Impact Factor : 1.883 Peer-Reviewed Journal ISSN : 2278 – 5639
Global Online Electronic International Interdisciplinary Research Journal (GOEIIRJ)
THEME : ENVIRONMENT AND EDUCATION
{Bi-Monthly} Volume – IV Issue – III October 2015

ENVIRONMENT EDUCATION FOR CONSERVATION OF BIODIVERSITY

Dr. Smt. Sushmavati J. Patil,
Associate Professor,
Adv. V. H. College of Education, Nashik.

Abstract :

There is a tremendous diversity of life & nature of animals on the earth Biodiversity refers to the numbers, variety and variability of living organism and ecosystem. The term biodiversity includes all the terrestrial, marine & other aquatic organisms. It also covers diversity within species between species, as well as the variations among ecosystems.

The green Revolution increased yields, but created problems like soli degradation, falling productivity over time, increased use of fertilizers, a greater propensity for disease & excessive withdrawal of groundwater. Environmental problems causes loss of biodiversity. There are some remedies and solutions for conservation of Biodiversity.

If students are to participate fully in solving the environmental problems of today and the future, environment education is essential. By using student centred classroom activities such as brainstorming discussion, concept formation, experiments, simulation. Projects, Roleplay which encourage analysis and interpretation of environmental issues. The development of skill and awareness that promote sustainable development.

Key words :

Environment, Environment science, Biodiversity, Environment Education, Conservation of Biodiversity, Value of Biodiversity, In-Situ, Ex-Situ, Concept information, Enquiry training learning, Experiments, Surveys, Environmental Management etc.

Introduction :

Environment education is education through, about and for environment. This education helps to known how environmental problems are created and how to solve this problems. There are some global objectives related to the environment such as awareness. Promoting awareness of a particular environment problem and what individuals can do to help solve the problem. **Skill :**

Helping student to acquire and develop the necessary skills to solve the environmental problems. **Action :** Providing opportunities for students to get actively involved in doing. Something to remedy environmental problems. **Knowledge and attitude** : Motivates for actively participating in environmental improvement and protection. For the fulfilment of this objectives, use of student centred classroom activities are important. Activities such as brainstorming, discussion, values clarification activities, debate, concept formation, experiments, role play etc.

Activities helps to analyse & interpretation of environmental issues. In the context of their experience, their culture, and the world as a whole. During the activity students work together in small groups or teams. Pooling their knowledge and learning from one another, focus on what individuals can do to help 'save the Earth'.

There are major causes for the decline in biodiversity. Such as habital loss and degradation, habital fragmentation This has a major impact on the worlds climate. Protection and conservation of diversity is important. There are some solutions and remedies for it. National and international movements and efforts are their for conservation. In brief environment education helps for the conservation of environment.

Environment and Environment Education :

"Environment is the sum total by all external conditions and the influences on the development cycle of biotic elements over the earth his surface." And environment science provides an approach towards understanding the environment of our planet of human life upon that environment. It is also a search for solutions to the environmental problems that control us.

Environmental education is education through, about and for environment. Its Scope is, therefore very wide. It begins from using environment as a medium of learning and includes nature. A lot of teaching learning can be carried out through environment. This is the first aspect of environment education. This education covers teaching learning about environment. It is the second aspect and third aspect of environment education is education for environment. Environment education is education through environment, about environment and for environment. It is both style and subject matter of education. In so far as the style is concerned, it means using environment as a teaching learning aid and an approach to education. Subject matter is concerned, it means teaching about the components and constituents of environment in so far as the teaching for environment is concerned, it means controlling the environment, establishing proper ecological equilibrium which

entails proper use of conservation of resources and also involves control of environmental pollution.

"Environment education is the process of recognizing values and clarifying concepts in order to develop skill and attitude necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surrounding. It also entails practice in decision making and self formulation of a code of behaviour about issues concerning environmental quality" ---UNESCO in Parris, in 1970.

Concept of Biodiversity:

There is a tremendous diversity of life & nature of animals on the earth. Biodiversity refers to the numbers variety and variability of leaving organisms and ecosystems. The term includes the entire terrestrial, marine and other aquatic organisms. It also covers diversity within species, between species, as well as the variation among ecosystem. In addition the field of biodiversity is concerned with the complex ecological inter relationship of species. Biodiversity is the Earth's primary life support system and is pre condition for human survival.

The biological diversity is defined as "The variability among organisms from all sources including, interline, terrestrial, marine and other aquatic ecosystem-This includes diversity within species, between species and of ecosystem"

Species diversity refers to the number of plant and animal species present in community or an ecosystem. It varies a great deal between ecosystems. While genetic diversity is the variety in the genetic makeup of individuals within a species. Ecosystem diversity is the variety of habitats found in an area. It refers to the variety of forest, deserts, grasslands, aquatic ecosystems, etc. that occurs in an area. India is one of the 19 mega biodiversity countries of the world and so far, about 70 percent of the total area has been surveyed for biodiversity assessment. Till date 45,000 wild species of plants and 81,000 wild species of animals have been identified here. Together they represent 6.5 % of the worlds biodiversity.

- **Value of biodiversity:**

Consumptive value: Food that is directly eaten by humans including grains, vegetables, fruits, meats and fish. Hundreds of plants are used in traditional medicines of developing countries.

Recreation Value: The biodiversity of the planets enables the activities like wild life tourism, nature photography, tracking and bird watching.

Genetic resources: Biotechnology and genetic engineering use the genes of organisms to make new

types of crops, medicines etc.

Option value: Paying for the future use of nature, e.g. establishment of Wildlife Park so that we can use and enjoy the facility later.

- **Cause of threats to biodiversity:**

Destruction or loss of habitats due to deforestation, poaching of wild life, deforestation, population growth, growing Industrialisation, manmade projects on river - dam , use of insecticide and pesticide in agriculture field, atomic explosion on desert area – loss of desert plants and animals, loss decent and farms due to shifting agriculture.

The major causes for the decline in biodiversity are habital loss and degradation, Habital fragmentation. Destruction of biodiversity – rich areas like tropical forests, coral reefs and wetlands, ploughing of grasslands, pollution of freshwater streams, lakes and marine habitats. While fragmentations creates barriers that limit the ability of the species to disperse and colonize new areas. Species become divided into smaller populations that cannot sustain themselves; Migratory birds face the loss of their seasonal habitats.

Impact of Biodiversity loss :

The poor people in the developing countries, who are dependant on biodiversity for their daily survival, will feel the impact first. The industrialized countries will also start experiencing the effect this loss. Most of there food crops, medicines, textiles, spices, dyes and paper originate from plants in the developing countries. The destruction of the rain forests that means that less carbon dioxide is absorbed and natural climate control mechanisms are lost. This has a major impact on the worlds climate.

Biodiversity conservation :

There are some course for the decline in biodiversity. Human activities affect the diversity of plants and animals, and develop ways & protecting that diversity. Conservation ranges from protecting the populations of a specific species to preserving entire ecosystems. There are two methods of conservation of Biodiversity, In- situ conservation and Ex- situ conservation.

Aims of Conservation :

Some aims or characteristics of Biodiversity conservation are as follows :

1. To balance the Nature.
2. To join Relationship of wild animals and forest with the nature.

3. To protect trees and animals.
4. To prevent the loss of forestation.
5. To narture the heredity genes of wild life. e.g. animals and trees.

For the protection of Environment it is important to conserve Biodiversity.

Need for conservation of Biodiversity :

1. Identifying and Monitoring the important components of Biological diversity that need to be conserved and used sustainably.
2. Rehabilitating and restoring degraded ecosystem and promoting the recovery of threatened species in collaboration with local residents.
3. Respecting, preserving and maintaining traditional knowledge of the sustainable use of biological diversity with the involvement of indigenous peoples and local communities.
4. Controlling the risks posed by organisms modified by biotechnology.
5. Promoting public participation, particularly when it come to assessing the environment impact of development projects that threaten biological diversity.
6. Educating people and raising awareness about the importance of biological diversity and the need to conserve it.

Methods of Conservation of Biodiversity :

There are two main types of conservation. In- situ (on-site) conservation and ex-situ (off-side) conservation.

In - situ conservation, which tries to protect species where they are, that is, in their natural habitat. This type requires the identification and protection of natural areas, that have high biodiversity. This includes the establishment of natural parks and reserves. The main objectives is to preserve large area of undeveloped land so that the ecosystem and biodiversity can continue to flourish and evolve.

Ex-situ conservation attempts to preserve and protect the species in a place away from their natural habitat, that means we conserve biodiversity in an artificial setting. This includes the storage of seeds in banks, breeding of captive animal species, in zoos and setting up of botanical gardens, aquariums and research institutes. But in–situ conservation is more cost – effective.

Remedies for conservation and protection of Biodiversity :

1. For the conservation of Biodiversity some acts are given to the control government such as

environment protection act 1986, fish ring prevent prevention act-1987., forest act- 1927, forest conservation act of 1980 wild life protection act of birds and animals and for all matter that are connected this whether it be habitat, the waterhole, or the forest that sustain them.

2. Protection and conservation of Biodiversity management of various ecosystem in nature.
3. Record of the Local knowledge – we use indigenous knowledge to conserve biodiversity such as involve local communities in the conservation process as partners make use of their traditional knowledge (especially medicine) for documenting the value of diverse organisms and for developing new products. Compensate communities for the knowledge they have shared.
4. Increase public participation and Awareness in conservation of Biodiversity.

Solutions for conservation of Biodiversity:

1. Stop the trade, save the species – illegal trade, will stop.
2. Saving biospheres- there are three Indian biospheres are reserved – The nilgiris, the gulf Indian manner and the sunder bans.
3. Conserve biodiversity, save health – Conserving natural resources used by Indian systems of medicine.

International movement and efforts to conserve Biodiversity :

- Documenting indigenous knowledge.
- Assisting local communities to grow medicinal plants, make medicines and market them.
- Saving and propagating traditional seeds.
- Reintroducing traditional food items through restaurants.
- Preserve vital ecosystem processes on which all life depends for survival.
- Develop sustainable uses of organisms and ecosystems i.e. components of biodiversity.

Environment Education For the conservation of environment:

Schools, centres of environmental education and NGO's have been developing innovative ways of teaching and learning about environmental issues. This education develop environmental awareness and commitment in teachers, students and there by the community. Environment education could be introduced to students using a problem solving action, project oriented approach etc. A few approaches and initiatives are as follows:

1) **Concept formation :** Both observation and classification are important in environmental science. Generally the educator define concepts. But to overcome the problem of understanding difficult concepts and definitions, participants are asked to put down their own ideas creatively. Give each person a large sheet of paper coloured pens, old magazines and newspaper. Ask him or her to define the concept either through words or pictures or collages and watch the results. The responses would be startlingly different. Thereafter, the posters could be grouped under different sections such as values, local problems, and global contexts and so on. Finally the educator puts together all the various ideas, lists areas of agreement and disagreement and comes to a final description that would satisfy everybody's understanding of the concept.
2) **Inquiry Based Learning :** Inquiry is defined as a seeking for truth, information, or knowledge – seeking information by questioning. Discovery through inquiry technique utilize, various systems of delivery such as films, slides and photographs that narrate a story and demonstrate phenomena. Instead of performing experiments, students observe a film or picture and verbalise what is in their mind in the form of questions. Data gathering make, students test hypothesis through 'Verbalised experiment' making them think critically. The emphasis is on preparing good and appropriate questions rather than finding the correct answers.
3) **Experiments :** A sample experiment would be to mark off two inclined surfaces of equal areas, one bare and another conserved with plants and trees. Water can be made to flow equally over both surfaces for a fixed period of time. At the end of the incline, the water is collected and compared. The students should be made to identify the factors to be controlled. Such as the slope, amount of water allowed to flow, velocity of water, soil type etc.

   An easy experiment would be the differentiation of biodegradable and non-biodegradable materials. Four pits of equal size are dug. Old newspaper is buried in one, plastic bags in another, vegetable and fruit peels in the third and glass battles in the fourth. The four pits are marked and re-opened two weeks later. The condition of the items in each pit would explain the concept.
4) **Surveys :** Surveys collect baseline information and can be used to provide direction to

projects. Questionnaires, checklists and interviews are commonly used to gather data. However, the reliability of surveys would depend on the sincerity of the respondents. Since environmental education involves awareness and understanding, surveys are very useful.

5) **Case Study method :** Case study method breaks down a case to identify the basic issue or problem. Therefore each person present recommends an action for a solution, and the best recommendation is selected. The most important and educational aspects of this process is the discussion and analysis, which enables the participants to comprehend the problem.

The periodical cyclone on the east coast have been a frequent topic for case study. The effect of the cyclone and methods to mitigate its effects from a coastal green belt to safelight data for early warning are discussed in the classroom to work out methods of disaster management and environmental control.

6) **Role Play :** 1. Creating the role play. 2. Preparing the students for roles. 3. The Action 4. Whole class involvement are the steps of role play. 7) Projects – Exhibition 8) Fieldtrip. 9) Animation Techniques. 10) Use of folk arts., 11) Role of Multimedia are some approaches of environment education. For solving environment problems environment management is the best solution. " Environment management is the integrative ecological cultural economics and social process by which the environment is developed in holistic and systematic manner through the optimal use of existing and potential resources in the biosphere, for the ultimate improvement of human well being". It is positive concept, it regulate the demands activities of man in such a way that the ability of the environment to sustain future development remains unimpaired. It is a prerequisite for sustained economic development. Thus, for the conservation of environment, environment education is must to all.

References :

1. Environmental Education by Shagoan Tabin.
2. Environmental Education by Dr. V.K. Prabhakar.
3. Environmental Education by Dr. D.R. Kulkarni
4. Environmental Studies by R.Rajagopalan
5. www.biodiv.org the official site of the CBD.
6. www.terrin.org/biodiv/status.htm