

Chapter-2

Environment and Environmental Pollution

Environment is an integral part of human society and other living organs. Environment is the source of life on earth and it determines the existence, growth and development of mankind and all its activities. It is the fundamental right of “an individual to breathe unpolluted air, potable water to drink, nutritious food to eat and hygienic conditions to live in.”¹ Thus clean environment is necessary to live.

As society developed, man’s impact on environment grew in scope and strength.”² In the name of development and progress through industrial and agricultural revolution environment is being affected adversely day by day.

2.1 Environment

The term ‘environment’ means surroundings. It is an English word derived from the word ‘environ’ which means ‘encircle’ or ‘all round.’³ Thus environment means those natural things around us which sustain life such as land, drinkable water and healthy air.

According to Universal Encyclopedia, environment is “The sum total of all condition, agencies and influences which affect the development, growth, life and death of an organism, species or race.”⁴

The Environment Protection Act, 1986 in Section 2(a) states: “Environment includes the air, water and land, and inter-relationship with human beings, other living creatures, plants, micro- organism and property.” It means these three components of environment viz. air, water and land are necessary to the lives of humans as also of non-humans.

The Environmental Pollution Panel of United States President’s Science Advisory Committee referred to environment as “the sum of all social, biological and physical or chemical factors which compose the surrounding of man.”⁵

¹ Tiwari, H. N, *Environmental Law*, Allahabad Law Agency, Faridabad, 1999 p. 1

² Saxena, H. M, *Environmental Geography*, Rawat Publication, Jaipur, 1999 p. 1

³ Ibid p. 3

⁴ Ibid. p. 3

⁵ Singh, M. P. *Environmental Education*, Shree Publishers, New Delhi, 2009. p. 1

Thus, environment is a dynamic complex where everything is inter-connected. When there is any action in one part it affects the other system of environment. Environment not only includes animals, plants and the ecosystem but also includes the entire entity on which industrial and agricultural development depends.

Environment is of two kind “natural environment and man-made environment.”⁶ Natural environment is made by the natural components like air, water, land, forest, living space, flora and fauna etc. Any change in natural system by natural process is balanced by the changes in other component of the environment. Man-made environment is the result of man’s activities. “Though man is a product of Mother Nature yet after living in perfect harmony with nature for centuries, he has created a situation of self-destruction by exploitation of nature which persistent conflict with nature, which unfortunately is now leading to a situation of self-destruction.”⁷

Man is the most powerful agent that brings the changes in environment according to his needs. Computerization, industrialization, technology, dam, building, globalization, transportation, new invention in agriculture field etc. are the man- made environment. All these things create pollution that is harmful for environment and humanity.

2.2 Environmental Pollution

Pollution may be defined as contamination of the environment in such a way that it creates hazards or potential hazards to health and well- being of living and non-living beings. “Every substance existing in the environment has definite composition when a foreign body is introduced into it, or the proportion of its constituents is modified, then that substance loses its original character and qualities. The change in the quality of substances is termed as pollution.”⁸ According to the U.S President’s Science Advisory Committee, “Pollution is the unfavorable alteration in our surroundings through direct or indirect effects of changes in energy patterns, radiation levels, chemicals and physical constitution and abundances of organisms.”⁹ Thus, pollution ruins natural composition of substances and makes the survival of the living being difficult and troublesome.

⁶ P, Leelakrishnan, *Environmental Law Case Book*, Lexis Nexis Butterworth, New Delhi, 2004, p. 6

⁷ Pauchri, Suresh &Pradeep Kumar, *Environment Education*, APH Publication, New Delhi, 2010, p. 5

⁸ Tiwari, H. N. *Environmental Law*, Allahabad Law Agency Faridabad, 1999, p. 10

⁹ Ibid. P. 15

Man's ambition for limitless enjoyment and comfort has led him towards the exploitation of nature's wealth so indiscriminately and so shamelessly as to reduce nature's capacity for self-stabilization. Indiscriminate exploitation of nature is responsible for environmental pollution.

The term 'environmental pollution' is used to describe a situation in which a part of the natural environment is damaged. It can be used to refer to damage to the land, to water, or the air. Environmental pollution can also mean a loss of biodiversity and a loss of natural resources in an area. Environmental pollution is not a new thing, it has been happening all over the world for centuries. But since degradation was limited and due to the innate capacity, environment could restore the balance. However, the problem is that of late the degradation has acquired serious proportions not leaving enough time for the environment to recover and regenerate. The greater demands placed on the environment by an ever increasing human population is putting a great strain and drain on the earth's limited natural resources. Environmental pollution is a serious threat to the lives of people, animals and plants, making it imperative that we stop further degradation from occurring.¹⁰

In the present century environmental pollution has emerged as a major global concern for human survival. The strains of the ecological crises are so wide and far reaching that the task to preserve and protect the environment has become the primary requisite of economics of development. "Modern development is transforming the nature into products land, water, and air is being polluted every minute. Approximately 10000 million tons of oxygen is being burned and about 24000 million tons of carbon dioxide is being discharged every year."¹¹ Advanced technology has created the problem of waste disposal and industrialization has now become a great hazard to the environment, as well as, to humanity.

Nature of Environmental Pollution

¹⁰Chauhan, Sangeeta & Saroj Yadav: "Environmental Degradation: The Global Challenge" Learning Community (An International Journal of Educational and Social Development), New Delhi, Publication, Vol.2. 1 April 2011, p.82

¹¹Saxena, H. M, *Environmental Geography*, Rawat Publication, Jaipur, 1999, P. 68

Environment is an integrated system in which all elements act and react in such a way that balance is maintained. Man is a user of the environment for his development activities and always disrupts this natural system and creates a background for environmental pollution. According to Paul Harrison “rape of the earth has been central to the past progress of western civilization.”¹² Science and technology is definitely benefitting to mankind in numerous ways but simultaneously creating several challenges for the environment. The problem of environmental pollution is mostly related to urban areas. Pollution is classified into (a) natural pollution (b) artificial pollution (man-made pollution). There are certain natural phenomena which caused environmental pollution. These phenomena are soil erosion, volcanism, floods, droughts, famines, desertification, thunderstorms, cyclones etc.

Man and his activities are responsible for environmental pollution “Right from the dawn of human civilization man has used nature not only for his existence and fulfillment of his necessities but also exploited it and to a certain extent, destroyed the ecosystem.”¹³ Nature has its own system of recovery or maintenance of eco-balance but when over exploitation is done it fails to recover and many problems emerged. Now the whole world is facing the consequences of environment pollution. The process of environmental pollution started with the development of socio-economic activities e.g.-use of chemical fertilizers in agriculture, industrialization, transport, civil construction including roads and buildings, etc. In India, in 1951-52 when first Five Year Plan was initiated production of food was about 52 million tones. This was raised to 66.85 million tons in 1955-56 at the end of the First Five Year Plan, which further increased to 138.41 million tons in 1987-88.¹⁴ This development was possible due to the increasing input of fertilizers like-nitrogenous and phosphates, and also with proper irrigation through canal system and through tube wells. The use of increasing amount of fertilizer to increase the productivity of land and contributed to water pollution through soil pollution as well as air pollution.

2.3 Types of Environmental Pollution

Various forms of environment pollution such as air, water, soil and noise pollution are discussed below.

¹² Ibid p. 69

¹³ Ibid p 81

¹⁴ Pandey, G. N, *Environmental Management*, Vikas Publishing House, Noida, p. 1

Air pollution

“Normal air is composed of 78% of nitrogen gas, 20.93% of oxygen gas and 0.03% of carbon dioxide; the remaining is made up of other gases. In addition to these gases, air also contains water vapor and suspended matters such as bacteria, dust, spores etc.”¹⁵ Air pollution is known as “a substance in the air that can cause harm to humans and the environment. Environmental pollutants can be in the form of solids particles, liquid droplets or gases.”¹⁶ Rapid and mass urbanization, advance technology development, emission of greenhouse gases from vehicles and industries, burning fossil fuels, extreme use of pesticides, the use of petrol and diesels, acid rains (caused when sulfur and nitrogen dioxides combine with atmosphere moisture to produce highly acid rain), snow, hail or fog, CFC gases emitted by refrigerators are the main causes of air pollution.

The bad effects of air pollution appear in several ways such as global warming, shifting of agricultural belts, climate change, acid rain, increase of epidemics like AIDS, skin diseases, cancer etc. Climate change is causing excess rains in Barmer (Rajasthan) and drought in Bihar and Assam. Due to sake of global warming glaciers are melting and the sea/ocean level is rising. Increasing levels of CFCs in environment also pose dangerous situation viz. depletion of ozone layer.

Noise pollution

Noise is an unwanted sound. Noise is a disturbance to the human environment that is escalating at such a high rate that it will become a major threat to the quality of human lives in the times to come. Major sources of noise pollution are the horns of vehicles, aircrafts, fire-crackers, sirens, loudspeakers, and machinery. According to a survey Delhi, Mumbai, Kolkata are the noisiest cities in the world.¹⁷ The adverse impacts of noise pollution are hearing damage, sleep interference, work interference and annoyance.

Soil pollution

Soil pollution means the degradation of earth surface. “The main reason of soil pollution is mining activities, improper disposal of solid wastes by industries, societies and usages of harmful chemicals in contemporary agricultural practices. Mining of coals, iron and other lime stones and

¹⁵Biswal, Tapan, *Human Rights Gender and Environment*, Viva Books Private Ltd, New Delhi, 2007 p. 405

¹⁶Raju, Mallikarjuna, *Global Environmental Problems*, Adhyan Publishers, New Delhi, 2009, P. 53

¹⁷www.Lawisgreek.com/noise-pollution-and-laws

stones for construction have resulted in imbalance in soil environment. Fly ashes from thermal power plants result in water and soil pollution.”¹⁸ Inadequate disposal facilities careless growth of water generation from all the avenues has created havoc to the quality of soil environment. Destruction of forests to build up road, industries, housing colonies have added fuel to the problem. Soil pollution gives birth to underground water pollution.

Water pollution

Water pollution simply means contamination of water due to any external material. In other words “any change in the physical and chemical property of water due to addition of foreign, unwelcome substances or impurities is termed as water pollution.”¹⁹ The Water (Prevention and Control of Pollution) Act, 1974, in Section 2(e) states: “Water pollution means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.” With the fast increase in our industrial civilization, the demand for water is also increasing day by day. Growing population, urbanization, improper sewage disposal, unsafe industrial wastes, radioactive wastes have polluted water resources. This problem is equally important in both developing and developed nations.*

2.4 Causes of Environmental Pollution

The causes of environmental pollution are many and varied. Some of the more important causes are related in this section.

Population

¹⁸ Biswal, Tapan, *Human Rights Gender and Environment*, Viva Books Private Ltd, New Delhi, 2007 p. 405

¹⁹ Ibid p. 410

* The problem of water pollution is explained in detail in Chapter-3 of this research report.

India is the second most populous country in the world. In 1951 the population of India was 361 million and in 2011 the population is more than 1.21 billion. It accounts for more than 15% of the world's population in just about 2.4% of the world land area. Population and pollution are inter-related in the sense that growing population creates additional demand on the existing limited sources. This results into over-exploitation of natural resources; "Each year human beings are increasing but the amount of natural resources which to sustain this population are limited. Increased population creates additional burden on existing natural resources. Resources are scarce and limited so to improve the quality of human lives, and to eliminate mass poverty remains finite need to increase their productivity. On the other hand expanding knowledge increases the productivity of resources. So, measures adopted in short run (and cannot) be compatible with nature e.g. chemical fertilizers to increase agriculture productivity. It leads to environment pollution."²⁰ Thus, the demands are fulfilled at the cost of improving the productivity of existing limited resources. This results in constantly increasing pressure on natural resources which leads to degradation of land, air and water.

The problem of availability of land is faced by the population. India counts for 15% of the world's population, while its land area constitutes only 2.4% of the world area. As such, per capacity of the land in the country, is 0.48 hectare as against 4.41 hectares in the USA, 8.43 hectares in the USSR and 0.98 hectare in China.²¹ Furthermore, the population in India is concentrated in well-watered plains, creating further problems.

Lack of potable drinking water is a serious problem for a large part of our population. In 1947 the percentage of rural population having access to potable water, was only 6%, it rose to 31% in 1980. In urban areas, the percentage was 60% in 1977 and 51.75% in 1988.²² More than half of our population is still to be provided the basic need of potable water supply. Clean air, clean drinking water and clean nourishing food are the prerequisites of a decent existence, so there is need of proper management to abatement of pollution.

Industrialization

²⁰Shyam, and Armin, *Environmental Law and Policy in India*, Oxford Press, New Delhi, 2001, p. 8

²¹Pandey, G. N, *Environmental Management*, Vikas Publishing House, Noida, P. 4

²² Ibid. P. 4

Necessity is the mother of invention. Man has been inventive right from the beginning. In order to meet his requirements and to raise his living standard, he has been carrying various activities. Now he is producing more and more through industries. Industrialization which has been responsible for increasing availability of consumer items for enhancing standard of living, has contributed significantly to environmental pollution. "Air pollution is a gift of industrialization due to discharge of toxic fumes, gases, smoke and dust. Untreated disposal of sewage from industries leads to water pollution."²³ According to one estimate 2000 croretones of carbon dioxide goes into the atmosphere every year, which cannot be consumed by the trees on earth, some of it continues to remain in the atmosphere. It is believed that in the next 100 years, the atmosphere of the earth due to green house effect of carbon dioxide may increase by 3 to 7°C. This increase in temperature may melt polar ice by which the water level in oceans will go up. This will cause flood in low lying areas and may even submerge many islands. Thus, in present era, industrialization is one of the important causes of environmental pollution.

Deforestation

Deforestation is the conversion of forest areas to non-forest land. The ultimate cause of most deforestation is increased food production. Cattle rearing, permanent crops, shifting cultivation and colonization are equally important to global tropical deforestation. Forested land cannot produce much as cleared land. According to British environmentalist Norman Myers, 5% of deforestation is due to cattle reaching, 19% to heavy logging, 22% due to growing palm oil plantation and 54% due to slash and burn farming.²⁴ Deforestation is the cause of environmental pollution because trees consume carbon-dioxide and produce oxygen. Reduced forest cover results into increasing the green house effects and global warming. Further deforestation also affects the water cycle adversely. "Deforestation reduces the content of water in soil and groundwater as well as in atmosphere. Deforestation also reduces soil cohesion, so that erosion, flooding and landslides ensue. All these are responsible for environmental pollution. The adverse effect of deforestation can be seen as loss of biodiversity, 80% of biodiversity is found in the forest."²⁵ Biodiversity is helpful for the protection of the environment.

²³ <http://dailywiki.org/health-problems-due-to-industrialization> 8.5.2011

²⁴ Mallikarjuna, Raju, *Global Environmental Problems*, Adhyan Publishers, New Delhi, 2009, p. 189

²⁵ <http://en-wikipedia.org/wiki/deforestation> 2.5.2011

Urbanization

The present century is the century of urban revolution. People are moving towards urban areas in the whole world. Lack of opportunities for gainful employment in village and ecological stresses is leading to an ever increasing movement of people to urban areas. The urbanization of India is faster than that of the other countries of the world. By 2030, 40.76% population is expected to be living in urban areas.²⁶ The result is over-crowding of built up areas and growth of unauthorized colonies, leading to slum formation. Rapid increase of urbanization puts additional burden on the existing limited resources. This results into increased pollution of air, water, soil, noise and etc.

Poverty

Mrs. Indira Gandhi a former prime minister of India announced at the United Nations Conference on the Human Environment held at Stockholm on June 14, 1972 that poverty is the biggest polluter of environment.²⁷ Poverty is said to be both cause and effect of environmental pollution. The circular link between poverty and environment is an extremely complex phenomenon. Inequality may foster unsustainability because the poor, rely on natural resources more than the rich, deplete natural resources faster as they have no real prospectus of gaining access to other types of resources. Moreover, degraded environment can accelerate the process of impoverishment, again because the poor depend directly on natural assets.²⁸

2.5 Consequences of Environmental Pollution

Human interactions with a variety of resources and their excessive exploitation have resulted in to considerable irreversible damage to our environment. Some of the anthropogenic changes have assumed global proportions and become issues of great concern. A few of these issues have been discussed here.

Depletion of Ozone Layer

Ozone is a gas that's highly concentrated in the stratosphere, between 10 and 50 km above sea level where it is known as the ozone layer. Without ozone layer the life on earth is not possible. It

²⁶ Saxena, H. M. *Environmental Geography*, Rawat Publication, Jaipur, 1999, p. 70

²⁷ <http://indialawyers.wordpress.com/2009/05/24/judicial-activism-and-the-role-of-green-benches-in-India/>, 17.3.2011.

²⁸ Chauhan, Sangeeta, & Saroj Yadav, "Environmental Degradation: The Global Challenge, Learning Community" New Delhi, Vol. 2. 1 April 2011. P. 82

protects us from the damaging ultra-violet radiation of the sun. Atmospheric ozone is continually broken down and reformed; until recently the process has been in a state of natural balance. This balance has been upset as a result of human activity; specifically, the manufacture and use of a group of synthetic chemical substances known as CFCs and HCFCs. Increased use of air-conditioners and refrigerators results into increased release of CFC substances in the environment, which in turn, damage and deplete the ozone layer at a rate faster than it is formed. These compounds used in air conditioners, refrigeration and solvents the result is that the ozone layer is being broken down more quickly than it is forming.²⁹ In India the CFC consumption is 2 percent. The increase in ozone layer depletion will invite the harmful ultra violet rays from the sun that's consequences can be seen on human life, plants, animals, marine life and on ecosystem. The ultraviolet rays damage the genetic material DNA and also cause cancer. The depletion of ozone layer can be controlled by reduction in CFCs product.

The Greenhouse Effect

Greenhouse effect occurs due to emission of certain gaseous pollutants in the air which after the heating of the atmosphere resulting into an increase causes to rise in global temperature. In simple word the warming is called the greenhouse effect. The major greenhouse gases are water vapour, carbon dioxide, methane, nitrous oxide and CFCs. These released by human activities like mining, forestation, industrial production and fossil fuels. Carbon dioxide that is emitted 98% is the main cause of warming in the earth's temperature. Industrial development is responsible for the increase of GHG. Developed countries (80%) are more responsible for emission of greenhouse gases than the developing countries (20%). The scientists are the opinion that the earth will be hotter by 2 degree to 4 degree by the middle of the 21st century.³⁰

The blanket of atmosphere protects living beings from the fatal radiations of the sun. The consequences of greenhouse are melting of glaciers and polar ice, sea level is rising and climate is changing. Climate change will result in loss of biodiversity and production of crop. Rise in sea level will result in submergence of many coastal areas. It will not only affect the ecological balance but will pose a threat to the people. The important contributor to global warming is the increase in

²⁹ Joseph, Kurian, & R. Nagendram, *Essentials Environmental Studies*, Pearson Education, Patparganj, Delhi, 2004, p. 185

³⁰ Saxena, H. M. *Environmental Geography*, Rawat Publication, Jaipur, 1999, p. 182

atmospheric CO₂ levels due to human activity. To remedy the situation there is need to reduce CO₂ emissions by reducing the use of fossil fuels. Reducing fossil fuel use will also reduce emission of methane, nitrous oxide and ozone. CO₂ is consumed by plants and trees, reversing deforestation and implementing reforestation programmes may reduce in levels in the atmosphere.

Acid Rain

‘Acid rain’ is a broad term used to describe several ways that acids fall out of the atmosphere. The term was first coined in 1872 after a link was made between sulphur dioxide emissions from the burning of coal, in Manchester to the acidification of nearby rainfall.³¹ Sulphur dioxide and nitrogen oxides are the primary causes of acid rain. Acid rain occurs when these gases react in the atmosphere with water, oxygen and other chemicals to form various acidic compounds. Normal rainfall is slightly acidic (pH 5.6). Rainfall less than pH of 5.6 called acid rain. Acid rain affects the environment directly. When its combined with fog and dust, it produces smog. Acid rains have its adverse effects on lakes, streams, aquatic organism, ecosystem, plants and on human health.

2.6 Efforts for Environmental Protection

Environment defines the man-made boundaries into which the world has been divided. Any adverse impact on environment in any part of the world will have effects for the whole of the world. The efforts to environmental protection are, therefore, taken up both by the world community as also by the nation-states.

2.6.1 International Efforts

Industrial development led to closer interaction between humans and their natural resources, such as air, land and water. Newer technologies and industrial processes, doubtless, gave better economic returns and elevated the social standards of living by providing material comforts. The burgeoning growth of industries in developed countries resulted in faster depletion

³¹ Ibid p. 187

of resources and created environmental problems such global warming, climate change, desertification, loss of biodiversity and so on, have blown up into burning global issues. These global issues call for global action plans to restore environmental quality. From last three decades several global initiatives for sustainable development have been taken in this direction.

Stockholm Conference on the Human Environment, 1972

For conservation and preservation of the environment, United Nations held a conference on ‘Human environment’ at Stockholm from June 5-16, 1972, and having need for common outlook and for common principles to inspire and guide people of the world to save and preservation of the environment. The UN Conference was held at Stockholm, may be said to be ‘the Magana Carta’ on human environment. The Principles or ‘The Magna Carta’ on environment are the guidelines for the world government for improving and protecting the present day environment for the benefit of all people and their posterity.

The following principle was adopted in The United Nations Conference on ‘Human Environment’

- Man has the fundamental right to freedom, equality and adequate condition of life.³²
- The natural resources of the earth including the air, water, land, flora and fauna and eco-system of the universe must be safe-guarded for the benefit of the present and future generations through careful planning and management.³³
- The capacity of the earth to produce vital renewable resources must be maintained and restored.³⁴

General Assembly’s Resolution of December 15, 1972

The United Nations General Assembly passed a resolution on December 15, 1972 emphasizing the need of active co-operation among nation states in the field of human environment. This resolution has designated June 5 as the ‘World Environment Day’ and has urged governments and

³² Principle 1 of the declaration

³³ Principle 2 of the declaration

³⁴ Principle 3 of the declaration

organizations in the United Nations system to undertake on that date every year worldwide activities reaffirming their concern for the preservation and enhancement of the environment.³⁵

Charter of Economic Rights and Duties of States, 1974

In 1974 was adopted the Charter of Economics Rights and Duties of States. One of its article runs:

“The protection, preservation and the enhancement of the environment for the future generations is the responsibility of all States. All States have the responsibility to ensure that the activities within their jurisdiction or control do not cause damage to the environment of the other states or of areas beyond the limits of national jurisdiction. All states should cooperate in evolving international norms and regulations in the field of the environment.”³⁶

Nairobi Declaration, 1982

Again the world community of States assembled in Nairobi from June 10 to 18, 1982, to commemorate the tenth Anniversary of the Stockholm Conference on human environment. Representatives of 105 nations made a declaration of Special Charter on May 18, 1982 known as Nairobi Declaration. It expresses serious concern about the world wide environment problems and recognized the urgent necessity of intensifying the efforts at the global and national levels to protect and improve the environment.

World Water Conference of 1977

The World Water Conference was held in Mardel Plata, Argentina in 1977. The Conference called upon the U.N. to establish a decade long programmes with a goal of providing clean drinking water

³⁵ Diwan Paras, “Environmental Protection: Issues and Problems” in Diwan, Paras, & Piyushi Diwan, *Environment Administration, Law And Judicial Attitude*, Deep & Deep Publications, New Delhi, 1996, p. 13

³⁶ Diwan, Paras, & Piyushi Diwan, *Environment Administration, Law And Judicial Attitude*, Deep & Deep Publications, New Delhi, 1996, p. 23

and sanitation for all. The Decade was launched 'International Drinking Water Supply and Sanitation Decade' on November 10, 1980.³⁷

Brundtland Report, 1987

The World Commission on Environment and Development was set up by the General Assembly of the United Nation in the year 1983. The idea of 'Sustainable Development' was first developed as a concept in 1987, with the publication of Brundtland Report. The Brundtland Report analysed the economy-environment inter-relationship. It defined sustainability as the -rearrangement of technological, scientific, environmental, economic, and social resources in such a way that the resulting heterogeneous system can be maintained in a state of temporal and spatial equilibrium. "The report not only provide impetus to sustainable development but also brought into focus the common concern of the people, common challenges which we face the world over and the common endeavours too, which we need for peace, security, development and environment."³⁸ Thus, the Brundtland Report represented both a deepening and an elaboration of the ideas discussed in Nairobi in 1982.

UN Conference on Environment and Development (UNCED) in Rio De Janeiro, 1992

Five year after the Brundtland Report, the United Nations General Assembly asked a report on progress made towards sustainable development and convened the United Nations Conference on Environment and Development held from June 3-14, 1992 in Rio De Janeiro in Brazil, the Rio earth Summits. Delegations from 175 countries attended the conference. More than 1100 Non-Governmental Organizations (NGOs) were officially accredited to the conference and nearly 200 of them substantially influenced the resultant documents. The major outputs of the conference were-

- (1) The Rio Declaration that contains 27 concise and important principles and constitutes the most concrete and succinct document on global environmental issues

³⁷Shastri, Satish, *Pollution and the Environmental Law*, Printwell Publishers, Jaipur, 1989, p. 89

³⁸Biswal, Tapan, *Human Rights Gender and Environment*, Viva Book Private Ltd, New Delhi, 2007, p. 372

- (2) Agenda 21 that reflects a global consensus and political commitment on development and environment cooperation and contains the Action Programme for Sustainable Development
- (3) Rio Conventions on Climate Change and on Biological Diversity.
- (4) Statement of Forest Principles
- (5) Establishment of the Commission on Sustainable Development

The Rio Principles

The Rio Declaration is a document consisting of a preamble and 27 articles. It is a framework for sustainable development, focusing on humans and their right to healthy and productive lives in harmony with nature. The selected principles from the Rio Declaration are-

The '**public trust doctrine**' means that government must act to prevent environmental damages. This doctrine implies the right of the public to require that governments act in such circumstances on their behalf. The '**precautionary principle**' holds that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation. The principle of '**inter-generational equity**' is at the heart of the definition of sustainable development. It requires that the needs of the present are met without compromising the ability of future generations to meet their own needs. The '**subsidiary principle**' requires that decision should be made by the communities affected or on their behalf, by the authorities closest to them. The polluter pays principle suggests that the polluter should bear the cost of preventing and controlling pollution.³⁹

Agenda 21

Agenda 21 provide a format on the conservation and preservation of our environments and natural resources-

- (a) Agenda 21 is the blueprint for sustainability in the 21st century.
- (b) Deals with poverty, over consumption, health and education.

³⁹ Joseph, Kurian, & R. Nagendram, *Essentials Environmental Studies*, Pearson Education, Patparganj, Delhi, 2004, pp. 344-345

- (c) It reflects a global consensus and political commitment at the highest level. Its successful implementation is the responsibility of all governments, their national strategies, plans, policies, and processes are important in achieving this goal.⁴⁰

Framework Convention on Climate Change

It offers an international framework for reducing greenhouse gas emission. The industrialized countries indicated their intention to reduce greenhouse gas emission and CO₂ emission in particular. During the Summit, most countries commit to return to 1990 levels of emission or below by the year 2000.

The Rio Convention on Biological diversity

The objectives of this convention are to:

- Anticipate, prevent, and attack the cause of significant reduction or loss of biological diversity at source because of its intrinsic value and because of its ecological, genetic, social, economic, scientific, educational cultural, recreational and aesthetic value
- Promote international, regional and global cooperation among States and inter governmental organizations and the non-governmental sector.

Forest management

One of the key agreements reached at the 1992 Rio Earth Summit was the Principles of Forest management. The principles of forest management stated that forest with their complex ecology, are essential to economic development and the maintenance of all forms of life. The Principle of Forest Management includes a number of points.

- All nations should take part in “the greening of the world” through planting and conserving forests.
- Forests should be managed in order to meet the social, economic, ecological, cultural and spiritual needs of present and future generations.

⁴⁰ Biswal, Tapan, *Human Rights Gender and Environment*, Viva Book Private Ltd. New Delhi, 2007, p. 381

- Unique examples of forest should be protected, for example ancient forests and forests with cultural, historical, spiritual and religious importance.
- Pollutants that harm forests should be controlled.
- Forestry plans should consider the non-economic values of forests and the environmental consequences of their management. Forest degradation should be avoided.⁴¹

Rio +5, 1997

Rio+5 meet was held from the March 13-19, 1997 at Rio de Janeiro, Brazil. This forum brought together committed stakeholders and provided many non-governmental organizations with an opportunity to reflect and to determine how to translate sustainable development from agenda to action, in the spirit of the Earth Summit. The four key objectives of Rio+5 were:

- **Clarification:** to explore effective ways of clarifying and dealing with the complex issues and processes of sustainable development
- **System integration:** to help move societies from the management of sustainability issues to the management of systems that address them in an integrated way, across national borders and at every economic level
- **Implementation:** to advance beyond international policy dialogues on sustainability by adopting pragmatic approaches for implementing sustainability from the ‘ground up’ at local and national level.
- **Cooperation:** to generate multi stakeholder initiatives and alliances that will build and strengthen management and governance systems for sustainable development.

Kyoto Environmental Summit on Global Warming 1997

After Rio Declaration a conference on climate change was held in Kyoto (Japan) on the 11th of December, 1997. To review the progress made in five years and to chalk out plans and fix strategies and objective for future. The protocol was adopted to help combat the adverse effects of climate

⁴¹ Ibid p. 379

change or global warming. Developed nations pledge to reduce emissions by an average of 5% by the period 2008-12 with wide variations on targets for individual countries. The developing countries expressed the view that their economic condition do not permit to accept such condition. Thereafter, the developing countries including (China and India) were, for time being, exempted from such conditions. US Senate immediately declares it will not ratify the treaty. Due to some reasons it was enacted or enforced in February 16, 2005.

Rio +10 or Johannesburg Summit 2002

The Summit in Johannesburg, South Africa, was held from August 26 to September 4, 2002. It is one of the largest meetings ever held on the integration of economic, environmental, and social decision making. The Summit brought together an incredible range of interests from heads of State government to leaders and experts from each of the major groups. The summit reaffirmed sustainable development as a central element of the international agenda and paved the way for the practical and sustained steps needed to address many of the world's pressing challenges.⁴² By any account, the Johannesburg Summit has laid the groundwork and paved the way for action. Yet, among all the targets, timetables and commitments that were agreed upon at Johannesburg, there were no concrete solutions to aid the fight against poverty and continually deteriorating natural environment.

Cancun Climate Change Conference 2010

United Nations Climate Change Conference was held in Cancun, Mexico, from November 29 to December 10, 2010. All major economies agree to cut emissions and help developing countries to tackle climate change as part of an “historic” deal to help stop global warming. The Cancun Deal comprised-

- All countries to cut emissions
- Easier transfer of low carbon technology and expertise to poor countries
- China, the US and all major emitters to have actions inspected

⁴² Joseph, Kurian, & R. Nagendram, *Essentials Environmental Studies*, Pearson Education, Patparganj, Delhi, 2004, p. 355

- Scientific review of progress after five years.⁴³

Thus, it is clear from the above discussed agreements that the environmental problems represent the crisis of survival of human beings. Sustainable development looks at the present and future simultaneously. The international efforts will help in building a global village. It will be just and human society. Until, or unless human beings come forward to help each other the objective of sustainable development can never be achieved.

2.6.2 Efforts by Government of India

At national level, after Stockholm Declaration many laws and policies made by Government of India for environment protection. These efforts include ones*.

- Constitutional provisions
- Statutory Provisions
- The Water Act, 1974
- The Environment Protection Act, 1986
- The Water Cess Act, 1977
- The Ganga Action Plan 1985,
- National Water Policy 2002 etc.

⁴³<http://www.telegraph.co.uk/earth/environment/climate> 25.2.2011

*These efforts are discussed in Chapter-3 of this research report.