CHAPTER-I
INTRODUCTION

1.1 INTRODUCTION

Human beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have included practices and values related with ecological and environmental conservation. The concept of ecological and environmental conservation rests on the earliest conceptions of the unity of life in nature, in the sense of communion and fellowship with the divine centre and source of life. The protection of forest and tree species as sacred belongs to the religion-based conservation ethos of ancient people all over the world. Although such practices became extinct in most parts of the world, basically due to changes in religion, and during recent times due to changes in resource use patterns, conserving forests continue to be of much importance in religion, culture and resource. Vriksotsavavidhi attaches great importance to the planting of trees and even to the celebration of the tree festival or ‘vana mahostav’. It emphasizes the importance of planting a tree.

Today man is living in a world of crisis. The social, economic, political and value crisis are quite alarming. Added to this, in the recent decades, the environmental crisis has become another important factor that has made everyone in the world to think of its gravity. Ever since man has been on this earth, there has been a constant interaction between him and the natural world. In the beginning, man lived in harmony with nature, but as his numbers grew and his scientific discoveries and inventions led him to the path of environment and its resources have led to its exploitation and degradation. (Mercy and Arjunan, 2005). The role of education in
understanding, protecting and solving problems related to environment might succeed if it is deliberately directed towards children. Realizing this the National Education Policy (1986) emphasized that, there is a paramount need to create a consciousness of the environment. It must permit all ages of sections of the society beginning with child (Chethana, 2003). Environmental Education is still evolving and the problems and concerns are vast. The concept of Environmental Education is still evolving and awaiting institutionalism in the educational system. As such there is a desired need to understand the subject in proper perspective. Environmental Education has two components viz environment and education. Environmental Education is the process of recognizing values and the clarifying concepts in order to develop skill behavior and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. (Council of Europe, 1976).

The key to successful Environmental Education is in the hand of classroom teachers and students in the classroom. If teachers do not have knowledge, skill, behaviour and attitude and awareness it is unlikely that an environmentally literate student will be produced. If the students do not have attitude and behaviour towards Environmental Education and environmental contexts it is difficult to protect the environment from various consequences. For this, special training and attention to the students is necessary. There is a need for a new individualized behavior based on global ethics. This can be realized only through creating awareness and teaching environmental issues to the students and educational professionals. Environmental crises are ultimately human problems; they are perhaps less as a result of shortcomings in scientific knowledge than in human environmental attitude and behavior. Resolution of the current ecological dilemma will necessitate not only
technological changes and improved scientific knowledge, but also changes in the environmental attitude and improved scientific knowledge.

The environmental behaviour of the people who are affected by the altered technologies and advanced knowledge is incomplete. Research has identified that knowledge about environmental issues, schooling, and ethnicity, gender role, locus of control, intention to act, are related to the development of positive environmental attitude and formation of responsible behaviour (Hines et al, 1986 : Arjunan, et al, 1996). Further more it is suggested that making this cognitive and affective factors more environmentally favourable will result in better attitude and more responsible environmental behaviour. A few researches have tried to examine the relationships that they felt existed between environmental attitude and behaviour as well (Kaiser et al, 1999: Hwang et all. 2000).

The life supporting systems of the planet's biosphere are being threatened due to deforestation, destruction of habitats, overuse of energy resources and environmental pollution. Changes in the earth's climate, decline and deterioration of natural resources, the accumulation of waste products, soil exhaustion and the destruction of ecosystems, are already apparent. In the recent past, the anthropogenic activities triggered by the burgeoning human population, ever expanding industrial and urban growth, changing values, lifestyles, and many other factors have led to the overuse of natural resources, accumulation of waste products, pollution, soil exhaustion, deforestation, destruction of natural habitats, etc. These have altered ecosystem structure in terms of its function and distribution has resulted in the extinction (gone forever or irreversible) of a large number of plants and animal species, many more are in the verge of extinction, while others are threatened or
vulnerable. Consequent to this, changes in the earth’s climate, has also lead to global warming, stratospheric ozone depletion, bioaccumulation of toxic chemicals, and increase in the natural disasters such as earthquakes, floods, droughts, etc., which have made everyone aware of growing environmental concerns. The process of degradation and species loss could be arrested through an understanding of ecological processes. It is essential to adopt several different approaches for managing the ecosystem and biodiversity, in order to bring about conservation of natural resources through sustainable management approaches. The need for sustainable development is a key to the future of humankind.

It is even more critical than ever before for the humankind as a whole to have a clear understanding of environmental concerns and to follow sustainable development practices now. The degradation of our environment is linked to the continuing problems of pollution, loss of forest, solid waste disposal, and issues related to economic productivity and national as well as ecological security. Environmental management has gained momentum in the recent years with the initiatives focussing on managing environmental hazards and preventing possible disasters.

Environmental Education focusing on real world contexts and issues often begins close to home, encouraging learners to forge connections with and understand their immediate surroundings. The awareness, knowledge, and skills needed for these local connections and understandings provide a base for moving out into larger systems, broader issues, and a more sophisticated comprehension of causes, connections, and consequences. Thus, Environmental Education will certainly help to
recognise the importance of investigating the environment within the context of human influences, incorporating an examination of economics, culture, political structure, and social equity as well as natural processes and systems. The ultimate goal of Environmental Education is to develop an environmentally literate public. It needs to address the connection between our conception and practice of education and our relationship as human cultures to life sustaining ecological systems. For each environmental issue there are many perspectives and much uncertainty. Environmental Education cultivates the ability to recognise uncertainty, envision alternative scenarios, and adapt to changing conditions and information. This knowledge, skill, and mindset translate into a citizenry who is better equipped to address its common problems and take advantage of opportunities, whether environmental concerns are involved or not.

Nature with all its rich bounties has been bestowed upon us but alas man for his own use has used up the natural resources and destroyed them. The earth is our home. Modern living disconnects us from the earth’s natural elements. We rarely get to experience nature on a large scale. The earth is beautiful with cascading mountains, vast forests and powerful water ways. but alas the use of these by man has degraded the natural resources and caused pollution. Sadly we are living in an environment that is out of balance with nature. In order to enjoy natures’ bounty man has to help himself by adjusting with nature. For thousands of years Mother earth has been providing us with natural beauty and profound healing properties.

Time has to implement powerful energies back into our environment by assisting in creating harmonious and wonderfully balanced life. Our planet is in great danger. For the last hundred years or so people of the earth have wasted and misused
the natural resources. Several measures have been implemented to stop the abuse of earth. Environmental problems have become so complex that many individuals feel that they can have no effect on them. The social, economical, political and value crisis are quiet alarming. Ever since man has been in constant interaction with nature, scientific inventions and discoveries led him to the path of exploitation and destruction. (Mercy and Arjunan, 2005).

1.2 EDUCATION

The word education has its origin from the Latin word ‘educare’ which means to bring out. Therefore education means becoming developed or progressing from inside to outside. According to Frobel” education” is a process by which the child makes it internal and external. John Dewey opines that education is not a preparation for life, rather it is the living.

1.2.1 MEANING OF EDUCATION

The term education is commonly used in various fields of knowledge. The meaning of the term is very broad. Therefore, it is difficult to define the term education comprehensively. Some important meaning of this term have been enumerated and stated as follows:

i. Education is the process of development

ii. Education as teacher training

iii. Education is the independent field of study or subject of study

iv. Education is an investment

v. Education is an instrument of social change and social control.
VI. Education as a creator and creature of the society

VII. Education as filter in democracy

VIII. Education is for future of futurology

IX. Education is an art as well as science and

X. Education is the positive science

1.2.2 NATURE OF EDUCATION

As is the meaning of education, so is its nature. It is very complex.

**Education is a life-long process**

Education is a continuous and lifelong process. It starts from the womb of the mother and continues till death. It is the process of development from infancy to maturity. It includes the effect of everything which influences human personality.

**Education is a systematic process**

It refers to transact its activities through a systematic institution and regulation.

**Education is development of individual and the society**

It is called a force for social development, which brings improvement in every aspect in the society.

**Education is modification of behaviour**

Human behaviour is modified and improved through educational process.

**Education is purposive**

Every individual has some goal in his life. Education contributes in attainment of that goal. There is a definite purpose underlined in all educational activities.
Education is a training

Human senses, mind, behaviour, activities; skills are trained in a constructive and socially desirable way.

Education is instruction and direction

It directs and instructs an individual to fulfill his desires and needs for exaltation of his whole personality.

Education is life

Life without education is meaningless and like the life of a beast. Every aspect and incident needs education for its sound development.

Education is continuous reconstruction of our experiences

As per the definition of John Dewey education reconstructs and remolds our experiences towards socially desirable way.

Education helps in individual adjustment

Man is a social being. If he is not able to adjust himself in different aspects of life his personality can’t remain balanced. Through the medium of education he learns to adjust himself with the friends, class fellows, parents, relations, neighbours and teachers etc.

Education is balanced development

Education is concerned with the development of all faculties of the child. It performs the functions of the physical, mental, aesthetic, moral, economic, spiritual development of the individual so that the individual may get rid of his animal instincts by sublimating the same so that he becomes a civilized person.
Education is a dynamic process

Education is not a static but a dynamic process which develops the child according to changing situations and times. It always induces the individual towards progress. It reconstructs the society according to the changing needs of the time and place of the society.

Education is a bipolar process

According to Adams, education is a bipolar process in which one personality acts on another to modify the development of other person. The process is not only conscious but deliberate.

Education is a three dimensional process

John Dewey has rightly remarked, “All education proceeds by participation of the individual in the social consciousness of the race.” Thus it is the society which will determine the aims, contents and methods of teachings. In this way the process of education consists of three poles the teacher, the child and the society.

Education as growth

The end of growth is more growth and the end of education is more education. According to John Dewey, “an individual is a changing and growing personality.” The purpose of education is to facilitate the process of his/her growth. Therefore, the role of education is countless for a perfect society and man. It is necessary for every society and nation to bring holistic happiness and prosperity to its individuals.

1.2.3. AIMS OF EDUCATION

Aims give direction to activities. Aims of education are formulated keeping in view the needs of situation. Human nature is multisided with multiple needs, which
are related to life. Educational aims are correlated to ideals of life. The goal of education should be the full flowering of the human on this earth. According to a UNESCO study, “the physical, intellectual, emotional and ethical integration of the individual into a complete man/woman is the fundamental aim of education.”

1.2.4. EDUCATIONAL QUOTES

The function of education is to teach one to think intensively and to think critically Intelligence and character that is the goal of true education.

- Martin Luther King Jr.

The purpose of education is to replace an empty mind with an open one.

- Malcom Forbes

Education is the most powerful weapon which you can use to change the world.

- Nelson Mandela

Education is what remains after one has forgotten what one has learnt in school.

- Albert Einstein

1.3. MEANING OF ENVIRONMENT

The dictionary meaning of the word environment is “surrounding” external conditions influencing the growth of the people, animals, plants; living or working conditions, etc. generally speaking environment is equated with nature wherein physical components of the planet, via land, air, water etc., support and affect life in the biosphere. Environment refers to the sum total of conditions which surround man at a given point in space and time. In the beginning the environment of early man consisted of only physical aspects of the planet earth (land, air and water) and biological communities but with the march of time and advancement of society man extended his environment through his social, economical and political well being.
The concept of the environment is associated with a set of cultural values, through the language used to discuss it. With the use of this language there are specific perceptions of what the environment is, and how humans interact with it. The environmental movement itself is a modern creation, created from the growing concern that the environment needs protection; particularly from human development and exploitation. The term environment can have a variety of meanings and elicits a number of different answers.

1.3.1. DEFINITION OF ENVIRONMENT

Environment consists of the sum of the stimulation that the individual receives from conception until death. It covers all those circumstances, which assert their influence on the individual since conception to death. The term environment may cover whatever found around the individual. Various psychologists have defined it as follows:

‘A person’s environment consists of the sum total of the stimulation which he receives from his conception until his death’.

- **Boring**

‘The environment is everything that affect the individual except his genes’.

- **Anastasi**

‘The term environment is used to describe in the aggregate all the external forces, influences and conditions which affect the life, nature, behaviour and the growth, development and maturity of living organisms’.

- **Douglass**
1.3.2. TYPES OF ENVIRONMENT

Environment factor is the most important factor for planet earth and living beings. The word Environment, has a great importance in our life. The simple definition of environment is the ‘surrounding’. It is what surrounds a thing. We can also define it as "environment is the combination of all of physical and organic factors that act on a living being, residents, or ecological society and power its endurance and growth".

It could be a physical component, which is known as physical environment or abiotic environment that includes the built environment. The natural surroundings like air, water, land, atmosphere etc are also part of physical environment but they are commonly known as natural environment. People surrounding the item or thing, this type of environment is known as human environment. This is also known as the social environment and includes elements like the religious environment, emotional environment, residence, relations etc.

1.3.2.1 THE PHYSICAL ENVIRONMENT

- It is also known as abiotic environment.
- The meaning of ‘abiotic’ or ‘physical’ is non living like land, water, air.
  Physical or abiotic environment is the environment which includes non living or physical things which are constituents of soil and affect the living things.
- The physical or abiotic environment also includes the climatic factors such as sunbeams, rainwater, precipitation, moisture, pressure and wind speed.
• All living beings are surrounded by atmosphere; it is the combination of different types of gases. The living beings breathe in oxygen and give out carbon dioxide.
• The physical environment also includes soil which is responsible for food crops for the living beings. It also provides different types of minerals which are very necessary for growth of life.
• Water is one of the most necessary things for living beings. Physical environment also deals with the water factor of the earth.

1.3.2.2 BIOTIC ENVIRONMENT

• It is also known as biological environment and organic environment.
• The biotic or biological environment is responsible for the living beings.
• This type of environment includes plants, trees, animals, mammals, underwater living beings, human beings and microorganisms like bacteria and fungi.

1.3.2.3 NATURAL ENVIRONMENT

The natural environment encompasses all living and non-living things occurring naturally on Earth. It is an environment that encompasses the interaction of all living species. The concept of the natural environment can be distinguished by components:

• Complete ecological units that function as natural systems without massive human intervention, including all vegetation, microorganisms, soil, rocks, atmosphere, and natural phenomena that occur within their boundaries.
Universal natural resources and physical phenomena that lack clear cut boundaries, such as air, water, and climate, as well as energy, radiation, electric charge, and magnetism, not originating from human activity.

1.3.3 BASIC COMPONENTS OF THE ENVIRONMENT

The air which we breathe, the soil on which we stand, water, living and non-living things around, the environment, has influenced and shaped our lives since time immemorial. It is from the environment that we get food to eat, water to drink, air to breathe and all necessities of day to day life. Environment around us constitutes a life support system. Through a process of natural selection and elimination it is the environment only which has caused the evolution of the biological spectrum, the biosphere, as it exists today. Environment consists of all living and non-living things which surround us. Therefore, the basic components of the environment are:

1. Atmosphere - the sphere of air.
2. Hydrosphere - the sphere of water.
3. Lithosphere - the sphere of soil, rock, etc.
4. Biosphere - the sphere of living organisms.

1.4 MEANING OF ENVIRONMENTAL EDUCATION

Environmental Education is a way of creating knowledge, understanding, values, attitudes, skills, abilities; and awareness among individual and social groups towards the environmental protection. Environmental Education is an attempt to reorient education so that environmental competence is restored as one of its basic aims along with personal and social competence. Environmental Education is concerned with both the present and the future. It, therefore, aims at providing
individual with knowledge, skill and attitudes that will enable society to develop a new world view, set of values and environmental ethic.

With the acceptance of the “Tiwari Committee Report” (1980) the country has realized the need for Environmental Education. The aim of Environmental Education is that individual and social groups should acquire awareness and knowledge, develop skills and abilities and participate in solving real life environmental problems; the perspective should be integrated, interdisciplinary and holistic in character. Environmental Education (EE) refers to organized efforts to teach about how natural environments function and, particularly, how human beings can manage their behaviour and ecosystems in order to live sustainably. The term is often used to imply education within the school system, from primary to post secondary. However, it is sometimes used more broadly to include all efforts to educate the public and other audiences, including print materials, websites, media campaigns, etc. Related disciplines include outdoor education and experiential education.

Environmental Education 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 (UNESCO, Tbilisi Declaration, 1978). Environmental Education, together with sound legislation, sustainable management, and responsible actions by individuals and communities, is an important component of an effective policy framework for protecting and managing the environment. Environmental Education is a new focus for education. It is a way of helping individuals and societies to resolve fundamental issues relating to the current and future use of the world's resources. However, simply
raising awareness of these issues is insufficient to bring about change. Environmental Education must strongly promote the need for personal initiatives and social participation to achieve sustainability.

Environmental literacy depends on a personal commitment and motivation to help ensure environmental quality and quality of life. This commitment and motivation often begins with an awareness of one’s immediate surroundings. Environmental educators can help foster learners’ innate curiosity and enthusiasm, providing them with continuing opportunities to explore their environment and engaging them in direct discovery of the world around them. As learners develop and apply analysis and action skills, as they have the opportunity to make their own decisions and think more critically about their choices and as they hear stories of success, they are learning that what they do individually and in groups can make a difference. This locus of control, or sense that they have the ability to influence the outcome of a situation, is important in helping learners develop a sense of empowerment and a sense of personal responsibility further key aspects of Environmental Education. In order to reach this goal of environmental literacy, Environmental Education programs must be effective. Effective Environmental Education programs are relevant to the mission of the agency or organization, to the educational objectives of the audience, and to the everyday lives of the individual learners. They involve stakeholders in all stages of the program, from the development of the program to its evaluation. Effective programs empower learners with skills to help prevent and address environmental issues and with a sense of personal and civic responsibility. Further, they are accurate and balanced, incorporating multiple perspectives and interdisciplinary aspects. Effective
Environmental Education programs are instructionally sound, using “best practices” in education. And finally, effective programs are evaluated with appropriate tools.

1.4.1 PRINCIPLES OF ENVIRONMENTAL EDUCATION

1) Examine the major environmental issues.
2) Emphasis on active participation in prevention and solution to problems.
3) Develop critical thinking and problem solving skills.
4) Promote co-operation in solving problems.
5) Discover the symptoms and root cause of environmental degradation.
6) Provide an opportunity for making decisions and accepting their consequences.

1.4.2 OBJECTIVES OF ENVIRONMENTAL EDUCATION

The Investigator has suggested the following six objectives for teaching Environmental Education.

(a) Awareness:
To help social groups and individuals acquire awareness and sensitivity to the total environmental and its allied problems.

(b) Knowledge:
To help social groups and individuals gain a variety of experiences in and acquire a basic understanding of the environment and its associated problems.
(c) **Attitude:**

To help social groups and individuals acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection.

(d) **Skill:**

To help social groups and individuals acquire skills for identifying and solving environmental problems.

(e) **Evaluation ability:**

To help individuals and social groups to evaluate environmental measures and education programs in terms of ecological, economic, social, aesthetic and educational factors.

(f) **Participation:**

To provide social groups and individuals with the opportunities to be actively involved at all levels in working towards the resolution of environmental problems.

The overall goal of Environmental Education can be expressed in another form as three principal objectives.

1. To foster clear awareness and concern about economic, social, political and ecological interdependence in urban and rural areas.

2. To create new patterns of behaviours of individuals, groups and society as a whole towards the environment.

3. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
In order to achieve these goals and objectives, Environmental Education should be a continuous lifelong process, to be provided for all age groups, at all levels, both in and out of school education. It should foster in public at large children, adolescents and adults creating awareness and better understanding of the environmental issues. Environment is interwoven with man's life. Environmental Education should therefore include environment in its totality natural and built up, in an interdisciplinary problem-solving approach. Environmental Education should not be viewed as one or more subjects added to the already heavy curriculum, but as a growing important concern to be integrated into the programs for all learners, whatever be their age and learning situation. The out of school Environmental Education may therefore be either Governmental, NonGovernmental and/or combination of both. Environmental Education programs need to be planned Nationally as there is difference in the environmental priorities. Fast growing populations, high intensity agriculture, human settlements and slum improvement, introduction of modern transport systems, increasing demands for energy and industrialization are the environmental priorities for developing countries whereas over exploitation of resources, industrial pollution and waste disposal are the main environmental priorities for developed countries.

The objectives of Environmental Education are broad in the sense of nature. The systematic knowledge should take up the explanation and utilization of natural resources for the development and progress of mankind as given through Environmental Education. The primary aim of Environmental Education is to impart knowledge about the principles required for the conservation and utilization of natural resources for the existence of mankind. Environmental Education gives required
knowledge and experience realizing the value of such important views. The role of Environmental Education is important in the realization of the necessity of maintaining a friendly and well balanced relationship between man and nature.

1. To develop the sense of awareness among the students about environment and its various problems.
2. To help the students in realizing the interrelationship between man and environment.
3. To help the students in acquiring basic knowledge about environment.
4. To inform the students about the social norms that provide unity with environmental characteristics.
5. To create positive attitude about environment among the students.
6. To develop proper skill required for the fulfillment of the aims of Environmental Education and educational evaluations.
7. To develop proper skill among the students for the solution of the environmental problems.
8. To develop the sense of responsibility for the environment among the students.
9. To help the students in realizing the importance of taking proper steps to solve environmental problems.
10. To develop required curiosity among the students for the realization of environmental problems so that they would be inspired to work for the solution of such problems.
11. To create appropriate situations for the students to participate in the process of decision making about environment.
12. To develop the capability of using skills to fulfill the required aims, to realise and solve environmental problems through social, political, cultural and educational process.

Environmental Education is a dynamic process. The priority of such education is to develop cautious mind of people about their total surrounding. Its main task is to impart proper knowledge and training to solve various problems of our environment systematically. In order to enable people enjoy good health and a high quality of life, it is vital to prevent harmful effects to human health or damage to the environment caused by pollution of air, water and soil, noise, vibration, noxious smells etc

1.4.3 TRANSACTIONAL MODALITIES

A number of the transactional modalities have been suggested by experts across the country and most of them have been included in the National Curriculum Framework. Some of these transactional modalities of Environmental Education are

- Narration of events, experience and stories
- Assignments and projects
- Field trips and visits
- Formation of Eco-clubs, National Green Corps, Nature Clubs, VIPNET- Clubs etc.
- Field studies and surveys of the status of environmental resources, identification of problems and search for solutions, developing strategies for conservation and awareness building etc.
- Brain storming and quizzes
- Role play and drama, script-writing and enactment etc.
Lectures and demonstrations
Discussions, and
Case-studies and many more.

Environmental Education can be an effective instrument that can be used in the development of civic consciousness and inculcation of positive attitudes among students towards the environment, its protection, preservation and conservation. These things are desired to be promoted in effective ways through the involvement of school, parents and the community. At secondary level students need to be introduced to the problems of environment we live in, the social responsibility of the community in maintaining it, and making it healthy. This is necessary due to the fact that living conditions of people have become complex due to rapid technological advancements, urbanization and population explosion.

1.4.4 ROLE OF PARENTS

The role of parents in Environmental Education is very important. They need to be consulted and involved in the total curriculum transaction. Their basic role is to provide help and support to institutions in activities involving both teachers and students. Thus the awareness of students about their surroundings will be enhanced, and they will come to realize the importance of projects and will try to promote the efforts for conservation. Some of the areas that have been identified for interaction among school, community and other organizations to help learners are mentioned below:
a. Understanding the local environmental problems and finding out their solutions,
b. Keeping the local environment clean and healthy,
c. Using natural resources in a judicious manner
d. Sensitizing the community about environmental concerns, and
e. Participating in the environmental conservation and protection activities.

1.4.5 ROLE OF COMMUNITY IN ENVIRONMENTAL EDUCATION

The contribution of community can be taken in following areas-

- Sharing knowledge and information, and participating in actions related to environmental improvements,
- Sharing basic resources including both the material and human resources,
- Running campaigns including adoption of heritage centers, parks and playgrounds, cleaning ponds and lakes and maintaining parks and gardens,
- Celebrating festivals, International and National days etc.
- Extending support to nature clubs, fairs, cultural and social activities,
- Monitoring qualities of water and air, taking steps for rain water harvesting and taking steps for the conservation of water by forming a group of like minded people,
- Creating awareness for the protection of environment in general and its different components, as per need, in particular.

It is very unfortunate that in spite of the directives of Hon'ble Supreme Court, CBSE schools and a number of State Board schools too are taking the subject very
casually. The ICSE that had included the subject in the study courses up to XII standard has taken a decision of adopting the infusion model which in the opinion of many Indian and Foreign experts and educationists is nothing but killing the spirit of curriculum at different stages. It also reflects the motives of our different educational systems that have largely been commercialized.

1.5 ATTITUDE TOWARDS ENVIRONMENTAL EDUCATION

Environmental attitude is the tendency to react in certain ways towards a designated class of stimuli or an object. It is a complex phenomenon and difficult to explain, but it is a significant determinant for individual differences.

Environmental attitudes are conceptualized in terms of attitude theory as being composed of beliefs and effects towards an object. Environment as an object is difficult to define and this has implications for the study of general environmental attitudes. Attitudes based on values, have horizontal and vertical structure and tend from general to specific. It seems possible to measure global environmental attitudes since five general environmental attitude scales have reasonable reliability and show some evidence of validity. Environmental concern appears to be a specific belief which is largely embedded in cognitive structure and should be considered an opinion rather than an attitude. It is not clear that environmental attitudes or values have shifted, although attitudes have most probably become more differentiated. Positive environmental attitudes tend to show consistency with related beliefs and behaviours. It is concluded that research on environmental attitudes has largely been a theoretical and non cumulative. While it is possible to measure these attitudes, little is known about the basic beliefs, effect or the organization of these components.
1.6 KNOWLEDGE TOWARDS ENVIRONMENTAL EDUCATION

DEFINITION: is to gain experience and basic understanding of the environment and its problems.

Environmental knowledge is found to be consistently and positively related to attitudes. Increased knowledge about the environment is assumed to change environmental attitudes. Both environmental attitudes and environmental knowledge are assumed to influence one another. There is very little information on correlation with regard to the relationship between environmental knowledge and environmental attitude.

Increase in environmental awareness leads to increased knowledge about the environment. Increased knowledge is a precondition for changing attitudes. Both knowledge and attitudes are assumed to be important for changing human actions towards the environment. Relationship among knowledge, attitude, and behaviour are inconsistent in real life. Studies by environmentalists show that the relationship between knowledge or concern and environmental behaviour is difficult to implement. Research on environmental knowledge or on the relationship between knowledge and attitude can be more easily conducted using standard survey as well as other techniques. Research on public environmental knowledge has been severely limited with scant effort towards integration. Environmental knowledge can be associated with conservation and education. Increased knowledge moderates environmental concern.
Knowledge based studies on Environmental Education should enable the students to learn about

- the resources of the Earth, particularly soil, water, minerals, and air, their characteristics, and their role in supporting living organisms;
- the nature of ecosystems and biomes, their health, and their interdependence within the biosphere;
- the dependence of humans on environmental resources for life and sustenance;
- the characteristics of human societies, including nomadic, hunter gatherer, agricultural, industrial, and post-industrial, and the impact of each on the natural environment;
- the role of science and technology in the development of societies and the impact of different technologies on the environment;
- the process of urbanization and the implications of deruralization;
- the interconnectedness of political, economic, environmental, and social issues in the present world; and
- co-operative National and International efforts to find solutions to common environmental issues and to implement strategies for a more sustainable future.

- define such fundamental concepts as environment, community, development, and technology, and apply these definitions in Local, National, and Global contexts;
- use a range of resources, communications skills, and technologies in addressing environmental questions;
- develop problem solving skills, critical and creative thinking skills, including the ability to reason and apply logic, to recognize and apply abstract patterns, to identify connections and relationships between ideas and issues, and to test ideas against new information and against personal experience and beliefs;
- work towards a negotiated consensus when there are differences of opinion;
- detect and assess bias and evaluate different points of view;
- recognize the need to incorporate an environmental perspective in decision making models.

1.7 AWARENESS TOWARDS ENVIRONMENTAL EDUCATION

Awareness about the environment helps the students in developing skills and attitudes towards it. A variety of experiences and basic understanding of the environment and associated problems can be gained. Environmental awareness pertains to interrelations and interactions between the living system and life. Awareness of the environment provides knowledge and understanding of living and nonliving components and the ecology of the organism.

1.8 OBJECTIVES OF THE STUDY

As human pressures on the environment increase, schools have been given a greater degree of responsibility to educate children on caring for the environment. Although the preservation of the environment has been a popular topic for decades, resources and training materials for teachers have not kept pace. This has led to teachers imparting inadequate information on Environmental Education issues to students. Therefore, it is important to provide resources to educators to make the incorporation of Environmental Education a positive experience for both teachers and
students. One method of integrating Environmental Education into the classroom is through an activity based curriculum including hands on experiences. It has been reported that students tend to learn better when they are actively involved and hands on activities help to improve their acquisition of new knowledge, skills, and attitudes. Activities help students apply the information they receive rather than just memorize it. Environmental Education is an activity-based, hands-on discipline. Incorporation of Environmental Education into existing curricula helps the students to understand the subject better. Past research also indicates that children who participate in numerous outdoor activities have more positive environmental attitudes compared to children with fewer outdoor experiences.

1) To study the attitude and knowledge of Environmental Education among Muslim students.

2) To study the attitude and knowledge of Environmental Education of Muslim students in terms of gender (Boys and Girls)

3) To study the difference in the attitude and knowledge of Environmental Education of Muslim students in terms of locality (Rural and Urban)

4) To study the difference in the attitude and knowledge of Environmental Education of the Muslim students in terms of type of school management .

5) Parental educational qualification, occupation, income, age and experience were also taken into consideration.
1.9 NEED FOR ENVIRONMENTAL EDUCATION STUDY

It is observed that degradation of environment mostly occurs due to destruction of natural environment. Now there is a cry all over for protection and preservation of such natural resources. This can only be possible if we have a right type of attitude towards such issues and if we have proper knowledge and awareness in the related matters. It is widely accepted that the development of such awareness, knowledge and attitude can be possible through Environmental Education. Education is an important social instrument and means, which acts as a catalyst in improvement of different aspects of life. Knowledge, awareness, skills, values and attitudes acquired through education help one to lead a desired quality of life. In order to protect and conserve the environment enabling people to lead quality life, emphasis has been given to Environmental Education in both formal and non formal system of education. In formal system of education, teaching of Environmental Education depends not only on curriculum and other facilities provided to the students, but also the quality of teachers in terms of knowledge, awareness, attitude and skills relating to Environmental Education. Teacher plays a very significant role in developing desirable attitude towards awareness about environment among students. Today the global concern is to struggle against environmental pollution and maintain the standard of human environment. Environment in developing countries like India and Iran have been threatened by problems like poverty, pollution and over population (India) and degradation and depletion of environment (Iran). In addition to the industrial revolution, unprecedented scientific and technological revolution has resulted in disastrous changes in the environment leading to environmental degradation / crisis. The speed and nature of environmental change (particularly man-
induced change) in recent years have brought about a series of environmental problems of global magnitude – including population explosion, energy resources and utilization, the provision of food supplies, exploitation of raw materials and environmental problem (Yashodhara, 2003).

1.10 NEED TO RESTORE AND CONSERVE THE ECOSYSTEM

Restoring the ecosystem by establishing the finer balance between organism and environment is the best way that being a responsible human we can do. Until and unless, the steps to preserve the decaying charm of our ecosystem are not initiated, our ecosystem is not going to support us having a better and healthy environment. There is stark need today to assist nature by not disturbing its integrity, and help it gaining its lost delicacy. By protecting our native natural resources like wildlife, rivers, forests, etc, one can contribute greatly in preservation of our ecosystem. The radical changes have to be borne in our thoughts to save and accumulate the natural resources the very root of our life. Topics like climate change, global warming, ozone layer formation, carbon footprint, deforestation, energy crisis and wild life conservation and eco-club activities should be highlighted to the school students.

POLLUTION

Environmental pollution may be defined as the unfavourable alteration of our surroundings. It is a change in the quality of air, water and land, which interferes with the health of humans and other living things. Any discharge of material or energy into water, land or air that causes or may cause acute (short-term) or chronic (long-term) detriment to the Earth's ecological balance or that lowers the quality of
life is called environmental pollution. Pollutants may cause primary damage, with direct identifiable impact on the environment, or secondary damage in the form of minor perturbations in the delicate balance of the biological food web that are detectable only over long time periods.

Environmental pollution is the biggest menace to the human race on this planet today. It means adding impurity to environment. The environment consists of earth, water, air, plants and animals. If we pollute them, then the existence of man and nature will be hampered. It is true that trees are being cut down rapidly. Our earth is becoming warmer. If pollution continues, the day is not far when our earth will be a boiling pan and become a desert, or it will be covered with sea water causing destruction of mankind. Impure air causes diseases and impairs our health and causes our death. Smoke pollutes the air. The smoke which is discharged from industries, automobiles and kitchens is the mixture of carbon monoxide, carbon dioxide, methane etc. which is harmful to man. These are all poisonous gases. These cause lung-cancer, tuberculosis etc. which take a heavy toll of life. The glaring incident is the Bhopal gas leak in December 1984. Thousands of the residents of Bhopal died due to lungs problem which was caused by methylamine gas from the Union Carbide Plant.

The water of rivers and seas is being constantly polluted all over the world by various dangerous chemical and biological waste discharges and oil spills. Mills and factories discharge harmful wastes into rivers and seas.

Reckless application of chemical fertilizers, insecticides and pesticides pollutes the soil. Vegetables and fruits are quite injurious today, because they contain
the poison of insecticides and pesticides. If the air we breathe, the water we drink and
the soil which produces our crops, vegetables and fruits, all become more and more
impure, then our chances of good health and longevity will be very less and less.
Environment pollution is a serious menace to our existence. Realising the danger, we
must plant trees in large numbers. Impure water from industries can be recycled for
purification and then it can be used for different purposes.

**TYPES OF POLLUTION**

Pollution may be classified as several types. They are as follows
1) Air pollution
2) Water pollution
3) Land pollution
4) Marine pollution
5) Noise pollution
6) Thermal pollution
7) Nuclear pollution
8) Pesticide Pollution and
9) Radiation Pollution

**ROLE OF INDIVIDUAL PARTICIPATION IN PREVENTION OF POLLUTION**

Environmental pollution cannot be restrained and removed. The proper
implementation and especially the individual participation are the important aspects,
which should be given due importance and stress. Each individual should change his
or her life style in such a way as to reduce environmental pollution,
1) Plant more trees
2) Help more in pollution prevention than the Pollution Control Board
3) Use water, energy and other resources efficiently
4) Purchase recyclable, recycled and environmentally safe products
5) Use of natural gases than coal
6) Use of CFC free refrigerators
7) Reduce deforestation
8) Increase the use of renewable resources
9) Reduce garbage by recycling and reuse.

ENVIRONMENTAL CONCERNS

Environmental issues are harmful aspects of human activity on the biophysical environment. Environmentalism, a social and environmental movement that started in the 1960s, addresses environmental issues through advocacy, education and activism. Current problems faced by the environment-

The carbon dioxide equivalent of greenhouse gases (GHG) in the atmosphere has already exceeded 400 parts per million (NOAA) (with total "long-term" GHG exceeding 455 parts per million). (Intergovernmental Panel on Climate Change Report) This level is considered a tipping point. "The amount of greenhouse gas in the atmosphere is already above the threshold that can potentially cause dangerous climate change. We are already at risk...It's not next year or next decade, it's now." Report from the UN Office for the Coordination of Humanitarian Affairs (OCHA).

Environmental concerns include various natural hazards, particularly cyclones and annual monsoon floods, and various combinations of poverty, population growth,
increasing individual consumption, industrialization, infrastructure development, poor agricultural practices, and resource maldistribution have led to substantial human transformation of India’s natural environment.

An estimated 60% of cultivated land suffers from soil erosion, water logging, and salinity. It is also estimated that between 4.7 and 12 billion tons of topsoil are lost annually due to soil erosion. From 1947 to 2002, the average annual per capita water availability declined by almost 70% to 1,822 cubic meters, and overexploitation of groundwater is problematic in the states of Haryana, Punjab, and Uttar Pradesh. Forest area covers 19.4% of India’s geographic area (637000 km$^2$). Nearly half of the country forest cover is found in the state of Madhya Pradesh (20.7%) and the seven states of the Northeast (25.7%) the latter experiencing net forest loss.

**DEFORESTATION**

Deforestation is the conversion of forested areas to non-forest land use such as arable land pasture, urban use, logged area or wasteland. Generally the removal or destruction of significant areas of forest cover has resulted in a degraded environment with reduced biodiversity. In many countries, massive deforestation is ongoing and is changing the climate and geography. Forest cover is declining because of harvesting for fuel wood and the expansion of agricultural land. These trends, combined with increasing industrial and motor vehicle pollution output have led to atmospheric temperature increases, shifting precipitation patterns, and declining intervals of drought recurrence in many areas.
NEED FOR THE STUDY

Research studies show clearly the relationship between attitude and knowledge of Environmental Education of school children are not available and hence the present investigation has been taken up by the investigator.

1) Attitude, awareness and knowledge of Environmental Education studies enables the students to know their responsibility in the protection of the environment.
2) Students need assistance to realize the importance of utilization, preservation and conservation of natural resources.
3) Environmental Education is an inter disciplinary and action oriented subject. Topics related to the subject can be selected and assigned to the students as project work.
4) Understanding and awareness of the subject will help the students to practice innovative methods of conservation and preservation.

1.1 SCOPE OF THE STUDY

As the present study deals with the attitude of Muslim students towards environmental and knowledge on Environmental Education in and around Chennai, the investigator feels that more and more activity related projects about the subject can be of help to the students in order to motivate them to conserve and preserve the environment. Projects related to Action Research on Environmental Education can be carried out in schools by the students under the supervision of their teachers and can be implemented. Eco clubs, conservation clubs, Green Ribbon clubs, tree walks can be organized in schools and student participation in such club activities can be
encouraged. Methods and practices of conservation and preservation of the environment can be highlighted to the students.

As Environmental Education is an interdisciplinary and action-oriented subject, the creative and critical thinking skills in students can be enhanced by making the students aware about climate change, ozone layer, carbon footprint, global warming, sea erosion, deforestation, population explosion, energy crisis, acid rain and other related aspects.

Based on knowledge Environmental Education should enable students to learn about:

- the resources of the earth, particularly soil, water, minerals, and air, their characteristics, and their role in supporting living organisms;
- the nature of ecosystems and biomes, their health, and their interdependence within the biosphere;
- the dependence of humans on environmental resources for life and sustenance;
- the characteristics of human societies, including nomadic, hunter-gatherer, agricultural, industrial, and post-industrial, and the impact of each on the natural environment;
- the role of science and technology in the development of societies and the impact of different technologies on the environment;
- the process of urbanization and the implications of deurbanization;
- the interconnectedness of political, economic, environmental, and social issues in the present world; and
cooperative National and International efforts to find solutions to common environmental issues and to implement strategies for a more sustainable future.

**Based on Skills** Environmental Education should enable students to:

- define such fundamental concepts as environment, community, development, and technology, and apply these definitions in Local, National, and Global contexts;
- use a range of resources, communications skills, and technologies in addressing environmental questions;
- develop problem-solving skills, critical and creative thinking skills, including the ability to reason and apply logic, to recognize and apply abstract patterns, to identify connections and relationships between ideas and issues, and to test ideas against new information and against personal experience and beliefs;
- work towards a negotiated consensus when there are differences of opinion;
- detect and assess bias and evaluate different points of view;
- recognize the need to incorporate an environmental perspective in decision making models

**Based on Attitude** Environmental Education should enable students to:

- appreciate the resilience, fragility, and beauty of nature and develop respect for the place and function of all living things in the overall planetary ecosystem;
- appreciate that human life depends on the resources of a finite planet;
• appreciate the role of human ingenuity and individual creativity in ensuring
  survival and achieving sustainable progress;
• become mindful of perspectives other than their own and be prepared to
  modify their ideas and beliefs when appropriate
• appreciate the challenges faced by the human community in defining and
  implementing the processes needed for environmental sustainability;
• develop a sense of balance in decisions that involve conflicting priorities;
• maintain a sense of hope and a positive perspective on the future.

1.12 STATEMENT OF THE PROBLEM

Attitude of Muslim students towards environment and knowledge on
Environmental Education in and around Chennai.

The role of education in facilitating social and economic progress is well
accepted. The literacy rate among the Muslim community is far below the National
average. Muslim girls are the least educated section of the Indian Society. A majority
of the Muslim girl students from Tamil Nadu are the most disadvantaged, least
literate and most economically improvished.

Enlightening and highlighting the Muslim students on the values of
Environmental Education studies was thought to be necessary by the researcher. The
concept of Environmental Education was introduced to the Muslim students by the
researcher. The researcher helped the Muslim students understand the concept and
practice healthy habits to preserve and conserve the environment. Two rounds of
National Learners’ Achievement survey by NCERT reveals improvement in the
overall differences in achievement between boys and girls as well as urban and rural
students.
1.13 KEY TERMS USED IN THE STUDY

The following are the key terms used in the present investigation

1.13.1 ATTITUDE

G.W Allport has defined attitude as “A mental or neural state of readiness organized through experiences, exerting a directive or dynamic influence upon the individual response to all objects and situations with which it is related”.

Attitudes are tinged with emotion and are very personal in character. As Sleriff and Cantrill have put it “most attitudes have the characteristics of being of me”. They are towards my parents, my school, my friends and so on. Attitudes are also uniquely organized in each person.

Attitudes and their organization are the products of individual’s own relations to his own experiences. Attitude is learned in course of life experiences that make the individual behave in characteristic ways towards objects or issues to which they are related.

Attitudes towards Environmental Education is to acquire values, feelings of concern and motivation towards the participation of environmental improvement and protection.

1.13.2 ENVIRONMENTAL KNOWLEDGE:

Knowledge on environmental issues makes the student become aware of his surroundings. Increased knowledge changes the attitude. There is a relationship between knowledge and attitude. Environmental knowledge is found to be consistently and positively related to attitude. Increased knowledge is a pre requisite...
for changing the attitude. Relationship among knowledge, attitude and behaviour are inconsistent in real life. Environmental knowledge can be associated with conservation and education. Increased knowledge moderates environmental concerns.

Knowledge, attitude and awareness play an important role on the impact of students through out their lives both inside and outside the classroom. Knowledge of Environmental Education includes all the cognitive understanding of the environment and its associated problems, (Roth 1992)

1.13.3 ENVIRONMENTAL EDUCATION

Environmental Education refers to organized efforts to teach about how natural environments function and, particularly, how human beings can manage their behaviour and ecosystems in order to live. The term is often used to imply education within the school system, from primary to post-secondary. However it is sometimes used more broadly to include all efforts to educate the public and other audience, including print materials, websites, media campaigns, etc.

1.14 DELIMITATIONS OF THE STUDY

Research studies in general will have limitations due to many factors. It is the responsibility of the researcher to see that the study is conducted with maximum care in order to be reliable. However the following limitations were unavoidable in the present study.

1. The study was confined to only Muslim students in and around Chennai city of Tamilnadu. It can also be done with other school students.
2. The study was done with variables like gender, locale and type of school management, parental education, parental occupation, income, experience and age. Other relevant factors can also be considered for future study.

In spite of the cited limitations, sufficient care has been taken in selecting the sample, constructing the tool, gathering reliable data, and applying appropriate data and statistical analysis etc.

1.15 ORGANISTION OF THESIS

The report of the project will be presented according to the following sequence.

1. The first chapter gives the introduction of this project.
2. The second chapter deals with the review of related literature.
3. The third chapter explains the methodology of this study.
4. The fourth chapter describes the tabulation data analysis and the interpretation.
5. The fifth chapter consists of findings, conclusions and suggestions for further research.