CHAPTER 1

INTRODUCTION

There is a sufficiency in the world for man's need but not for man's greed.
~Mohandas K. Gandhi

Picture 1: The Earth is in our hands

1.0 Background

The environment of the Earth has been changing steadily due to natural and man-induced causes. Population growth has been the single most important factor responsible for creating environmental stress such as depletion of resources on the one side and excessive creation of wastes on the other. The goals of the developing countries are of survival and the ability to provide two square meals for its population. For the advanced countries it is the show of technological one-upmanship and the accumulation of wealth. Whether it is for
need or greed, the environment bears the brunt of the mindless misuse and abuse of its resources. Environmental awareness and Environmental Education have become the need of the present time. The role of the teachers and educators has become paramount in classroom teaching and beyond. The student community needs to be sensitised about the irreversible damage being caused to the environment and the ways and means to prevent them. The investigator feels that transmitting and acquiring the requisite knowledge, skills, attitude and values can arrest environmental degradation as awareness leads to understanding and understanding leads to action. What the world needs today is environmentally literate citizen.

This chapter deals mainly with the title of the study, objectives of the study and the study questions based on the objectives. The investigator has explained the meaning of Environment and delved on the need for Environmental Education at the higher levels of education. The positive significance of Environmental Education in India and all over the world has been debated upon and the major steps taken in Mumbai, Maharashtra in the field of education have been discussed. Also included in the chapter is how the present study is delimited to justify the given objectives. The chapter ends with the scheme of chapterisation.

1.1 Understanding the Meaning and Importance of Environment

The term ‘Environment’ is derived from the French word ‘environ’ which means ‘to be around’ or ‘to encircle’. The word ‘Environment’ was first used in English in the early 17th century and simply meant “the act or state of being encircled.” To encircle implies a centre, suggesting that other things of greater importance lie within. This gives rise to two questions.
a. What is surrounded?
The answer is, this nebulous ‘environment’ confines objects such as living organisms and people.

b. Surrounded by what?

In the primitive age the environment comprised of only physical aspects such as air, water and land which supported the basic needs of life but today man has expanded his environment through his social, economic and political activities to satisfy his physical, intellectual, economic, political, cultural, social, moral and emotional needs.

During the last few centuries, man has been incessantly and indiscriminately exploiting the gifts of nature to satisfy his ever-increasing needs and wants leading to various natural calamities such as famines, floods, fires, earthquakes etc. with devastating results. Today environmental problems vary from country to country depending upon various factors such as the historical background, life style, level of awareness and the socio economic status of the people.

1.1.1 ‘Environment’ defined

a. Webster’s dictionary defines the environment as “The circumstances, objects, conditions by which one is surrounded, the complex of physical, chemical and biotic factors that act upon an organism, or an ecological community and determine its form and survival, the aggregate of social, cultural factors that influence the life of an individual or community.”

b. Douglas and Holland: ‘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.”
These definitions imply the following.

- Environment means surroundings which include air, water, soil, plants, birds and animals.
- All these factors of the environment have an effect on human life and activities.
- The living and non-living components of the environment interact in a very complex manner.
- The environment changes according to time and place.
- Environment in its broader perspective includes natural, cultural or human environment.
- Environment is highly fragile and must be handled with care and protected.
- A healthy environment is necessary for economic growth and the survival of human beings.

1.1.2 Types of Environment

Environment is both physical and biological. It includes the living and non-living components inter-linked with each other.

Physical environment is made up of landforms, water bodies, climate, soils, rocks and minerals.

Biological environment comprises of plants, animals, micro organisms and human beings. These different elements of the biological environment can be categorised into the floral and faunal environment, which form their respective social groups or species at various levels of the physical environment. In this social environment the organisms work to derive matter from the physical environment for their own sustenance and development. This process gives rise
to the economic environment. As dynamic and skilled organisms, human beings create the cultural environment which encompasses the economic, social and political elements all of which are manmade. Therefore study of the environment is essentially a multi-disciplinary activity and refers to the study of the four spheres on which human life is dependent.

Figure 1: Composition of Environment

The Environment comprises of four major components: Atmosphere, Hydrosphere, Lithosphere and Biosphere.

1.1.3 The Components of the Environment

Atmosphere
The atmosphere implies the protective blanket of gases surrounding the earth. It absorbs most of the cosmic rays from outer space and a major portion of the electro magnetic radiation from the sun. It helps to filter out tissue-damaging
ultraviolet rays and thereby sustains life on the earth. The atmosphere is composed of nitrogen and oxygen along with argon, carbon dioxide, and trace gases.

**Hydrosphere**

The Hydrosphere comprises of all types of water resources - oceans, seas, lakes, rivers, streams, reservoirs, polar icecaps, glaciers, and ground water. 97% of the earth’s water supply is in the oceans and about 2% of the water resources is locked in the polar icecaps and glaciers. Thus only about 1% is available as fresh surface water - rivers, lakes streams, and ground water fit to be used for human consumption and other uses.

**Lithosphere**

Lithosphere is the outer mantle of the solid earth. It consists of minerals occurring in the earth’s crust and the layers of soil below the crust e.g. minerals, organic matter, air and water.

**Biosphere**

Biosphere is the intersection of all the three components. It indicates the realm of living organisms and their interactions with the environment, viz atmosphere, hydrosphere and lithosphere.

**1.1.4 Importance of Environment**

Today, grave global environmental problems such as global warming, ozone depletion, acid rain, land-air-water pollution, land degradation, cluttering of
landscape and destruction of biodiversity are steadily growing in complexity and number and are threatening the very existence of human beings on the planet earth. There is an urgent need to create awareness among people from every genre to protect the various components of the environment in order to maintain the quality of life. The study of the environment proves that environmental issues are not merely national occurrences but are global phenomena and hence must be collectively tackled with international efforts and cooperation. Knowledge about the environment not only helps us study and comprehend these environmental issues better but also reminds us about the importance of the protection and conservation of our environment for sustainable growth and development. Environmental Education is important for self fulfillment, social development and preservation of the human race.

1.2 Environmental Education: A Historical Perspective

Let us recall the ancient Hindu dictum, ‘The earth is our mother and all are her children. ‘What is needed today is to remind ourselves that nature cannot be destroyed without human race itself ultimately being destroyed. Centuries of mindless exploitation of the environment have finally caught up with us, and a radically changed attitude towards nature is now not a question of spiritual merit or belief but a necessity of the time. Mother earth, has nurtured human beings from the slime of the primeval ocean, for billions of years.

Roots of Environmental Education (EE) can be traced back to the 18th century when Jean-Jacques Rousseau stressed the importance of an education that would focus on the environment in Emile: or On Education. Several decades later, Louis Agassiz, a Swiss-born naturalist, echoed Rousseau’s philosophy as he encouraged students to, “Study nature, not books.”
These two influential scholars helped lay the foundation for a concrete Environmental Education programme, known as ‘Nature Study’ which took place in the late 19th century and early 20th century. The Nature Study Movement used fables and moral lessons to help students develop an appreciation of nature and embrace the natural world.

- The concept of Environmental Education emerged from the Stockholm Conference organised by the United Nations in 1972. The recommendations of the conference emphasised on the organisation of ‘formal’ and ‘mass’ Environmental Education programs.
- Soon after this conference the UNESCO-UNEP launched the International Environmental Education Programme (IEEP) in 1975 whose objective was to promote exchange of information, experience, research, curricula and international cooperation in the area of Environmental Education.
- Subsequently an international workshop was held in Belgrade in 1975, which emphasised that ‘Environment Education should be lifelong, interdisciplinary, involve active global participation and foster values of local national and international cooperation’.
- An Inter-governmental Conference was organised at Tbilisi, USSR in 1977, by UNESCO and UNEP primarily to discuss the various needs of Environmental Education.

This resulted in the famous Tbilisi Declaration: which recommended ‘development of necessary skills, knowledge, values, attitudes and understanding among individuals and social groups about the environmental problems. It also emphasised the pre-service and in-service training of teachers in Environmental Education…..’
William Stapp, a former professor at the University of Michigan's School of Natural Resources and the Environment, formulated his three-pronged definition which first appeared in Educational Digest in March 1970 and has become the basis for much subsequent thought.

Based on recommendations of various reports ‘Environmental Education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.’

Some important features of Environmental Education may be listed as under.

- Environmental Education helps the economy and welfare of human society.
- It helps in solving different issues like pollution measures, over exploitation of natural resources, food problems, and sustainable development.
- Environmental Education helps to find ways and means to maintain ecological balance.
- As industrialisation is increasing and new technologies are growing, to conserve and protect the environment we need eco-friendly methods of production. This can be achieved only through proper knowledge and respect for the environment.
- As the population is increasing day by day we need large amounts of food and other resources. Also required are different disposal methods for removal of waste which can only be possible through Environmental Education which can help achieve our goal without destroying our surroundings.
- Environmental Education trains us to conserve the fast depleting natural resources.
• It helps to understand different food chains and ecological balance in nature.
• Environmental Education helps in inculcating the correct attitude and values, encouraging environmental protection and understanding of interdependence of nature and man.

1.2.1 Formalising Environmental Education

The National Policy on Education, 1986 (NPE) states that the “protection of the environment” is a value which along with certain other values, must form an integral part of the curriculum at all stages of education. The policy states, “There is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of society, beginning with the child. Environmental consciousness should involve teaching in schools and colleges.”

All forms of life on the planet earth are dependent on the environment for their sustenance. However, human beings are solely responsible for changing the environment by indiscriminate use of the natural resources. Therefore, the onus of protecting and conserving the environment for the present and future generations rests with human beings alone. To create environmentally concerned citizens of the world, teachers imparting Environmental Education can play a major role in imbibing sensitivity towards the environment among the student fraternity and groom them into responsible citizens of the world.

1.2.2 Role of the Teacher in Environmental Education

a. To attain the goals of Environmental Education, the teachers must be motivated and feel committed to the cause of environmental protection.
b. They should **take initiatives** to design the programme of Environment Education.

c. For teachers to succeed in their endeavour of spreading environmental awareness, they should be **properly educated** themselves on concepts of environment and skills of imparting the knowledge, in order to share the correct means and methods to tackle environmental issues to the learners.

d. Teachers should also be **well equipped** with the knowledge, methods and learning material in order to impart the correct information and inculcate the right attitude towards environment in their students.

e. It is also important for educational institutions to provide **conditions conducive** for proper Environmental Education.

f. Research studies have proved that **field work** and use of **technology** in imparting Environmental Education have shown a positive impact on the teaching learning system and has brought about major attitudinal changes among teachers and taught. The right approach in field work has empowered concerned people from all walks of life come closer to the environment and take individual action to arrest environmental degradation.

### 1.2.3 Efficacy of Environmental Education

Environmental Education is an ideal way to stimulate the academic and social growth of young people, and promote the conservation of the natural environment. Young minds are generally eager to learn about their surroundings but need to be shown the interconnections between the environmental problems and everyday life. In order to make Environmental Education fruitful, the need of the hour is eco-literate educators who can make Environmental Education a dynamic learning experience. There is a need for
educators capable of suggesting alternative methods to tackle environmental problems of contemporary life.

To address the environmental issues the first most important step is to understand the causes for the same and to nip them in the initial stages. The importance of taking preventive measures to thwart environmental problems must also be learnt to keep the problems under control. When we incorporate environmental learning into education, students develop an environmental literacy that is expected to help them make informed decisions to protect the environment at home and beyond.


1. Environmental Education can get an apathetic student excited about learning by arousing his interest in the living world around him and making him realise that he can help solve environmental problems with hands-on activities.

2. As the best form of learning Environmental Education is through projects and fieldwork, Environmental Education helps students become self-motivated learners. Students gain a better understanding of what they learn, retain longer and take charge of what they learn and use their skills at a later stage in life.

3. Environmental Education enhances communication, critical thinking, and relationship skills. By fostering independent as well as group learning, Environmental Education empowers a student to make interdisciplinary connections and solve problems with the help of
critical thinking and handling of real world projects eg Tree Plantation and Re-cycling of waste.

4. The teaching methods of Environmental Education help to **develop leadership qualities** in students. Students who study Environmental Education develop and practice the following leadership skills.

- Working in teams
- Listening to and accepting opinions of others
- Taking a collective view with long term results
- Connecting with the community
- Promoting actions that serve the larger good
- Solving real-world problems
- Making a difference in the world.

Environmental Education hones the thinking capacity and problem solving skills in students and transforms the students into real life crusaders.

5. Learning Environmental Education demonstrates **better academic performance across the curriculum** by the students as they develop the spirit of inquiry and “learn to do science” rather than “just learn about science.” Reading skills and communication of the students improve and they learn as successfully from ‘doing things’ as students who learn best through lectures and books.

6. Environmental Education is a step towards community service. The role of students in the functioning of NGOs cannot be ignored today.
1.3 Objectives of Environmental Education in today’s World

“Man today is facing a planetary emergency,” Al Gore says, “but our collective nervous system still has trouble recognising the threats to our survival.”

Environmental Education needs to become an inseparable component of the pedagogical system the world over because it helps to clarify various human concepts about the environment, creates awareness and acknowledges the fact that natural environment and man-made environment are interdependent. Concerned citizens no longer can afford to remain ignorant about the environmental issues which are being created at the local, national and international levels. They must come forward to take care of their surroundings for their own future needs. This can be achieved with the help of Environmental Education.

**Environmental Education is imparted for the following reasons.**

1. To influence the perception and understanding of people towards the environment because it is ‘fragile’, and not everlasting.
2. To bring about a change in the attitude of people, helping them to become eco-friendly and to learn to live in ‘harmony’ rather than in ‘confrontation’ with Nature.
3. To spread awareness among people about the increasing environmental problems with the help of non-governmental organisations, mass media and other public forums.
4. To empower and mobilise the youth and citizens to help in the preservation and conservation of the environment.
5. To promote the existing educational, scientific and research institutions as platforms for Environmental Education, albeit taking the help of technology and trained personnel.
6. To develop relevant contemporary educational material and teaching methods in the formal education sector for the benefit of the students.

7. To bring about a positive change in the lives of the citizens who ought to be environmentally concerned.

UNESCO Conference in Tbilisi, Georgia, USSR in 1977 and the Nevada Natural Resource Education Council (NNREC) 2005-08-08 concluded that Environmental Education is bound to fulfill the following objectives.

1. **Awareness** – to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

2. **Knowledge** – to help social groups and individuals gain a variety of experiences and acquire a basic understanding of the environment and its associated problems.

3. **Attitudes** – 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.

4. **Skills** – to help social groups and individuals acquire the skills for identifying and solving environmental problems.

5. **Participation** – to help provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

### 1.4 Position of Environmental Education in the World

The modern Environmental Education movement, gained significant momentum in the late 1960s and early 1970s and started as an offshoot of the subject called ‘Nature Study’. During this period, many events such as Civil Rights, the Vietnam War, and the Cold War made people fear the fallout from radiation, chemical pesticides and the ill effects of the different types of
pollution and excessive generation of waste. The first article about Environmental Education appeared in Phi Delta Kappa in 1969, authored by James A. Swan. The concern for the environment was also noted in the writings of George Perkins Marsh, John Muir, Henry David Thoreau and Aldo Leopold who tried to draw the world’s attention to the depleting natural resources and the detrimental impact of humans on the environment.

Internationally, Environmental Education gained recognition when the UN Conference on Human Environment held in Stockholm, Sweden, in 1972, declared that Environmental Education must be used as a tool to address global environmental problems. The objective of Environmental Education is to create an environmentally alert population equipped with the knowledge, skills, attitudes, motivation and commitment to work individually as well as collectively towards solving current problems and preventing new ones.

Though Environmental Education is today emerging as one of the most important disciplines in the world, some scholars are of the opinion that "Environmental Education has failed to keep pace with environmental degradation." Conservationist Charles Saylan and life scientist Daniel T. Blumstein, from UCLA have challenged the way Environmental Education is taught and have argued that widespread change is needed in the pedagogical framework. The above mentioned American authors have made their comments in their book ‘The Failure of Environmental Education (And How We Can Fix It),’ published in April17, 2007 by the University of California Press. The authors recommend that Environmental Education should be integrated into the overall curriculum in schools and colleges, rather than being taught as a separate subject.
1.4.1 The Position of Environmental Education in India

Taking a leaf from the Stockholm Summit 1972 India incorporated environmental concerns in the Constitution through the 42nd Amendment in 1976 and declared environmental conservation a responsibility of the Indian Government as well as the fundamental duty for every Indian citizen. India is rich in its biodiversity but the food grain production has not kept pace with the growth in population. With about 16 per cent of the world population and a little over 2 percent of its land, there is enormous pressure on her resources. While the population increase puts pressure on resources, the pressures of 'development' are much more disastrous.

India’s concern for the environment stems from the enormous technological growth and its application resulting in a drastic transformation of the environmental surroundings. Considering the fast deteriorating environmental conditions, it has become important to make Environmental Education a matter of great necessity and concern right from one’s childhood.

The concern for the environment gained momentum in India with the establishment of the Department of Environment by the Government of India in 1980 and a Ministry of Environment and Forests (MoEF) in 1985. In order to achieve the tasks of, ‘planning, promotion, co-ordination and overseeing the implementation of various environmental and forestry programmes’ the Ministry recognised the need for the ‘creation of environmental awareness among all sectors of the country's population.’ The Ministry in turn acknowledged Environmental Education as a key to the success of any overall environmental strategy and set up a ‘Centre of Excellence' (CEE) in Environmental Education to plan the agenda and set the pace for Environmental Education in the country. The Centre for Environmental Education (CEE), was set up in 1984. Environmental Education was
introduced as a regular course in formal school education following the directive by the Honourable Supreme Court of India on the 18th December 2003. Today Education Departments accept Environmental Education as an essential part of education.

The National Policy on Education (NPE) 1986, states that “There is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of society, beginning with the child. Environmental consciousness should inform teaching in schools and colleges. This aspect will be integrated in the entire educational process. “

**1.5 Relevance of Environmental Education in Higher Education**

Post-independence period the higher education system in India has grown in a remarkable way and is proving to be a powerful tool for India to build a knowledge-based, well informed society of the 21st Century. The challenge before the country is to become a developed society by the year 2020, which requires not only a vibrant economy but also a society where justice and human values prevail. Globalisation, consumerism and rampant exploitation of natural resources are taking its toll on the mental development and moral values of the younger generation. The need of the hour is to inculcate human values like right conduct, compassion, tolerance, love for all living beings, respect for nature, among the youth at the university etc. Environmental Education recently introduced by UGC, can serve as a value based education to help students understand environmental concerns and the importance of human values to tackle them.
1.5.1 Need for the introduction of Environmental Education in the University of Mumbai as a compulsory subject in 1992

On 23rd May 1986, The Environmental Protection Act was initiated by the Indian Government. Therein it was stated that ‘Environment’ included water, air, land and the ‘interrelationship which exists between water, land, air, human beings, other living creatures, plants, micro-organisms and property.’ Soon after, The Education Policy formulation 1992 recognised the “paramount need to create a consciousness of the environment, which must permeate all ages and all sections of society, beginning with the child.” With the Government Circular advising colleges to introduce Environmental Education to acquaint students to the concept of ‘Environment’ and bring about environmental awareness, the University of Mumbai decided to introduce Environmental Studies, Environmental Management and Environmental Science under the banner of Environmental Education for the different courses of higher studies.

Commercial Geography which was being taught in a few colleges in Mumbai, had been showing a steady drop in its enrolment of students for the past few years. As Environmental Education had topics which were associated with geographical concepts, it was an unanimous decision by the members of the Board of Studies of Geography and Board of Studies of Commerce to replace Commercial Geography in 1992 with the government promoted Environmental Education. This natural transition of subject from Commercial Geography to Environmental Studies by the University of Mumbai came as a respite for the 300 odd lecturers teaching Commercial Geography who may have otherwise been rendered jobless. Thus the reason for the introduction of Environmental Studies as a compulsory subject by the University of Mumbai is formulated on
the basis of the stipulations laid down by the Indian Government, the verdict of
the academia and the need of the hour.

- At the onset of the research work, the researcher made an interview
  schedule and met and interviewed experts and academicians from the
  Department of Geography, University of Mumbai to understand and
  ascertain the reason why it became necessary to replace Commercial
  Geography with Environmental Education in 1992, in the higher
  courses of the University of Mumbai.

- When contacted in Nov 2008, a very senior professor Dr. Arunachalam
  (Retd) University of Mumbai, HOD Geography Department 1992,
  Member of Board of Studies and Member of Academic Council,
  pointed out that though Commercial Geography was an optional
  subject being taught in many colleges in Mumbai before 1992, it was
  not taught in any other university in Maharashtra except the University
  of Mumbai. Very few students in Mumbai opted for this subject and
  subsequently when talks for the removal of this subject came up, Dr.
  Arunachalam and other experts realised that nearly 300 college
  lecturers teaching Commercial Geography were in the danger of losing
  their jobs.

- Along with Dr. Arunachalam another extremely respected and retired
  member of the Academic Council and former HOD of the Geography
  Department Dr. Sita Venkateshvarlu was interviewed in Dec. 2008. Dr.
  Sita Venkateshvarlu rationalised that around 1992 there was a growing
  awareness about environmental issues and that there was a directive
  issued by the UGC (University Grant Commission) to introduce
  Environmental Education in all the faculties. This directive by the
  UGC made the introduction of Environmental Education relatively
  timely and need oriented. According to Dr. V.S. Phadke (Retd)
  University of Mumbai, HOD Geography Department, as Commercial
  Geography was somewhat related to Environmental Studies, it was
easier to change some of the portions of Commercial Geography syllabus and evolve it into the subject of Environmental Studies for the course of B.Com.

- Thereafter the researcher one by one met and interviewed the other experts from the Department of Geography all of whom expressed their solidarity to the fact that the introduction of Environmental Studies by the University of Mumbai had been a timely need of the hour. The lecturers who had to teach this subject had to undergo Orientation Courses to help them teach the subject effectively. At this time various text books on Environmental Studies were authored by senior professors with help from lecturers teaching pure sciences and other faculty from the Department of Commerce.

1.6 Rationale for Undertaking this Research Work

There is no doubt about the urgent need to teach Environmental Education to initiate change in the attitude and behaviour of people vis a vis the environment and for encouraging people to enjoy and yet conserve the surroundings around them. In ‘The Educational Efficacy of Environmental Education,’ Linda Hoody Nov. 20, 1995 states that research helps in the “collection and analysis of evidence of the pedagogical efficacy of Environmental Education methodologies and content.”

- Environmental Education creates a positive impact on the understanding, thinking and lifestyle of a learner and thus there is a constant need for evaluation to check on the effectiveness of the teaching learning process and the impact on the learner e.g. use of audio visual aids in teaching.

- Undoubtedly textbooks are vital for their content and help students gain information and knowledge but they are not the ultimate solution to the
education system. There must be regular appraisal of the textbooks to check on the accuracy and authenticity of the subject matter within.

- Classroom teaching aids such as charts, maps and globe are not effectively used and this lacuna needs to be overcome and verified periodically so as to ensure effective use of teaching materials.
- Innovative methods of imparting knowledge such as study tours, outdoor activities and projects is the need of the hour and the competency of the teacher must be evaluated periodically.

Research thus helps to find the merits and demerits of the subject matter, improve teaching methods, improvise the style of classroom presentations and helps to mitigate the drawbacks.

1.6.1 Selection of the Topic

The topic for the research work on hand has been selected after much discussion and is a matter of great interest to me mainly because I have been a teacher of Geography at the HSC level for twelve years and thereafter a college lecturer teaching Environmental Studies for the past fourteen years in Navi Mumbai. During the course of my challenging yet satisfying teaching career, I have handled a large population of impressionable, enthusiastic students and along with them have grown to appreciate the bounties of nature. I have also realised that all natural resources are bound to deplete and that each one of us can and ought to strive to conserve the environment in our own individual capacity and manner.

Since the Environmental Education programme was being offered at the University of Mumbai for the last twenty years, I considered it useful to find out the impact it had made on the people of Navi Mumbai and the lifestyle in the city. Therefore the following topic was arrived at, ‘Environmental Education at Mumbai University: An Impact Study.’
1.7 Statement of the Topic
Environmental Education At The Mumbai University: An Impact Study

1.8 Objectives of the Study
This research study was undertaken with the following objectives in view.

1. To evaluate the effectiveness of Environmental Education in creating awareness and concern about environmental problems among students of colleges affiliated to the University of Mumbai in Navi Mumbai.
2. To find out whether the students and teachers feel capable and empowered to tackle the local environmental problems.
3. To find out whether Environmental Education has brought about any change in the lifestyle of the selected sample of students and made them eco-friendly.
4. To understand and enumerate the challenges and hardships faced by students and teachers in putting their ideas and plans of conservation and sustainable development into action.
5. To review the Environmental Education syllabus of the University of Mumbai and to give suggestions to make it more functional and activity oriented.

1.9 Study Questions

For a more focused, in-depth and directed study, a set of research questions were formulated on different aspects of the research topic. They have been listed below.

1. Has the syllabus for Environmental Education as framed by the University of Mumbai been effective enough to bring about any positive change in the mind set/ attitude of the alumni?
2. Is the syllabus relevant to the current times?

3. Which topics of Environmental Education can be interlinked with topics of other fields of study?

4. Has Environmental Education made a niche for itself along with the other courses of the University of Mumbai?

5. What are some of the significant changes in the environment of Navi Mumbai as noted by the alumni and teachers?

6. Are the teachers adequately equipped to teach Environmental Education?

7. How is the syllabus of Environmental Education transacted in the classroom?

8. How is classroom learning vis-a-vis Environmental Education being incorporated into real life?

9. Is this learning sustainable, if yes, to what extent?

10. What difficulties do the teachers encounter while performing the tasks and exercises given in the textbooks?

11. What difficulties do students encounter while taking this course?

12. Are the teachers well read and well informed to discuss the Case Studies present in the textbooks?

13. Do the teachers encounter any hardships in explaining environmental words and terminologies?

14. Are the teachers trained in cartographic techniques to teach the compulsory map work to the students?

15. Can the teachers combine outdoor activities along with classroom teaching?

16. Are the teachers motivated enough to use teaching aids regularly for effective classroom teaching?

17. How can the problems and difficulties of the teachers be mitigated?

18. Have the syllabuses managed to drive home the importance of the
environmental components in the minds of the learners?

19. Do the syllabuses expose the students to the emerging environmental issues, both natural and man-made?

20. Are the syllabuses able to highlight functional links between the environment, economy and society and bring out the problems that may arise from their interface?

21. Do the syllabuses give sufficient freedom as well as guidelines to the textbook writers and teachers?

22. Are the syllabuses in synch with the changing social and pedagogic needs?

1.10 Delimiting the Study

The present study is delimited to the following aspects.

1. Students and teachers of Colleges in Navi Mumbai where Environmental Education is offered as a course.

2. A few alumni who have gone through the course of Environmental Education.

3. Understanding the problems / difficulties faced by teachers while dealing with the functional textbooks and probable solution of these problems.

4. Providing guidelines in general about how to deal with the functional textbooks.

5. Study of environmental activities carried out by the alumni, students and teachers outside the classrooms.

6. Analysis of the impact of Environmental Education on the social behaviour of the learners.
1.11 Scheme of Chapterisation

The scheme of chapterisation is presented below.

Chapter 1: Introduction

Chapter 1 deals with the meaning of the topic for the study and the rationale in the selection of the topic by the researcher. The investigator has defined and explained the importance of environment and the objectives of teaching Environmental Education to the youth of today. This chapter deals with the relevance of teaching and learning Environmental Education at the higher levels of education and the position of Environmental Education in India and the world. The researcher puts forth the major steps taken by the University of Maharashtra in the field of education to sustain Environmental Education. The objectives of the study and research questions have been enumerated here. Also included in the chapter is how the present study is delimited to justify the given objectives. The chapter ends with the scheme of chapterisation.

Chapter 2: Theoretical considerations and Review of Related Literature

Chapter 2 provides theoretical considerations and review of the related literature. The researcher has made a sincere attempt to study the research studies conducted by educationalists and environmentalists and has drawn implications of the same to the present study. As there seemed to be very few research studies conducted in India related to the proposed study, most of the studies reviewed by the researcher have been from abroad conducted primarily
Chapter 3: Research Design Planning and Procedure

Chapter 3 contains a detailed description of the research design, planning and procedure of the investigation. It shows the methods, samples and tools used in the present study. Research tools employed during the course of the present study have been discussed.

Chapter 4: Data Analysis and Interpretation

Chapter 4 comprises the analysis and interpretation of the data gathered in the course of the research work. Essentially qualitative analysis has been carried out. Nevertheless, there are some numerical tools also to support the study of impact of Environmental Education on the social-behavior of students of higher education from the University of Mumbai. On-site photographs of activities of environmental conservation help authenticate the research work.

Chapter 5: Summary, Findings, Suggestions and SWOT Analysis

Chapter 5 contains the summary of the research. All the major findings of the study have been listed. Some suggestions have been made to make the teaching-learning process of Environmental Education more effective. Further, it deals with the suggestions for further studies. In addition, a SWOT analysis of Environmental Education has been carried out towards the end of the chapter.

This is followed by the bibliography, list of abbreviations and appendices.
1.12 Conclusion

Thus, in this first chapter the researcher has tried to justify the research topic, stated objectives of the study and research questions, mentioned the delimitations of the study and placed the scheme of chapterisation. The next chapter deals with the theoretical considerations and reviews of the studies relevant to the present research work.

Bark-garments as clothes, leaves as bed, shelter in the hollow under the tree, ground nuts for satisfying hunger and water of streams of mountains for quenching thirst, playing with deer as sports, friendship with birds, moon as the light during night ----- having all these natural treasures resorted to oneself, still the pitiable ones begging for other material riches!