

Role of Education in Environmental Sustainability

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Abstract: *“Eco-friendly” is the slogan commonly used in all the places in the world to protect the environment. Environmental sustainability is important for all living and non-living objects. Environmental education is not a new idea for our country. In Ancient India, people utilized the natural resources for better living. They observed the environment’s beauty and mystery. They were influenced by the gigantic rivers, the towering snow peaks of Himalayas, the boundless seas, ineffable splendor of the seasons and the vast green meadows. So the environment was worshipped by the people and named as “Pancha boothas” (Water, Land, Fire, Wind & Sky) and Gods like Surya (sun), Varuna (rain), Vayu (wind), Agni (fire) etc. Now a days, based on the utility, people do not bother about the environment and pollute it for their temporary benefit. Environmental awareness is must for them to protect the Environment. Awareness will be needed both the educated and illiterate to maintain the environmental sustainability. Education is one of the tools used to make awareness about Environment. We educate the people through formal education in the form of curriculum in educational institutions and training for trainers. For public, non-formal education is the best solution to make awareness by using training programmes and regional awareness workshops. To know about the Nature, Global situation, Environmental pollution due to people & industry and the remedial measures are the main objectives of the formal and non-formal Environmental education system. Environmental education is the interdisciplinary, having content and performance from many of the disciplines. The environmental education comprises different levels from the awareness level to expertise level and is understanding of the processes of the interacting systems that constitutes the environment. Focusing on Energy & Eco-system, natural resources & environmental quality and environmental issues offers the people to integrate their knowledge and environmental systems and take good decisions and actions to maintain the economically and ecologically sustainable environment for present and future generation.*

Keywords: Education, Environment, Eco-system, Sustainability

1. Introduction

Environment includes both living and non-living objects in the world, their interactions and the products of interactions. Environmental Sustainability is important for all the living and non-living objects. One object will not give disturbance to other objects. Environmental awareness will be needed to maintain the sustainability for all the objects. Education is one of the tools to create awareness among the people. In this regard, the paper explores in Environmental Education and how the education makes awareness in the people to protect the Environment and maintain the sustainability.

Environment and Eco-system

The Environment having following components to maintain the Eco system

- **Living Objects:** The living objects in the Environment include Producers, conservers, scavengers, decomposers and transformers.
- **Non-living Objects:** The non-living objects include land, water, Sunlight etc.,

Eco-system: A community of plants and animals together with the Environment that controls it is called ecosystem. Man is the most dynamic element in the Environment because he changed most of the other elements in the Environment. In modern society natural ecosystem has been changed to modify the ecosystem with the development of agriculture, exploitation of forests and the extensive use of resources. Due to the usage, he pollutes the eco- system for their temporary benefits.

Formal and Non-Formal Education

Formal Education is institutionalized. It is structured and graded. There is a chronology starting from pre-primary or nursery classes and going right up to the university level. There is a specified curriculum to be covered in each class. The schools and colleges are marked out to cater to a set age group of students. Non-Formal Education is imparted in a free atmosphere without rigidity of rules and regulations governing the formal schools and colleges. Non-Formal education is free from normal requirement of rules.

Environmental Education

Environmental Education is not a new idea for our country. In Ancient India, people utilized the natural resources for better living. They observed the environment’s beauty and mystery. They were influenced by the gigantic rivers, the towering snow peaks of Himalayas, the boundless seas, ineffable splendor of the seasons and the vast green meadows. The Environment was worshipped by the people and named as “Pancha boothas” (Water, Land, Fire, Wind & Sky) and Gods like Surya (sun), Varuna (rain), Vayu (wind), Agni (fire) etc.,

Now a day, based on the utility, people do not bother about the environment and pollute it for their temporary benefit. Environmental awareness is essential for both educated and illiterate. Education becomes a vehicle for social, economic and cultural transformation. Environmental education is the interdisciplinary, having content and performance from many of the disciplines.. Environmental Education dealings with management of resources in proper way and protect it. The environmental Education comprises different levels from the awareness level to expertise level and is understanding of the processes of the interacting systems that constitutes the Environment.

Main Objectives of Environmental Education

The main objectives of Environmental Education are:

- To know about the Nature and Global situation.
- To realize the Environmental problems.
- To know about the Environmental pollution due to people and industry.
- To know about the remedial measures to protect the Environment.

Characteristics of Environmental Education

The main characteristics of Environmental Education are:

- Environmental Education should be integrated in to the whole system of Education
- It should be interdisciplinary in nature
- It should adopt a holistic perspective which will examine the ecological, social, cultural and other aspects of particular problems
- It should be centered on practical problems related to real life.

Need for Environmental Education

Environment includes all surroundings, rural, urban, natural, cultural; living; human and natural resources, land forms, water bodies, atmosphere, weather & climate. The earth is a self-contained life-support system with innumerable ecosystems that depend on solar energy and the environment that surrounds them. All living things affect the environment and are affected by conditions, interactions and changes in the environment. Human beings seriously affect the Environment. Proper utilization of Environmental resources is affected due to overpopulation, waste of energy, limited food supply and pollution of the environment due to industrialization. So Environmental Education is essential for the people to protect the environment.

Scope of Environmental Education

The scopes of environmental education are

- **Awareness:** People to gain a variety of experience and acquire a basic understanding of the Environment and related problems.
- **Attitudes:** The people acquire a set of values and feeling about the environment and the motivation for participating in environmental improvement and protection.
- **Skills:** The people acquire the skills for identifying and solving environmental problems.
- **Participation:** The people to be actively involved at all levels in working towards the resolution of environmental problems.

Environmental pollution

Man is the major element in the environment and pollution process. Environmental pollution means increasing the population. Environmental pollution is caused due to Poverty and prosperity. Environmental pollution takes place in developing countries due to poverty. Pollution problems are mostly being faced by developing countries because of industrialization. Environmental Pollution in developed countries due to prosperity. Now Environmental Pollution is serious problem both developing and developed countries

Different Types of pollution

The Environment is being polluted in the following ways.

- Air pollution
- Water Pollution
- Noise Pollution
- Land Pollution
- Pollution due to Radioactive wastes.

People should know the remedial measures to control the pollution

Formal Education for Environmental Protection

We create environmental awareness through the formal education to protect the Environment and maintain the sustainability. The following methods are used in Formal Education.

- Include the Environmental Education in the curriculum
- Training to trainers

Curriculum at different level of Formal Education is

- **Primary School Level:** In this level study about the basic environment, living and non-living objects how these are interconnected with the ecosystem
- **High school Level:** In this stage study about the effective utilization of environmental resources, environmental pollution, Land, water and air pollution and remedial measures
- **Degree Level:** In this level study about the Environmental problems like Global warming, Acid rain, Green house effects, Solid waste management, waste heat recovery, Applications of Geographical Information System(GIS), Remote sensing in Environmental Education & Environmental protection and Environmental policies & issues.

Training to Trainers

We provide training to trainers (Teachers) at different levels i.e., primary school teachers, High school teachers, and college level faculties.

- We provide short term programme through training organization
- Provide Environmental Education workshops/Seminars for teachers

The following methods are commonly used in formal education system

- Class Room Method
- Demonstration method
- Discussion method
- Lab Centered Practices
- Field Visit

We conduct oral and written contest about Environmental protection and Environmental pollution & control between the schools and colleges. Environmental Education aims not only developing awareness but also developing ability to guide others. Continuous evaluation in teaching learning system is necessary. The teacher should evaluate how fare the students know about environmental problems and the method of controlling.

Non- Formal Education for Environmental Protection

We create the environmental awareness to protect the environment through Non-Formal Education in following ways.

- Conduct workshop and seminars to public
- Through community meetings
- Extension Programmes
- To make community Environmental Action Groups
- Through cultural Activities- Theater /Street theatre/puppetry
- Interactions at religious meetings, platforms and through religious leaders.
- Through media like News papers, Radio and Television
- Through government organizations to conduct Environmental Awareness programmes and other extension activities
- Through Politicians/Parliamentarians
- Through Trade unions, chambers of commerce.
- Through Professional Association.

Role of Home in Environmental Education

Parents should give advise to children, do not waste food, water and other Environmental resources and the effective utilization of the above the Environmental resources. Community members must cooperate to keep the surroundings clean and help in avoiding pollution

Role of Social Organizations

There are a number of social organizations plays a vital role in providing knowledge about Environmental protection and pollution control. They are temples, mosques, churches, and libraries. These organizations feed the Environmental Awareness to the people through religious or social function. During the celebrations of their functions, efforts must be made to see that community resources are properly used.

Environmental Education in India

In Ancient India, people utilized the Environmental sources for better living. India is a vast country separated from the Asia by the Himalayas. It is usually reformed to as a sub-continent; its climate varies from tropical monsoon in the south to temperature in the north. It has very variable terrain; upland plain (Deccan Plateau) in the south, flat to rolling plains of the Ganges basins, deserts in the northwest, and high mountains in the north. India's economy is a mixture of traditional village farming, modern agriculture, handicrafts, a wide range of modern industries. In India, Annual Deforestation is 0.6 % loss pa, Commercial Energy Use is 248 kg oil equivalent per capita pa, CO₂ Emissions are 0.9 metric tones per capita pa.

Population has been increased over the last 50 years and now stands around one billion with an overall population density roughly 290 /sq.km. Densely populated areas, population density is more than 700/sq.m with some urban pockets are displaying a density of 6500/sq.m and more. Almost half the population is below the poverty.

To maintain better environmental status following actions are required,

- Stabilization of population growth in the next 15-20 years to ensure an improved quality of life
- Legislative protection for fertile agriculture land, just like forest land
- Improving agriculture productivity
- Implementation of watershed management systems.

Environmental Education in India has three major components; Teaching, Research and Extension. In India all the schools and colleges having the compulsory subject i.e., "Environmental Studies" at different level. Out of more than 100 universities, there are about 20 universities having courses in Environmental areas. Some professional institutions like IIT & several engineering colleges, which offer courses in Environmental Engineering. At post graduate level, for major areas are being offered.

- Environmental Engineering
- Conservation and Management
- Environmental Health
- Social Science

There are some institutes and centers assisted by Ministry of Environment and Forests, which provide formal education and training in environmental areas such as Centre for Environmental Education (CEE), Ahmedabad. Indian Institute of forest Management, Bhopal and Indira Gandhi National forest Academy, Dehradun.

2. Constraints for Environmental Education

Environmental Education programmes are limited by,

- A shortage of trained education officers in Environmental Education
- Shortage of Environmental Education materials for teachers and students
- Week monitoring system
- Lack of good communication networks, co-generation and coordination within and among the various governmental and civil society organizations
- Lack of government priorities.
- Lack of appropriate legislative framework, enforcement and institutional support.
- Limited resources (Funds, and suitable materials) to address the Environment and Environmental Education.
- Curriculum overloads, and lack of teacher training and resources.

3. Conclusion

Now we are utilizing the Environmental resources for comfortable life. Some people are polluting the environment due to lack of awareness. We create that awareness through Formal and Non-Formal Education to protect the environment. The comfort environment, i.e., pure water, pure air, pure land are necessary not only for us but also for coming generation. So we maintain that environmental sustainability and give it for them for better living.

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