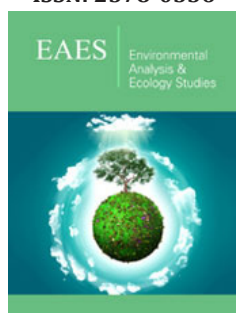


Our Environmental Concerns Past, Present and Future Scenario with Need of Environmental Education Especially the Role of Teachers in Creating Awareness towards Ecological Security and Sustainable Utilization of Natural Resources

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Prelude

Environment is there, with all its complexity, for all organisms to be part of, to draw sustenance from and to reorganize and recycle till eternity. Environment is indivisible and inseparable from life. The crux of the problem is: after all, environment for whom? The answer is: for the living system of which mankind is an integral part. The terms environment and environmental protection have been an item of public discussion for almost 70 years now. Initially the main focus was on solving acute environmental problems such as arose from the use of the plant pesticides (a classical example is the campaign which eventually led to the ban on DDT). In the course of time, however, protagonists of environmental policy have come to realize that we will not be able to secure an acceptable quality of living in the long run by merely dabbling with symptoms. It is rather accepted today that this will require the foresighted protection of all our natural resources and their biotic potential. However, this goal can only be achieved if humanity orients itself by the principle of sustainable development. This insight, too, is gradually becoming common knowledge. Observance of sustainability as an ethical concept dates back to the third millennium BC when in their hymn to earth, the sages of the Athrava Veda chanted, "What of thee I dig out, let that quickly grow over, Let me not hit thy vitals, or thy heart", that one can take from the earth and the atmosphere only so much as one puts back into them. The hymn above conceptualizes thee as nature and refers it to man warning him of the relationship, he must maintain to live in harmony with nature. Lastly, we can say that a global development in accord with the Brundtland Commission's definition of "sustainable development" is in principle very well possible, provided the world population does not outreach the Earth's population capacity and humanity converts its energy and raw material supply to renewable resources and does not think Environment as the Gigantic Sewer otherwise our survival along with all life on earth will be at a stake.

Résumé

In the simplest term, Environment has been defined "as the sum total of all conditions and influences that affects the development and life of organisms". This is a comprehensive definition as it stresses its totality, and every living organism, from the lowest to the highest, including human being, has its own environment. The objective of the present discussion is to identify priority areas and the way corrective action could lead to sustainability in development. This has to be done in relation to our particular social, cultural and economic milieu.

Historically, we have been serious minded about environment and the basic philosophy has been one of harmony with nature as against western concept of conflict with nature. We followed the latter during the past 150 years or so. Since our independence, considerable progress has been made and today we are among the first ten industrialized nations of the world. Associated with any development, there is always some amount of environmental

degradation. A time has come when sustainability in development has to enter in our planning process as one of the basic and permanent objectives. However, sustainable development needs to be properly paraphrased. This paper is aimed at provoking a thought process, discussion and public debate on the subject, rather than talk about it with an air of finality. For human societies to achieve a productive, healthful, and sustainable relationship with the natural world, the public and private sectors must make environmental considerations an integral part of decision making.

The following areas have been identified where priority action is needed. In fact, these would also constitute important steps towards sustainable development itself.

Population stabilization

Integrated land use planning

Healthy cropland and grassland

Woodland and re-vegetation

Conservation of biological diversity

Control of pollution in water and air

Development of non-polluting renewable energy systems

Recycling of wastes and residues

Ecologically compatible human settlements and slum improvement

Environmental education and awareness

Updating Environmental Law

New dimensions to national security

General Considerations

The words "economics" and "ecology" have the same Greek root, Oikos, which refers to the "house". While ecology deals with environmental housekeeping; economics deals with financial housekeeping, that is, management of the house. House of course is the Planet Earth! Time has come to see that economic planning and environmental protection have identical goals, i.e., sustainable development which, therefore, must get deeply integrated in planning process. Basically, sustainable development on a long-term basis and in common parlance would mean spending the interest while keeping the capital intact.

The concept of sustainability will apply to non-renewable resources much more than the renewable ones. The present generation has to think about what it owes to one that will follow. How much of coal, petroleum, minerals, etc., do we have and what is the pattern we should follow to make it last longer. This has to be coupled with a more major programme on recycling and reuse.

The opinion before us is either a Throw-away and One-way Society or a Sustainable and Earthman ship Society (Miller, 1979).

The present-day 'Throwaway Society or One-way Society' can become sustainable only if there is infinite supply of materials and energy. It pre-supposes that the environment has equally infinite ability of absorption and resilience to return to its original condition, after unlimited quantities of waste and heat are generated. Experience has shown that this is no longer tenable particularly on account of the escalating population and shrinking resource base.

The other model is 'Sustainable or Earthman ship Society' aimed at recycling and reusing materials, conserving energy, controlling pollution and lowering the rate of consumption of materials (including forests) and energy by deliberate choice, so that resources are not depleted and environment does not degrade due to being overloaded with wastes and loss of vegetal cover. This model goes well with our conservation ethic. The choice, therefore, is clear.

It is high time that we stop confining only to what may be called as reactive-environmentalism but move to long range environmentalism. Reacting to the local environmental issues is only "skirting the basic issues". One such basic issue discussed below relates to the model of development itself that we should follow for the unusually large number of villages we have.

India has over 576,000 villages. This is why Gandhiji aptly said that India is in villages "If villages perish, India perishes". It is indeed a far cry that through central grids, we can meet the minimum basic needs of all the villages. The centralized planning has failed to percolate fully to the grassroots. Still, vast majority of the rural households in India meet their daily needs through biomass or biomass-related products. Essentially, therefore, the village society and economy is biomass-based and for amelioration of the condition of the rural poor there is need to enhance the productivity of biomass on a holistic basis. The ecosystems need to be built up, nursed and cared for. While discussing cropland, woodland and grassland, the three land-based activities and their nexus with rural energy, it emerged that we need an 'Agri-Silvi-Pastoral Model of Development' or the 'Photosynthetic Model of Development' (Khoshoo, 1986). This alone will lead to self-sufficiency at the rural level while keeping environment clean and forging sustainable development.

It is high time that a thrust is given to this model of development which essentially is based on photosynthesis. Indians are, by and large, vegetarians and there is an in-built veneration for all life. There is, therefore, needed a tilt in favour of this model of development. Among other things, this model envisages re-vegetating the uncultivated half of India and making the country verdant. This would have distinct environmental, social and economic benefits and will help in several ways:

a. Conservation and improvement of soil and water by reduction of surface runoff, nutrient leaching and soil erosion and increasing soil nutrients by addition and decomposition of litter fall; abatement of dust pollution.

- b. Stabilization of catchments and watersheds
- c. Control of floods
- d. Better microclimate by decrease in soil surface temperature and decline in evaporation of soil moisture on account of mulching and shading
- e. Creation of aesthetic and pleasing landscapes
- f. Better health
- g. Better quality of life
- h. Halting influx of rural population into urban areas
- i. Lastly, decentralized economy.

Our Environmental Concerns - Past, Present and Future

The well said aphorism from the Rig Veda “anobhadra: krutvo yanto vishvata:” means: “Let knowledge come to us from all the sides”. Here “all sides” must imply the circumscribing surroundings or the ENVIRONMENT according to our ancient sages. Experiences in ABOUT, FROM and WITH IN the dynamic environment provided the basis for man’s earliest concepts of all sciences, art and social values. Environment has been man’s pre-eminent teacher and so is even today. Mankind would never have got anywhere without this vital knowledge about environmental phenomena. Learning FROM the environment as implied by the aphorism, learning ABOUT the environment and its wondrous ecological fabric and learning FOR the environment for protecting and preserving its resources for sustaining developments are facets of worthwhile environmental concerns to us all from ancient times to present day. Environment is there, with all its complexity, for all organisms to be part of, to draw sustenance from and to reorganize and recycle till eternity.

Environment is indivisible and inseparable from life. Relationship between ENVIRONMENT, BODY and LIFE, the theme of modern science of Ecology, was very well known to the Indian sages of the past. It has been known from the Vedic times that nature and humankind (PRAKRATI and PURUSH) form an inseparable part of the life support system, which has five elements, air, water, land, flora and fauna. These are interconnected, interrelated and interdependent and have co-evolved and are co-opted. Deterioration in one inevitably affects the other 4 elements. If the deterioration is for a short term, and the life support system has enough resilience, it repairs itself and reverts to the original state. However, if deterioration continues, the whole system, including all life is thrown out of gear.

In the present times also the founding fathers of our constitution have enshrined in the directive principles of state policy, the following duties for the State and the Citizen regarding environment.

ARTICLE 48: “The State shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country”.

ARTICLE 51: “It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have a compassion for living creatures”.

Thus, the interest in environment and conservation is not a sentimental one but the rediscovery of a truth well-known to our ancient sages. Still, Indian tradition teaches us that forms of life - human, animal and plant - are so closely interlinked that disturbance in one gives rise to imbalance in the others..... Nature is beautifully balanced. Each little thing has its own place, its duty and special utility. Any disturbance creates a chain reaction which may not be visible for sometimes. As such taking a fragmentary view of life has created global and national problems.

Thus, it seems, as environment is the concern of all, and its effective management is possible on a holistic basis only through partnership with all people. So, can man himself be vital and of good heart and conscious of his responsibility. This should guide our relationship with our planet Earth as shown in the Vedas.

Many world leaders now expect- though they probably dwell on the thought - that nuclear destruction eventually, perhaps soon, will erase human life from this earth. For the first time in history a few men, or perhaps even one man, can destroy the whole human race and perhaps the whole planet. Besides nuclear annihilation mankind could be destroyed from off the face of the globe: chemical and biological warfare, overpopulation and resulting famine, disease epidemics, and above all environmental pollution.

Mankind’s failure to understand the environment, thus threatens to destroy the environment, and us along with it. With our air unfit to breathe, our water unfit to drink, several hundred species of animals threatened with extinction and hundreds more already destroyed, plant communities disrupted, we have at last come to face the inevitable fact: we live by nature’s laws, and we break them at our peril. At best, the remainder of 20th century will be a traumatic period for mankind. At worst, it will be catastrophic. Human life is sustained by air, water, and food. Today man is polluting his life-sustaining supply of these three necessities at a fast-accelerating rate.

Now many of our cities are plagued with smoke or other kinds of pollution. Air pollution; filling the air with poisonous gases, smoke, smog, fall-out from nuclear explosions, and fluorocarbons from aerosol sprays not only threatens man but renders plant-life sick. Major rivers and lakes in the world are so seriously polluted that the water supply in many places is reaching a crisis stage.

Man has depleted and ruined the soil out of which food must grow. Artificial fertilizers, poisonous sprays, and erosion caused by floods have robbed vegetables, fruits and grains of life-sustaining minerals and vitamins. Food factories have further extracted these vital elements out of grains, rice and sugar, in the greed for profits. Add to these the worldwide revolution in the weather- drought and

floods - the great Climate Change resulting in mass starvation in many parts of the world, and widespread epidemics of diseases. During the past 50 years or so in Africa, India and South America alone, weather and environmental damages have caused the loss of over one million square kilometers of agricultural land.

Lastly, if all these fast-accelerating evils do not destroy humanity soon, the experts say the population explosion will. Thus, we see, Planet Earth is sick, Very sick. The symptoms of this planetary disease are all round - in our air, water and our food as we see. Let us, therefore, consider today the most alarming questions. Is mankind an endangered species? If so, where have we gone wrong, and is there anything which we can do to rectify our error before it is too late?

Here we will consider some of the problems which man has brought upon him-self by failing to understand the world in which he lives and to solve the global pollution problem, a unified global society must now be regarded not as a fiction or an ideal, but as the inevitable reality towards which we must move

Need of Environmental education and the role of teachers:

Before we move on to environmental education, I would like to remind an Old Chinese Proverb which goes on to say:

"If you are thinking one year ahead - plant rice,

If you are thinking ten years ahead - plant trees,

But when you are thinking hundreds of years ahead - educate the people".

So, education plays very important part and this perception has some major elements connected to environment and education. In fact, education needs to be regarded as investment of the highest order which, in time to come, becomes an asset. However, in spite of the substantial inputs in this area, education tends to benefit selected pockets of population, while the rest of the population, remains steeped in superstition and irrationality. We have to make aware large masses of our population to be conscious of the environment.

A better understanding of our environment is indispensable for its rational management because it would enable us to comprehend the environment's resilience to man's action and the maximum potential it may offer for sustained development of mankind. Such an understanding will also enable us to predict better the interrelated efforts of some of the major challenges facing the world today, among which are demographic changes; economic development; availability of food, energy and raw materials; development and utilization of new technology; rates of inflation and availability of investment capital. All these issues have significant impacts on the environment and the environment, in turn, affects developments in those areas. Better understanding of the environment can only come through environmental education, and this is why environmental education is so important and essential at present.

During the last few decades there have been major changes in the world as a whole in our attitudes to and perceptions of environmental problems. These changes can be discerned in both developed and developing countries, but the magnitude of these changes - as to be expected - varies from one country to another. In developed countries, prior to 1970, public awareness of serious environmental deterioration was primarily limited to "shock" events. Thus, the shocking death of some 4,000 people due to famous London smog of 1952 and another 800 deaths in New York in 1963 for similar reasons attracted widespread attention.

Slowly deteriorating environmental conditions - like increases in water and air pollution, lack of land use planning or increasing noise levels - were mostly accepted as the price of progress. As people became wealthier and level of education increased, they also became more aware of environmental issues. Publication of some famous books like *Silent Spring* by Rachel Carson in 1962 and *The Limits to Growth* by Meadows et al., 1972 not only contributed significantly to the ongoing environmental debate but also in some way intensified it. Irrespective of whether one agreed or disagreed with these, put forward by these and other similar authors, there is no doubt that such events had a profound influence on the prevailing environmental thinking of the western industrialized countries.

So far as the developing countries are concerned, the overall trend was somewhat similar, even though these countries tend to be less homogeneous than the industrialized nations. As happened during Stockholm Conference on Human Environment, 1972, which stated that "In the developing countries most of the environmental problems are caused by under-development.....? Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment". Since the Stockholm Conference, much of the work on the environment-development interrelationship has been carried out by UNEP that has made the world accept the general principle that environment and development are the two sides of the same coin, that is, the development must be sustainable, and in order for development to be sustainable, environmental issues must be explicitly considered. Therefore, "development without destruction" has been a major motto of UNEP.

While prior to Stockholm Conference, the real nature and magnitude of the environmental problems facing many of the developing countries were perceived somewhat vaguely, the situation has become much clearer as more knowledge has become available. Many will now argue that poverty and pollution (environmental degradation) will continue to co-exist, until we can better manage the impacts of a growing population on a limited natural resources base, whose productivity is not increasing commensurately.

What is environmental education? It has to be admitted that like education in any other broad area, there are no precise and universally acceptable definition. The best that can be done is to

quote from Recommendation No 1 of the first Intergovernmental Conference on Environmental Education, held at Tbilisi, USSR, in October 1977 (UNESCO, 1980) which goes on to say "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 social problems, and the management of the quality of the environment. A further basic aim of environmental education is clearly to show the economic, political and ecological interdependence of the modern world, in which decisions and actions by different countries can have international repercussions. Environmental education should, in this regard, help to develop a sense of responsibility and solidarity among countries and regions as the foundation for a new international order which will guarantee the conservation and improvement of the environment". The Recommendation No 2 suggested some guiding principles for environmental education, which should:

- a. Consider the environment in its totality - natural and built, technological and social (economic, political, cultural-historical, moral, aesthetic);
- b. Be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;
- c. Be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- d. Examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- e. Focus on current and potential environmental situations, while taking into account the historical perspective;
- f. Promote the value and necessity of local, national and international co-operation in the prevention and solution of environmental problems;
- g. Explicitly consider environmental aspects in plans for development and growth;
- h. Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- i. Relate environmental sensitivity, knowledge, problem-solving skills and value clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;

- j. Help learners discover the symptoms and real causes of environmental problems;
- k. Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
- l. Utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and firsthand experience.

While the above aims and guidelines give us some idea about environmental education, it has to be admitted that they are somewhat general and broad, with rather poorly defined boundaries. Accordingly, there are major differences of opinion among experts as to what constitutes environmental education or rather what does not!

It is indeed a major dichotomy in the present world that many people preach one thing, but practice another. Their thinking seems to be "do as I say and not what I do". This in the area of environmental education will just not do! It is important and absolutely essential that the planners and leaders especially teachers should not set examples by practicing what they teach.

The Stockholm Conference proclaimed "to defend and improve the environment for present and future generations has become an imperative goal of mankind". This undertaking clearly implies the urgent need of disseminating knowledge about the environment to all members of the community who can then effectively participate in sustainable development, which will contribute to the improvement of their quality of life. Thus, environmental measures in every country call for active citizen participation, which will only be effective if based on and linked to education for the public at large in that direction teachers have the foremost responsibility and role to play. It is, of course, I am not suggesting, and you all will agree that environmental education alone and by it will solve all environmental problems. What I am stressing is that environmental education in the broadest sense of the term is a prerequisite for better environmental management.

Let me end where I began. So far, the nations of the world did not have a common past, but we are all now moving towards a common future through the area of environment on which rests the very existence of the human race. Environment is truly multidisciplinary and all of us are in a learning phase. We need collective wisdom from various disciplines to solve environmental problems which are often very complex. Let us recapitulate the aphorism from Rig-Veda:

"Aanobhadra: krutvo yanto vishvata:"

"Let knowledge and noble thoughts come to us from all sides."

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