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CHAPTER-I

INTRODUCTION

1.1 Introduction

In common phraseology, ‘environment’ implies physiography (mountain, plateaus, plains, valley etc.) and natural forests. The presence of certain constituents of the matter in environment is considered essential for the well-being of human life which would be termed as a balancing environment. Any excess or deficit amount of these constituents from the desirable proportion suitable to human organism is threatening their existence and therefore require a closer look at the environmental problems (environmental pollution).

With the march of human beings towards modernization, there were substantial revolution in the perception of ‘environment’. Last few decades witnessed the beginning of the new scientific, and industrial development and capability of the human beings to change the course of nature to their benefits. These developments started taking such a dimension that the concept of environment which was limited to natural environment have proceeded towards human environment.

Ecology is nothing but it is the scientific study of the relationship of living organisms which depend on each other and with their environments which is known as ecosystem. In other words, ecology is also known as the science of ecosystem. It is the inter-relations of biotic living groups with their non-living surroundings. These characterizations seem like simple enough but it is complex and it cannot be explained fully or even cannot be understood completely. Quite often, environment is still defined in physical terms only. The social and biological mechanisms of the environment of human and other living organisms are every often related to some other academic category for the study or it is sometimes forgotten
It is not easy to imagine even a single topic which definitely cannot be included under the title of ‘human environment’, as various aspects cover population explosion, pollution of air and waters, exploitation of non-replenishable resources. The main problem which environmentalists, the later jurists confronted was the man’s fault action in transforming nature for their use without foreseeing its consequences and effect. Legal scholars like Paul Vidal de La Blache, LuienFebure, Brunchs and Vallaux, Alfred Haltner, Hatzels and Hartshorne etc. evolved several useful theories on environment taking ecology in tune with the new industrial, scientific and technological advancements.

Fig 1.1 Effect of Population Explosion on Global Warming

The concept of ‘environment’ has become vaguer largely due to continuous process of gigantic transformation of the nature by state in human interests. In the present perspective, efforts are being made to strike the environmental forces in maximum conformity with man’s needs. No doubt, most of the dangerous discards in man’s interaction with nature are linked to specific features of current scientific and technological progress but they cannot let to be continued in that way as its consequences appears to be disastrous in varied senses.
The term ‘environment’ takes into account all those variables which directly or indirectly infringe on it. These(222,185),(767,243) include all physical, social and cultural factors and circumstances prompting the survival or expansion of an organism that which surrounds surroundings.

Environmental pollution means damage to man, property and environment. This view adopts damage as a main factor to decide the pollution. Of course, the whole world is facing this problem but then it is difficult to solve in isolation for the reason that it is the responsibility of every citizen, town, city, state and nations. Therefore, all the countries and even governments have to take responsibilities on their shoulder to get rid of the problem of environmental pollution.

**Fig.1.2 World Facing Environmental Problems**

In personal life and in society, there has also been drastic change. Man’s social attitudes and behavior have altered. He is sled-indulgent. Self-centeredness has brought him to interests, ambitions, expectations and standards in life that adversely affect his environment and are not applicable to his existent situation in the ecological unit. Nation and states are dynamic
by the violent behavior and competitiveness that the enormous super-
structures, mutual fear and suspicion have driven individuals, society and
culture itself, to support, and by which they are possessed.

Since man has built a culture for himself, that does not heed the natural
settings and the other living being and life in it, there is no possibility for co-
existence with the understanding that he follows life expectancy in keeping
with the styles and principles of that culture. Any attempts to make amends
within this false mode are futile. Yet, man finds it hard to conceive of other
modes, and falters at the implications to stepping outside the models already
in use.

Irrelevant arguments are preferred for this failure to act appropriately
and promptly. For example, the impact of agricultural technology upon the
environment is devastating. But appropriate changes are not considered,
because a hue and cry is given about nourishing the world, and how the
mineral pollinating and the artificial measures have stepped up productivity,
and how mass starvation will be the outcome of large scale attempts to go
“organic” and so on. Such forms of argument are red-herrings; whose only
affect is to interfere with the collective attempt at making united efforts to get
at real change.

This compounds the tremendous kick-back abused and misused
environments have on man’s social and spiritual condition. We have become
so immersed in preoccupations with human welfare, and in the details of the
human condition, that we can no longer see the prime disorder between
environment and man properly. Consequently, our greatest efforts go where
out alarm is towards social and humanitarian first aid, rather than towards any
adjustment that can favorably affect the socio-environmental fabric. It is the
environmental kick-back that is inflicting the wounds we try to patch up. So not
only does our first aid fail, but the inventory grows. Economic and political
issues have become uncontrollable. We are falling further and further behind,
as we slip around and flounder in the moral and ethical gore to being human;
helping others; relieving people in distress, and so forth.

From the time when the beginning of formation of the world, man has
lived in harmony with nature in an atmosphere of mutual respect and mutual
dependence, expert in recent centuries since industrial revolution, when man
has alienated himself from nature and has not realized the potential of
damage that he has unleashed on nature. During this period, we have
discovered the heavy cost ignoring environment and looking at development
as purely short-sighted economy exercise, as opposed to a wider perspective,
embracing the environment and the larger effects that it has on
everything.

Air, water and land found the natural environment in which we live, only
to find that these are getting persistently polluted due to dust, smoke, sewage,
industrial discharges and city refuse. People for the most part in developing
countries live mostly in unhygienic conditions with improper cleanliness. With
the present style of living, there is a steadily growing worry on the water we
drink, the air we breathe and the land we live.

The close relationship between environment and health has been more
and tenser in recent years particularly in economically developed countries,
where the environmental pollution mainly caused by chemical and physical
contamination of water, air and soil presents acute problems. In most of the
developing countries, biological contamination will long remain the problem of
environmental pollution, but then again other types of pollution are speedily
increasing and need to be controlled before these get out of hand.

Every community has a basic need in not only an adequate supply of
water but in water that is safe to drink, attractive in appearance, acceptable in
taste, free from odour and usable for multi fold purposes. A glass of water
which may look clear and pure, may not necessarily be free from pollution.

Drinking water represents only a small fraction of the human need for
water. In areas where water is not available in plenty, three gallons a day are
considered sufficient for drinking and cooking purposes. It will be interesting to
know how much water is consumed by man during his daily routine activities.

In a home with water running although the day, approximately sixty
gallons of water per person is used. It takes five gallons to wash, shove and
brush with. For every minute spent under the shower five gallons of water is
used. Each time the toilet is flushed as many as seven gallons are used up.
These basic statistics reveal startling requirements of this essential commodity
for everyday life.
In the interest of a healthy living, it is compulsory that everyone helps in fighting against pollution. Actually, it is the primary need of the day. It is a happy augury that fighting against pollution is one of the accepted social needs. Even though pollution might be present sometimes and somewhere, the “fight” needs to take in awareness all the time and everywhere.

Environmental pollution is not limited to any specific part of our planet. It is a global phenomenon. The U. N. Conference held in June 1972 at Stockholm, on Human Environment has focussed the attention of all nations on the growing world-wide threat of environmental pollution arising out of land, water, air and noise pollution.

One of the important attentions of the world today is focussed on environmental pollution and its harmful effects on all living things. Countries like US.A., U.K., Japan and other developed European countries are already taking precautions to prevent or lessen the pollution. With urbanisation and industrialisation, with increasing mechanical means of transport, with the craze for speed, with machines moving faster than the speed of sound creating noise nuisance and with the use of atoms for war or peace, air, water and food are all getting polluted. Developing and progressive countries like India should be more concerned with this and should take steps in time so that they may not suffer from what other developed countries have suffered from.

In the mission of attaining self-reliance, a country has to step up agricultural and industrial production. This beat also expanses to contributing increasingly larger quantities of dust, smoke, chemicals and other toxic materials including radioactive elements to the environment, toxic gases to air, chemicals, detergents and organic wastes to the rivers and seas, pollutants and pesticides to soils, land run-off and organic wasters to public streams. Industrial expansion programmes generally cause movement of the working class population from rural to urban areas leading to disproportionate development of human settlements and slums in the country. These create complicated and uncontrolled municipal problems. There is a massive tension on fresh water supplies and all the cities are starved of adequate fresh and clean water supplies. People live in unhygienic conditions with improper and insufficient cleanliness adding more and more to pollution and disease.
There is no doubt that control of environmental pollution is desirable. What lacks is the exact knowledge of the subject amongst the common people who are the prime moves to attain this ultimate goal. What are the pollutants of air, water and food that are really significant? Further, the serious effects of pollutants can be readily recognised, but then there is increasing, delayed and indirect effects. All these deal a challenge to the present day scientists, engineers and technologists which our ancestors probably never faced. A new branch of science known as “Environmental Engineering” has emerged to find out ways and means to control the environment in order to provide man with healthful living. (Fig. 1.3 Environmental Engineering)

**Fig. 1.3 Environmental Engineering**

Environmental engineering has been defined as “that branch of engineering that involves the application of scientific principles to the prevention, control and management of environmental factors that may influence the physical and emotional health of man and his wellbeing.” More simply, it may be defined as a science concerned with all the problems faced by man on the subject of the environment.
The water we drink gets polluted. It will be of interest to note how it get polluted? Water gets polluted as a result of physical, chemical and biological pollutants. The physical pollution brings changes in the water in regard to its colour, odour, taste and thermal differences which create unusual problems for the water authorities. Odour and taste is as a result of chemical and biological pollutants. Another form of pollution which is becoming widespread especially in developed countries is because of micro-contaminants of organic and radioactive nature.

Air is commonly a mixture of nitrogen and oxygen. It is invisible, odourless and tasteless in its pure form. It is essential for respiration and survival. Industrial releases, domestic fuel and automobile consume are amongst the major sources which pollute the air around us. The pollutants let out in the form of poisonous gases and particulate matter have contributed thousand fold to pollution of air. The belching smoke masses that long symbolised prosperity have now become a source of irritation and health threats in many situations.

On land, there is another type of pollution which is fast becoming a serious problem in the marginal areas of our metropolis particularly Calcutta, Bombay, Delhi, Madras, Kanpur, Hyderabad, Ahmedabad and Bangalore. This is caused because of uncontrolled dumping of city garbage and solid industrial wastes on the land in and around these towns.

Pollution of land by city refuse and other wastes poses an annoying problem to the Civic Authorities to manage the disposal facilities. As the step of our society continues to quicken and as crowding and mobbing continue to upset the people who live in urban, suburban complexes, the management of land and public recreation becomes all the more vital.

A liveable environment is the greatest responsibility of man in his own interest. However, the physical environment of air, water, food and land is becoming severe every day. Though it appears that these basic amenities are in abundance, so far the amount available in a usable form to mankind is becoming lesser. This is certainly not desirable. Therefore, it is important to know the cause and effect of the environment on man and vice-versa. This will help in promoting ways and means to present a favourable interaction between man and his environment.
When the balance of human activities was relatively small, it was possible to pursue, productivity and efficiency through mass production and mass consumption ignoring both the impact of this on the global environment and the efficient use of resources are required. To this end, a revaluation of the recycling mechanism and the value system in agricultural society and of oriental philosophy which attaches importance to the unity between nature and man rather than regarding them as mutually opposed could provide a key to solution.

The human race, having shifted from an agricultural society based on solar energy and living organisms to an expanding industrial society based on fossil fuels and mineral resources which are non-renewable, is faced with the problem of the limitedness of the earth.

In the area of domestic consumption of resources and energy, particularly with regard to cities which have expanded enormously, the conservation of resources and energy has made little progress. Since wasters discharged from households are diverse in both quantity and quality, their effective recovery and recycling—with the exception of a few items—has made scarce progress. However, in view of in increased consumption resulting from income increases, it is necessary for each country to devise ways to positively conserve resources and energy in its consumption according to its national conditions. It is basically necessary for developed countries, in particular, to try to switch to a lifestyle less dependent on material consumption while seeking to qualitatively improve consumption with the increase in income. To this end, changes in public consciousness, technical developments and the reform of social systems are necessary.

The impact of future changes in the global environment and the course of these changes in the future still remain largely unpredictable and the possibility of synergism through composite impact or vicious circle makes the matter all the more complicated. Furthermore, in order to establish a method to predict the irreversible point a discontinuous impact caused when accumulation reaches a critical point. This method has not yet been developed. For example, too many uncertain factors exist in the relationship between the increased concentration of carbon dioxide is now gradually increasing. As for the impact of chlorofluorocarbons, it has been pointed out
that ultraviolet rays reaching the earth's surface increase with the destruction of the stratospheric ozone layer and may cause an increase in skin cancer, but many things remain unknown about future trends of the ozone layer. To reduce these uncertainties and to gain more accurate knowledge, it is necessary to conduct patient research. But at the same time further studies are needed into decision-making under uncertain condition concerning the issues whose solution may be too late by the time accurate knowledge has been established.

In the past two eras, environmental problems have attracted the attention of scientists, social workers, decision-makers and even laymen. Awareness of any problem is one thing. It need not be over-emphasized that the current trend of environmental degradation, if allowed to go unchecked, would reach a stage of upsetting and disrupting the life-supporting capabilities and processes of earth before the turn of this century. Environmental problems are among the gravest for human suites to solve as individuals seldom have to pay directly for the contribution to these problems. Individuals act in ways that promote their own short-term welfare, which often conflicts directly with the long-term environmental interests of the present and future generation. The human condition will be miserable if the present developments continue.

Development and environment depend on each other. The development had its effect on environment and go hand in hand which is assured. Human beings cannot disregard one for the other. It is the matter of progress and performance, conservation consolidates and strengthens the process of development. This development has to become the ultimate constraint of our dimension. As our development is essential and it should be designed in such a way that it does not extinguish or destroy the environment nonetheless it should maintain the environment and restores it to health. Definitely, it is our duty and the need of synchronization between environmental matters and the developmental issues. We must start looking positively and see how environment facilitates the development process instead of looking negatively.

Approaching to the role which environmental education can play in protection our environment, it is compulsory to recognize the objectives of
environmental education. It is definitely true that for the reason that of lack of proper awareness, man has been too harsh to nature and we have to pay for the consequences. Tropical forests are disappearing at a rate close to twelve million hectares each year. At a conservative estimate, one in ten flowering plants species are threatened with extinction.

It goes without saying that environmental education must begin at the primary level. The basic education should not be bookish. Rather, it should encourage thinking and first-hand observation, especially relating to the local environment: physical, biological and social changes going on all around. Even a baby who cannot yet speak is not young enough to be shown the beauty around. Children must be brought up to love animals and their natural environment and also to see how they can be so preserved, keeping the utility also in mind. The dangers and hazards associated with environmental pollution should be driven home to them.

Forestry, flora and fauna, including wildlife population, public health, poverty, urbanization, bio-engineering and genetic engineering are among the areas of environmental education, which undoubtedly require special attention. Further-more, non-formal education one environmental problems to the adult population is as important as studies in schools and colleges. There can hardly be any progress, unless this vast section of the population is made aware of the problems. Short films, slides and other visual aids may also be made use of reaching this section.

The subject of environmental education has a relevance to the people everywhere, particularly in India where people’s age old respect for man's place in the environment is enshrined in the various religious books, scriptures and fold-lures. Therefore, environmental education should install in the individual this restraint, to facilitate there may be a healthy and vibrant society.

Climate change demonstrates differently from one region to another for example Gujarat may receive less rain fall and Assam may and even usually get affected from flood every year due to excess rain fall. The heating or cooling of a normal every year temperatures is as a consequence of suburbanization and ups and downs in the earth's albedo.
“I am the earth; you are the earth. The earth is dying; we are the murderers.”

Our atmosphere consists of numerous gases.

The use of nuclear energy, in harnessed or unharnessed forms, points towards global cataclysm. The attained level of radiation over the whole world may not presently have been high enough to destroy life altogether; but nobody knows whether the level is already high enough to cause mutations of species. Extensive use of insecticides and pesticides, chemical fertilizers and for increasing farm productivity, are no less perilous when seen against their effects in changing the ecological balance.

The modern agriculture is a man-made agroecosystem which has involved lot of agrochemical inputs. The pesticides with their significant role in green revolution, have also been reckoned as double edged swords or ecological narcotics much because of their negative potential. In India with tropical conditions prevailing we need to know the residual and toxicological effects of pesticides since most of these xenobiotic compounds have been designed for temperate conditions. This has been supported by scientists working in the Australian universities and laboratories.

The problem gets complicated in our reference further since we have new cultivars emerging regularly, several micro-climatic zones and various types of soils. It is also true that at this critical condition of population growth requiring food and fodder we can neither afford to leave the use of pesticides nor we can ignore the residual and toxicological problems. Unfortunately, we have no programme of screening new cultivars against the recommended pesticides in the different areas of the country. The best way left for us is to exploit the full potential of pesticides with possible exploration of new herbicide antidotes and use of the known ones.

This aspect of agro ecosystem toxicology and its reversal or counteraction with chemical antidotes, specific or non-specific, is the sole alternative left, apart from the Integrated Pest Management.

Due to global warming which is created by human beings, the researcher has conducted a study on the awareness of secondary schools’ students which is necessary to study. It is the fundamental right of the
student. They are the future of our country so they must be aware of this great problem.

1.2 Background and Rationale of the Study

The researcher takes leads of the understanding which has collected earlier because of constant anthropological effort. It cannot be commenced in loneliness of the effort that has previously been presented on the teething troubles of global warming which are indirectly or ultimately interconnected to natural resources recommended by an investigator.

Nature is attractive. It symbolises the essence of the originator. But then man has limited the freedom of the co-existing living flora and fauna in a handful sanctuaries, parks, green belts and forest reserves. He has been worsened the quality of air and water, vital giving elements at the cost of urbanization and technological development. By his cruel and selfish ways, he has created an imbalance in the biosphere. He has also failed to evaluate the problem areas. The impact of his negative approach to the speedy progress was a late realization.

Understandably, environmental education is the most appetising answer. Environmental education is the education through, about and for environment. As a result, its scope is very wide.

Awareness is the state of knowing something. Awareness is having knowledge, informed of watchful events. Public awareness about global warming is a big problem.

Awareness through education in recent times, a strong need for education in this direction has been felt. Therefore, the young minds at early stages should be made aware of water's importance. It should be a moral duty of the father, mother and close relatives at home and educators at school to inculcate in child. For that reason, some reorganization is required in the present educational system. One thing should be kept in mind that if the objectives are to be achieved at the end of this century, we must look 20 to 25 years ahead and draw up concrete programmes for action. There will always be a time gap of 2 to 3 decades before large schemes are completed and their benefits reach the community. As a result, to work for AD 2000 is really to work for the present.
Most universities including technical ones, run specialized postgraduate courses in various studies and some even have these courses at the bachelor's level. The United Nation's Educational Science and Cultural Organization (UNESCO) through its programmes on ecological science, hydrological sciences, engineering education, human settlements and its 'Man and Biosphere Programme' has strongly highlighted the need for interdisciplinary approach in dealing with all kinds of environmental problems.

At national level an integrated course on Marine Science can be started in universities which are near the coastal regions. Such a course can be started at an elementary level at + 2 stage followed by a Bachelor's degree in Marine Sciences. In the Universities a postgraduate diploma or degree course could be introduced.

Committees should be set up under an Integrated Marine Science Programme. The head office of such a structure should be in Ministry of education to execute the plans at the National level. Studies on flora (Botany), fauna (Zoology) and Chemical composition of water bodies (Geology and Chemistry) should be carried out. Syllabus should be written despondent on keeping clear goals in mind. There should be emphasis on all the branches of science, as the wide variety of water resource problems we face, require the expertise of regional planners, civil engineers, biologists, chemists, biochemists, geologists, economists and recreation specialists. The education should be made more direct comprehensive. The main objective of such a programme should be to develop knowledge, skill, evoke response and attitude required for solving the problems related water body management.

The children should be brought in contact with nature. They should be encouraged to conduct their own investigations and draw their own conclusions. Treks, excursions, expeditions, field trips and nature camps have always been popular means of going back to nature.

Companies should be set up to engage the trainees in water management 'Government and Non-Government Organizations' should be motivated to work for a better water quality. In-service programmes should be conducted where teachers, professors, researchers should be made aware of innovative techniques. The conferences and meetings should be held at national and international level to exchange technological know-how.
Above and beyond, public participations are a significant constituent of the environmental management. Water is considered to be a social asset and its development is normally public instead of a private activity. The socio-economic objective is interconnected to social welfare more willingly than private profitability. Social scientists can best motivate the public. These scientists should aim at developing in the citizens an awareness of the environment and a concern for conservation and improvement. They should also teach skills, attitudes and values necessary to understand, appreciate and improve our biosphere.

Marine science programme should be taught in relation to the standard of lifelong fundamental learning which could reach the common people. This can be best achieved through media. Lectures, symposia, talks, periodicals and magazines can be brought about for general interest. Visual and verbal media can be used for knowledge broadcasting.

On the other hand, things cannot change overnight or also not over few years. Still corrective steps need to be taken if the goal of Universities with Potential for Excellence (UPE) is to be realized and the retention rate. There seems to be greater drop-out in primary classes of rural girls has to be increased. Education of rural girls should form a separate section in the Eighth Five Year Plan with separate non-directive commercial distributions which the NCERT report recommends. Towards the end, the report categorically states. "The final answer to the problem of UPE among rural girls will rest on the extent to which the community and particularly women can be mobilized and energized as a group to create a favourable climate for girls' education and more outstandingly to act as a pressure group which can make the community realize the need for basic education. It is a well-known fact that by educating one girl the whole family can be educated."

Therefore, the NCERT has recently recommended, "Rural She Approach" which aims at educating the girls exclusively, belonging to the age group of 10-14 years. The women folk should be told about pollution of air, water and land. Under NCERT's programmes, they can be motivated to help check such problems. Their role in "Chipko Movement" against deforestation did wonders. Time has come when the women should come out with some such movement to check water pollution."
1.3 Statement of the Problem

Awareness of Global Warming Among the Secondary Schools Students in Mehsana District of Gujarat.

1.4 Need of the Study

Environmental education in the form ecology is one the subjects in curriculum of our school and college education but the orientation of teaching is such that is provides the information only. While the real need is to bring in an attitudinal change, to support a life style which is in coordination with Nature and to inculcate values to appreciate Nature. The following are the needs which should be implemented:

- The need to change understated and inexpensive teaching aids
- To bring about a change in curriculum that focuses on environmental education as a faith and code of conduct;
- To take care of the participative aspect accordingly to stimulate the learner's concern for the world he/she is growing into in terms of inducing in him/her a consciousness of personal risks
- To work out a long term plan which incorporates a comprehensive approach for meeting the desired objectives in terms of their financial, administrative and institutional implications.
- To grow awareness of global warming and its connected complications.
- To inculcate the habit and knowledge of the complete surroundings, its related difficulties and the answerable incidence of humanity in it.
- To develop skills to solve environmental problems.
- To develop evaluation talent to assess environmentally friendly dealings and educational.

1.5 Importance of the Study

In the present study, following are the importance:

- On the origin of this research, secondary school students' knowledge about the global warming awareness future programme can be organised.
With this research students’ thinking about global warming can be known. This research will be helpful for future researchers. The programme about global warming awareness can be thought positively.

1.6 Scope of the Study

The study of environment's physical, chemical and biological characters will become an important aspect in order to understand the environment dreadful conditions. The concern, relating to environmental problems has increased the interest of many scientists and social scientists of the day. Immediate need is felt by them to understand the reasons resulting the environmental dreadful conditions with a view to correct the defects.

The population explosion is the real cause for the environmental degradation in many aspects as this led to industrialization and urbanization. Every nation is facing problems resulting from the atmospheric pollution, water pollution and land pollution. The pollution leads to changes in the dynamic equilibrium of the environment and in this process, the biotic components the worst sufferer. To overcome the pollution problems, it is necessary to make the people know about the ill effects of pollution. Therefore, it becomes necessary to train the young learners to analyse the ills of any system much before it is introduced for learning process. The pollutant may be a chemical, gas particles, noise or radiation as a result the environment will be under a great stress leading to unusual changes.

Environment and pollution are the two popular words of this century. They are much discussed about topics in various Newspapers, T.V. and Radio etc. However, still there is a need to develop a proper perspective of environment and pollution in the common men's language. With the aim of appreciate environmental education which will help solving the problems related to it.

Problem about the environment has been biting various countries and the world. International conferences and symposia have been raising this
issue time and again. There is a shared feeling that human existence is in danger and urgently something has to be done to protect the environment. The harmful effect of environmental pollution has been communicated through scientific research. We know all the factors which cause environmental pollution. Problem is understood but the solutions are still being looked for. 21st century will be known for growth & technological development. It will also be known for man-made disasters of Bhopal gas tragedy and tragic fire at Chernobyl atomic power station.

Earth is the only planet in the universe where the life exists. This planet earth has human being with highly developed brain among the living being. The brain helped in acquiring all the material entities from bullock cart to aeroplane then to moon through the rocket is the materialistic journey of human being.

Industrialization has become the bench mark of growth and development. The process is being culminated by becoming the master of the world and wants to control the natural resources to the utter disregard to Mother Nature.

Pollution is the off spring of industrial development. The smoke from the chimney, poisonous chemicals insecticides and pesticides polluted environment, waters of sea and river and even the underground water, forests were destroyed for satisfying the needs of paper industries, fibre industries and for domestic fuel. Deforestation resulted into soil erosion. The green earth started turning in to dessert. The protective layer of ozone is thinning out and thereby the global temperature is rising. The holes were found in ozone layer in South Pole, Australia and Newzeland. The Ultra violet rays through these holes are threat to life. It will result into skin cancer, cataract in eyes and it may alter the gene structure in plants.

Our unthoughtful and materialistic attitude is taking this earth billions year back when there was no life. And if we don't awaken now no life will survive on earth. Stock home conference in 1972 was a beginning at awakening towards environment. There were dozens of international conferences and hundreds of seminars held regarding environment and pollution. The latest conference held in Brazil underline the urgent need for an action plane for improving earth's environment. It was also concluded that
problems at environment cannot be solved by the governments of various countries along but on active involvement of masses is essential to solve the environmental problems. It has to be joint effort of government, planner, scientists, economists, social scientists and public at large.

Environmental education is the only tool for involving the general public for solution of this problem. A comprehensive environmental educational programme must be designed and implemented at earliest. Environmental education could result into-

- Developing a comprehensive and clear vision about the environment.
- Understanding of environment, its protection and preservation.
- Developing a close relation between Man and the Nature.
- Developing the ability of Man to adopt to the Nature.
- Inculcating a commitment for preservation and protection on environment.
- Appreciating a social responsibility towards environment.

1.7 Variables of the Study

Awareness of Global Warming among the Secondary Schools Students in Mehsana District of Gujarat is performed in framework with the variables in this study which are as follows:

Table: 1.1 Variables of the Study

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Type of variable</th>
<th>Variable</th>
<th>Comparison</th>
<th>Type of Classification</th>
<th>Techniques of Measurement</th>
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<td>Male, Female</td>
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<td>Independent variable</td>
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<td>Rural, Urban</td>
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<td>Granted &amp; Non-granted</td>
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<td>Dependent variable</td>
<td>Urban area</td>
<td>2</td>
<td>Boys Girls</td>
<td>Self-made questionnaire</td>
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<tr>
<td>6</td>
<td>Controlled variables</td>
<td>Standard Medium</td>
<td>1</td>
<td>Std.-9 Gujarati</td>
<td>Mehsana District of Gujarat</td>
</tr>
</tbody>
</table>

1.8 **Objectives of the Study**

The following objectives are framed to improve awareness of global warming among the secondary schools’ students in Mehsana of Gujarat:

1. To investigate the awareness of global warming among the secondary school students with respect to male and female students of Mehsana District.
2. To investigate the awareness of global warming among the secondary school students with respect to granted and non-granted schools of Mehsana District.
3. To investigate the awareness of global warming among the secondary school students with respect to urban and rural areas of students of Mehsana District.
4. To investigate the awareness of global warming among the secondary school students of boys and girls of rural areas of Mehsana District.
5. To investigate the awareness of global warming among the secondary school students of boys and girls of urban areas of Mehsana District.
1.9  **Hypothesis of the Study**

The following hypotheses are formulated to empirically validate the above objectives:

**H$_0$1:** There will be no significant difference between the mean score of secondary school students with respect to male and female students of Mehsana District.

**H$_0$2:** There will be no significant difference between the mean score of secondary school students with respect to granted and non-granted schools of Mehsana District.

**H$_0$3:** There will be no significant difference between the mean score of secondary school students with respect to urban and rural areas of students of Mehsana District.

**H$_0$4:** There will be no significant difference between the mean score of secondary school students of boys and girls of rural areas of Mehsana District

**H$_0$5:** There will be no significant difference between the mean score of secondary school students of boys and girls of urban areas of Mehsana District.

1.10  **Delimitations of the Study**

The researcher has limited her study to the following grounds:

- This study is restricted only to secondary schools and their students.
- This study is limited only to the Mehsana district of Gujarat.
- This study is limited only to IX standard students.
- This study is limited only to Gujarati medium schools who follow the syllabus of Gujarat Board.
- This study is limited only to students studying in the academic session for the year 2014-15.
1.11 Research Methodology of the Study

The methodology of the study comprises research method sample, tool, procedure of data collection and procedure of data analysis.

1.11.1 Research Method

Survey method has been adopted for the present study.

1.11.2 Population of the Study

Students enrolled in the secondary school of Mehsana District during academic session 2014-15 are constituted the population of the study. The population is approximately 1000 students of Mehsana District.

1.11.3 Sample of the Study

The sample consists of 600 students of secondary school of Mehsana District. 8 Gujarati medium schools are selected. 4 schools of rural areas and 4 of urban areas are selected as a sample. In the present study, survey method is being used.

1.11.4 Tool and Techniques of Data Collection

A self-made questionnaire is developed to collect information about the awareness of global warming of secondary school students of Mehsana District. The questions are closed-ended. The selection of the sample is probability, non-probability and systematic sampling.

1.11.5 Procedure of Data Collection

Data pertaining to the awareness of global warming of secondary school students are collected through self-made questionnaires. The researcher has visited the 8 selected secondary Gujarati medium schools of Mehsana District and took test accordingly.
1.11.6 Data Analysis

The data are analysed with the help of mean, standard deviation (S.D.), SED and 't' test value at 0.5 level of significance.

1.12 Profile of the Organizations

The below mentioned are the details of the organisations where the data for the research has been collected:

Table: 1.2 Profile of the Organizations

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>School’s Names</th>
<th>Areas</th>
<th>Types of Schools</th>
<th>Boys</th>
<th>Girls</th>
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<tr>
<td>1</td>
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<td>Granted</td>
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<td>Granted</td>
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<td>75</td>
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<td>3</td>
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<td>Non Granted</td>
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<td>75</td>
</tr>
<tr>
<td>4</td>
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<td>Rural</td>
<td>Non Granted</td>
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<td>33</td>
<td>75</td>
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<tr>
<td>5</td>
<td>Shri M.C. Patel Gayatri Vidhyalay</td>
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<td>33</td>
<td>32</td>
<td>75</td>
</tr>
<tr>
<td>6</td>
<td>P.M.G. Thakar Adarsh School</td>
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<td>75</td>
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<tr>
<td>7</td>
<td>Exotica Secondary School</td>
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<td>Non Granted</td>
<td>33</td>
<td>32</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>Shree Dahyabhai Patel Vidhya Sankul</td>
<td>Urban</td>
<td>Non Granted</td>
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<td>75</td>
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<tr>
<td>9</td>
<td>Total</td>
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<td></td>
<td>300</td>
<td>300</td>
<td>600</td>
</tr>
</tbody>
</table>
School Profile

School Name : Sarvodaya Vidyalaya Ambasan
Address : Ta & Dist : Mehsana , 384435

Phone No. : 02762 – 282348
E-mail : Svaambasan@yahoo.in
Est. Date : 01-06-1962
Type of School : Granted
School Stream : Arts & Com. (Secondary & Higher Secondary)
Total Class : 9th to 12th
S.S.C. Index No. : 63.013
H.S.C Index No. : 13.102
S.S.C.Center : 621
H.S.C Center : 055

Head Master
Sarvodaya Vidyalaya
Ambasan-384435,
Ta. & Dist. Mehsana. (N.G.)
School Profile

School Name: Shri Ram Sarv Vidyalaya, Jotana.
Address: Jotana, Ta.Jotana,
         Dist: Mehsana
         Po: Jotana-384421
Phone No.: 02762 285322
E-mail: shriram.jotana@gmail.com
Est. Date: June 1932
Type of School: Granted
School Stream: Secondary School & Higher Secondary School
               (Arts, commerce, science)
Total Class: 9th to 12th
S.S.C. Index No.: 63.006
H.S.C. Index No.: 13.003
S.S.C Center No.: Jotana /621

[Signature]

Head Master
Shree Ram Sarva Vidyalaya
At & Ta. Jotana, Dist. Mehsana (N.G.)
School Profile

School Name: Somnath Jivaram Patel Vidhyalaya, Nanikadi
Address: Shree Umiya Vikas Trust, Nanikadi Kalayanpura Road, Nanikadi, Ta. - Kadi, Dist.: Mahesana, 382715
Phone No.: 02764 - 292450
E-mail: SomVidhayalaya910@gmail.com
Est. Date: Jun 2012
Type of School: Non Granted
School Stream: Secondary & Higher Secondary ( COM )
Total Class: 9th to 11th
S.S.C. Index No.: 63.285
H.S.C Index No.: 13.258
S.S.C Center No.: Kadi/622

Palace: - Nanikadi
Date: - 10-11-2014

Principal
School Profile

School Name: Shree Saraswati Vidhya Mandir, Bhesana.
Address: Bhesana, Ta. & Dist : Mehsana
          Po: Bhesana- 384421
Phone No.: Mo- 9374432699
E-mail: svmbhesana@gmail.com
Est. Date: June 2002
Type of School: Non Granted
School Stream: Secondary School
Total Class: 9th to 10th
S.S.C. Index No.: 63.521
S.S.C Center No.: Jotana/621

Place : Bhesana
Date : 01/12/2014

Principal :
School Profile

School Name: Shri Manubhai C. Patel Gayatri Vidyalaya, Mehsana

Address: Opp. Pasabhai Petrol Pump, Highway, Mehsana
          Dist. Mehsana- 348002

Phone No.: 02762-254635

Email: mcpgayatri@gmail.com

Est. Date: 11/06/1984

Type of School: Granted

School Stream: Secondary School & Higher Secondary School

Total Class: 9th to 10th

S.S.C. Index No.: 63.378

H.S.C. Index No.: 13.124

S.S.C Center No.: 686

H.S.C Center No.: 159

Place: Mehsana

Date: 13/11/2014

Principal

M.C. Patel Gayatri Vidyalay, Mehsana-2
School Profile

School Name: P.M.G. Thakar Adarsh Highschool
Address: Detroj Road, Ta: Kadi,
Dist: Mahesana-382715
Phone No: 02764-262405
E-mail: highschooladarsh@gmail.com
Est. Date: 01-06-1960
Type of School: Granted
School Stream: Science & General(Secondary&Higher Secondary)
Total Class: 9th to 12th
S.S.C. Index No.: 63.069
H.S.C. Index No.: 13.135
S.S.C. Centre No.: 622
H.S.C. Center No.: 041

An Educational Institute... with ethnic fundamentals.
School Profile

School Name : Exotica Secondary School, Mehsana
Address : Opp. Shaktidhara Socitey, Highway Road, Radhanapur,
Dist. Mehsana- 348002
Phone No. : Mo- 9909265456
Email : Exotica.meh2012@gmail.com
Est. Date : June 2011
Type of School : Non Granted
School Stream : Secondary School
Total Class : 9th to 10th
S.S.C. Index No. : 63.251
S.S.C Center No. : 629

Place :- Mehsana
Date :- 11/11/2014

Principal
EXOTICA SECONDARY SCHOOL
Radhanpur Road, MEHSANA-2
School Profile

School Name: Payal Ankit Patel Adarsh Vidyalaya, Kadi
Address: Shree Dahyabhai Patel Vidhya Sankul, Kadi
               Karannagar Road, Kadi, Dist. Mahesana, 382715
Phone No.: 02764 – 292545
E-mail ID: dpatel2012adarsh@gmail.com
Est. Date: 01-06-2012
Type of School: Non Granted
School Stream: Secondary & Higher Secondary (Com.)
Total Class: 9th to 12th
S.S.C. Index No.: 63.583
H.S.C Index No.: 13.273
S.S.C Center No.: Kadi/622

Principal
Payal Ankit Patel Adarsh Madhyamik Vidyalay
Kadi, Dist. Mehsana (N.G.)
1.13 Conclusion

Human beings havestretched a exceptional and very important phase in its collaboration with the natural environment. The possibility of human activities is now very great that we must take into interpretation the totality of all the elements of the earth. The resources which is non-renewable for example some minerals which are already utilized in large quantities are nearly equal to their total resources. The renewable natural resources for example, rivers, lakes, forests, the biological products of the ocean and seas and even fresh water, etc. is also changing. Therefore, it is difficult to balance the natural resources. Though man is adjusting many natural progressions more than natural variations could.

Man is already accountable for an extensive variety of changes in the ecosystem, some of which are more or less stable, whereas others temporary in nature. He has more recently brought about variations in the biochemical configuration of soil, of the waters, of the streams, lakes and even of the sea, changes too of the air, that collectively contribute a massive modification of the natural environment for living organisms of all kinds.

The facts are stark. Take the population question, for instance, we attend to it with a concentration of concern. The result is a bewildering tangle that skins the fingers of our philanthropy. Overpopulation is not really affected. Instead of fellow-feeling, there is blame. The accused are offended by their accuser’s presumptions. There is bitterness that the opponent is comfortable, but he is not suspect, though it is through him that the deeper sufferings of human inequality are perpetuated.

As a result, we all are unsatisfied, disconcerted and annoyed or we think of the influence of agricultural technology on the environmental setting, with the locking of nutrients in the soil, the exhaustion of nutrients, the disappearance of micro-nutrients, the collapse of soil structure, loss of land vitality, the abuse of plant and animal life through views that lead to limited and restrictive applications of breeding and husbandry, and so on. If we do not get down to the real changes that are required now the starvation and turmoil that will come, when the whole system collapses in due course, will be
beyond the worst nightmares we conjure up now about feeding the world and agricultural change.

Yet there is absolutely no need for man to be in the position he is in. that the human race should feel in a cleft stick with regard to the relationship between the world and the human condition, contemporarily, is purely a subjective human experience, that happens to be so, but which could as easily be completely otherwise.

Take the clear monstrosity of the nuclear affair, for instance, and look at it from another angle. Unleashed, the nuclear hazard will not be of any greater moment than to cause another of the large catastrophes the world has already seen at other times in its history. Radiation is not a new and untoward hazard for this planet and it inhabitants. It will bring significant change. Of course, but change that Earth will use for evolutionary purposes, as easily as it has in the past. And so it is with any of the other effects of the human impact on global conditions, insofar as they go unchecked.

The whole point of the human involvement and sense of responsibility for things does not include contemporary man’s obsession, that whether the world continues or is destroyed, depends upon his acting responsibly. The point is simply, that is being responsible man evidences evolutionary development of a similar caliber to that already manifested by other species in their absolutely faithful corporate and co-operative functioning. Man may, otherwise, be a more highly developed that development, not an asset, when life is characterized, the way it is on Earth, by co-existence. The underlying adjustments made in living systems to bring balance, order and harmony to the vigour and play of life are according to corporate law within and between all things. Life wants human participation in that. It asks that-to respond freely and it shows the way.

Any book does not propose answers in any immediate sense. It is a normal human function for people to find their own answers according to circumstances and need, once they normally perceive what there is to see. Therefore, the intention here is purely to consider the web of life for what it is, with man in it. The clear examination of human functions in relation to the environment are essential to this. This is because such are restorative, regulatory and developmental when properly observed. Man cannot escape
the responsibility he has, because he is not a passive presence in the environment. Nor is he able to step in and out at will.

The ethics of co-existence are inseparable from the facts of existence. The environmental ethic speaks on behalf of the world man inhabits. It is a guide, acknowledged and heeded only by those perceiving its silent proximity to their attempts to negotiate the frightening landscape contemporary man finds himself traversing. Therefore, the aim here is to map out the relationship between the world and man. The ethics of it are a commentary on this relationship. Those skills that equip man to cross over such a landscape are not included, because they abound in the world, as it is, with so many movements and alternatives, satisfying the enormous spectrum of genuine and aberrant impulses motivate people today. People have to pick their own way through it all, in order to come at a completely different experience of the world, and develop an absolutely different relationship with it.

However, a climate favorable for one type of ecology may be massively different from the climate favorable for another, and though the details to the seasons, rainfall patterns, type of vegetation, and so on, are not interchangeable, the fact is universal, favorable climate is a very precise, particular and important feature for healthy atmosphere and a stable, happy environment.

Land cover, vegetation and plant communities vary greatly. One can elaborate on them very extensively. But the basic fact is always the same, all plant life cleanses the atmosphere and replenishes oxygen in nature’s cycle.

Ecology is the scientific study of the relationship of living organisms with each other and with their environments. Ecology is also the science of ecosystem the inter-relations of biotic communities with their nonliving environments. These definitions seem simple enough, complex and by no means fully understood. Too often, environment is still defined in physical terms alone. The biological and social components of the environment of human and other organisms are often forgotten or related to some other academic category for the study. Too often, ecology and sociology, like the environmental sciences and the behavioral sciences in general, are treated as separate subjects.
The biosphere, as an integral formation which includes as life in the soil, on the earth’s surface and in its water bodies and atmosphere, as a self-governing system, becomes unbalanced and enters a new, stable state as a result of any external action upon it, including any human interference in its functioning. This new state, and its reactions to material production, inevitable rebounds upon mankind as part of the biosphere.

Obviously, the biosphere, as the supreme organism, has supreme self-regulating potential. Although some biological forms, i.e. what one might term individual organs of the biosphere, may disappear as the result of various actions upon it is, as a whole, capable of remaining a living organism. Internal resources of homeostatic self-organization compensate, one might say, for the consequence production has for the biosphere.

Yet these consequences are now so extensive that the biosphere cannot cope with mankind’s destructive impact without external assistance, without society’s help. This impact affects both individual species of living organisms, and the entire system of life on earth.

Protecting the atmosphere from pollution also means something different, not only from one eco-system to another, but within an eco-system, where contrasts vary between rural and urban settings and for other sorts of use of land to come to grips with the air pollution problem in any vicinity, one, of course, has to deal with its own particular make-up. But the basic fact is the same, pure air can only be achieved by elimination and prevention of Pollution.

There are certain implications to all this. The fashionable world functions through move toward in all walks of life that are not ecologically sensitive. Hence the eco-problem and its magnitude. However, if we develop some kind of environmental awareness.

There is a degree of sophistication to contemporary life, and a threshold of interdependencies to it, that make a profoundly meaningful change quite daunting. We falter and make token gestures only, before the seeming impossibility to such deep-rooted change. It is one thing to understand the need for change. It is another to take those steps that bring change about at the roots of culture. It is one thing to visualize Nature’s scheme. It is another thing to have to confidence and trust that we can live
adequately in its embrace, when man has become so indoctrinated to doing everything himself, for his own ends.

**Fig. 1.4 Global Warming and Greenhouse Effects**

When the greenhouse gases can’t escape the earth’s atmosphere global warming can be imaginable and only some amount is dispersed to outer space as shown in **Fig. 1.4 Global Warming and Greenhouse Effects** and the extra greenhouse gases at that point cause the earth’s temperature to increase which is the cause of global warming. Consequently, mostly all our coasts is responsible for the which causes melting of ice and there would be more rain and we lose both the poles. When gases build up and the ice melts then it is likely to be the global warming.

Environmental education should aim at not merely imparting knowledge and understanding of animate total environment. It should also aim at improving our near and distant surroundings, skills, attitudes and values necessary to understand, appreciate and improve our Biosphere and Troposphere. Indeed, the disciplines such as Physics, Chemistry, Geography,
Geology, Botany, Zoology, Computer science, Electronics etc. should coordinate to promote the immediate and future welfare of mankind and they should not be an end in themselves.

Environmental education should deal with the fundamental relationship between development and environment. This could be supported or bring out at three stages - school level, college level and University and professional level. At all these levels certain amount of "learning by doing" can be introduced to increase the liveliness of the course and encourage student's activities. Teachers can introduce the idea of interaction of technology with the environment through examples in the neighbourhood. The basic modules of this programme must include.