as Air Quality Engineer, Energy Auditor, Noise Control Specialist, Solid Waste Manager. These careers are new and challenging.
- By following and abiding by the *Environmental Ethics*. Everyone of us has environmental responsibility. There is a strong moral basis for that responsibility. There can be three views in the environmental ethics. First, the anthropocentric view states that it is our responsibility to make the earth hospitable and pleasant for all human beings. Second, he biocentric view recommends that all forms of life – humans, animals and plants – have an inherent right to exist and live without hindrance.

Epilogue :

This world is shrinking in size. It has become a small village. Therefore every incident has corresponding consequences on other regions that are not directly related .There are connections and inter-dependence. It is therefore, remarked, Drink coffee in the US and the song-bird vanish in South America. The global peace has thus come to be interdependent. In 1986, there was the worst nuclear disaster at Chernobyl USSR. There were such disasters in Japan. These had spread radioactive fallout over large areas of the world. It shows environmental crises do not concern a single nation; it encompasses greater part of the globe.

But we do not lose heart. We are optimistic. We shall activate the protector of environment who dwells in us and environment related subjects will guide me.

References :

1. Anuradha R. V. (2000) Sharing the Benefits of Biodiversity : The Kani – TBGRI Deal in Kerala, India. Kalpavriksh Pune.
2. Enger, E. D. and Bradley, F. S. (2004). Environmental science : A study of Interrlationship 9e. Mc Graw-Hill, New York.
3. Krathwohl, Masia (1964) Taxonomy of Educational Objectives. British Council, London.
4. Lubchenco J (2001) 'Understanding Human Impact on Earth's Ecosystems', in Peter H Raven and Linda R. Berg, Environment. Harcourt College Publishers, Fort work,USA.
5. Mabogunje, A. L. (2002) 'Poverty and Enviornmental Degradation : Challengers within the Global Economy' Environment 44 (1)
6. Nebel, B. J. and Richard T. W. (1998). Environmental Science : The way the world works 6e. Prentice Hall International, New Jersey.
7. Rajagopalan, R. (2005) Environmental studies : From Crisis to Cure Oxford University Press, New Delhi.
8. The Introduction to Core Elements (1990) Maharashtra State Bureau of Texbook Production and Curriculum Research, Pune.
9. The Oxford Advanced Learner's Dictionary(1995).Oxford University Press,New Delhi.
10. Tillotama Senapati and Rajan Kumar Sahoo (2009) Environmental Education and Pollution Control. A Mittal Publication, New Delhi
11. Tripathi, K. P. (2009). Current Topics in Environmental Science. Pearl Books, New Delhi.
12. Tyler, P. E. (2004). 'For an Environment of Peace' Frontline 21 (22).