



Environmental Justice and Human Rights

Diploma in Human Rights

UTTARAKHAND OPEN UNIVERSITY

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Edition- 2026, Pre-Publication copy for Limited Circulation ISBN- XXXX
Publication- Directorate of Studies and Publication, Uttarakhand Open University, Haldwani,
Nainital.
E- Mail: studies@uou.ac.in

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Unit 1: Introduction to Environmental Human Rights

1.0 Learning Objectives

1.1 Introduction

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1.0 Learning Objectives

On completion of this unit you should be able to understand

- The need of environmental sciences.
- What is environment, and the need for interdisciplinary approach to study?
- Types of environment.
- Importance of environmental studies

1.1 Introduction

Environmental science is an interdisciplinary subject created by the needs of rapid development of the industrial era. In the last century, especially last decades several serious environmental issues have become a focal point of the scientific community. These are mainly pollution leading to global warming, ozone layer depletion, acid rain; and deforestation leading to water crisis, desertification, global warming: also rapid population growth leading to depletion resources.

Above circumstances require a holistic knowledge about working of our environment supporting life on this planet and thorough understanding the changes causing problems. Since no single existing subject covered the above lacunae in knowledge completely, hence environmental science as a separate subject was required to understand the complex subject and find the solutions.

1.2 Definition

The word environment is derived from the French verb *environed*, which means to “encircle” or “surround.” Thus, our environment can be defined as the physical, chemical and biological world that surrounds us, as well as the complex of social and cultural conditions affecting an individual or community.

Environmental science is defined as an interdisciplinary academic field that integrates various academic fields (particularly sciences) to study the structure and function of our life-supporting environment and to understand causes, effects, and solutions of different types of environmental problems. In other words, environmental science is the scientific study of all the components or factors that make or influence our life-supporting biophysical environment. Environmental sciences involve multiple disciplines, like Biology, Geology, Chemistry, Physics, Engineering, Sociology, Health, Anthropology, Economics, Statistics, Philosophy, Ecology.

In simple terms environmental sciences deals with every issue that affects an organism. Environmental science is methodological study of the environment and includes the study of all biophysical as well as anthropogenic conditions or circumstances under which an organism lives.

Environment, Ecology and Ecosystem: Environment, Ecology and Ecosystem are three different terms. But they are interrelated. And we must understand all of them to understand environment.

Ecology - At the same time we should understand Ecology which is understanding interaction of an organism and its environment.

The term ecology was coined in 1866 by the German scientist Ernst Haeckel.

Ecology is the branch of biological science concerned with the relationships and interactions between living organisms and their physical surroundings or environment.

Ecology comes from the Greek words *oikos* (house or place where one lives) and *logos* (study of). Ecology means the study of the “house” in which we live i.e. our immediate surroundings which envelop us and with whom we interact with us on everyday basis.

Ecology can be defined more specifically as the “Study of the interactions between organisms and the non-living components of their environment or “Study of interrelationship between the organism and Environment”

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The basic unit of ecology is ecosystem. Living organisms and the environment in which they live and with which they exchange materials and energy combine to make up an ecosystem. An ecosystem comprises of the biotic components – the living plants and animals including all the microbes and the abiotic components – air, water, minerals, soil, temperature, humidity etc. that constitute the environment. Third and essential component of most natural ecosystems is energy, usually starts in the form of sunlight, rarely it may be chemical energy. Common examples of land-based or terrestrial ecosystems include forests, deserts, jungles, meadows and alpine and semi-alpine ecosystems. Water-based or aquatic ecosystems include streams, rivers, lakes, marshes, estuaries and oceanic ecosystems. There are no specific limitations on the size of an ecosystem, and the boundaries are also not well defined in many cases. A small water body can be studied as a separate ecosystem. A desert comprising hundreds of miles or large oceans and even the whole surface of earth can be viewed as an ecosystem.

Structural units of ecology: The basic structural units of ecological organization are species and populations. A biological species is defined as all the organisms potentially able to interbreed under natural conditions and to produce fertile offspring. A population defined as of all the members of a single species occupying a defined geographical area at a particular time. An ecological community is composed of a number of populations that lie and interact within a defined region.

Scientists like to use term natural environment as a better term to use given the common use of the word environment. It is a known fact that the Earth includes a large Environment. Definitely, any organism has a relationship with its environment. Humans have a unique working relationship with domesticated animals like cows, chickens, dogs etc. This study of how the existence and activities of an organism influence its environment and the vice versa is called ecology.

Ecosystem is a large geographical area where both biotic and abiotic components interact with each other. E.g. Desert, Ocean, Sea etc.

- 1) What is environment?
- 2) What we study in environmental sciences?
- 3) What is ecology?

1.3 Types of Environment

Before discussing types of environment we must know what constitutes the environment. Environment is constituted of following elements

1) Physical elements like land, sunlight, temperature, air, elevation, latitude, water bodies, climate soils, rocks and minerals. They interact amongst themselves and with biological elements to constitute unique environment at a place. It can be divided into three spheres

- i) The lithosphere (solid earth)
- ii) The hydrosphere (water component)

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iii) The atmosphere (gaseous component)

2) Biological elements such as plants, animals, microorganisms and humans constitute the biosphere. They interact amongst themselves and with physical elements. Biological components can be categorized into

i) Plants (flora)

ii) Animals (fauna)

3) Cultural elements such as economic, social and political elements are essentially man-made features. They are the latest entrants to the environment and affect the system.

As such the types of environment can be decided on the constituents' separately or the unique small spatial units.

Classification on basis of physical elements.

i) Lithospheric Environment

ii) Hydrospheric Environment

iii) Atmospheric Environment

Classification into small spatial systems like

i) Mountain Environment

ii) Glacier Environment

iii) Plateau Environment

iv) Coastal Environment

v) Oceanic environment

From the conceptual point of earth being a unique planet to support life environment can be classified into two broad types:

I) Essential life-supporting biophysical environment: It includes all the biophysical entities as well as the processes that contribute to providing all humans and other living beings the basic material needs of life, that is, oxygen, water, food, and habitat. In fact, the concepts of environmental sciences are based on this meaning. The "essential life-supporting biophysical environment" is also termed as "environment", "natural environment", "biophysical environment", "biosphere", or "ecological system".

II) Non-essential life-assisting environment: It includes all the entities or processes that assist human life in various ways, but cannot be considered essential for the physical survival of life on this planet. It includes social systems, language, technology, economic system, education, and various aspects of human civilization. Although we can survive physically, without these entities the life will be largely in wild or natural form. "Non-essential life-assisting

environment” is also known as “anthropogenic environment”, “social environment”, “man-made environment”, or “built environment”.

Classification on basis of life

- 1) The natural surroundings of an organism, both living and physical are its environment. Physical objects like land and manmade object, light and other forms of energy, water, air etc. which surround us, are our physical environment. It is classified as “abiotic” environment.
 - 2) Humans, other animals, plants and microbes surrounding us comprise our living environment. It is classified as “biotic” environment.
- i) What are constituents of environment?
 - ii) Define types of physical environment?
 - iii) What is biotic and abiotic environment?

1.4 Importance of environment

The importance of environment studies can be judged with the fact that earth is the only planet known to support life. It is a rare place in known universe with delicate balance of optimum temperature, radiation, atmosphere and water to support life. Also on earth the resources are limited. This applies to all components of environment, coming in stress to the point of crisis due to recent exponential development. Examples are water crisis, energy crisis, agricultural crisis, housing scarcity, and practically scarcity of almost all natural resources.

Also the issue of pollution is important, be it air pollution, water pollution, toxic landfills, noise pollution, etc.

The health issues arising out of pollution and climate change are affecting the majority population of the world. Smog is regularly affecting north India every winter and affecting health of millions of people. We are in constant danger of environmental disasters like Bhopal gas tragedy, Endosulfan tragedy in Kerala, Chernobyl reactor leak, Fukushima reactor leak etc. We yet not able to understand fully the health implications of these disasters many of which occurred several decades back.

The new infectious diseases starting from AIDS epidemic followed by Ebola, MERS, SARS and now ongoing COVID 19 pandemic, are challenging the very existence of mankind. They are also raising serious questions on our unsustainable lifestyles and bringing into focus the perils of rapid globalization. The advances in transportation industry have not only contributed to pollution but also blown local environmental phenomenon into global one. In future environmental sciences may become an integral part of epidemiology for managing health disasters like the current COVID crisis.

With the advancement in fields of satellite imaging and computations now it has become possible to predict the fickle weather systems within reasonable limits. This has greatly helped aviation, shipping sectors and fishing a lot. It has also helped a lot in managing disasters.

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At the same time human activities have interfered a lot in weather phenomenon bringing into play new variables into an already uncertain system. Hence environmental sciences are going to play a major role in metrology in future.

The rapid and indiscriminate development in past century has made the study of environment very important for all disciplines. Environmental sciences involve multiple disciplines, like Biology, Geology, Chemistry, Physics, Engineering, Sociology, Health, Anthropology, Economics, Statistics, Philosophy, Ecology. The importance of environmental sciences is for all of them.

The objectives of environmental sciences are

1. Comprehensive knowledge of environmental issues and how they affect us and what is our role in them.
2. Understanding pollution and its implications. To create a pollution-free environment (that is, clean air, water, land, and food) by adopting different methods of preventing and controlling pollution.
3. Optimal utilization and conservation of our natural resources such as water, forest, minerals, and fossil fuels. Reducing wastage and recycling.
4. Adopting eco-friendly lifestyles by knowing environmental implications of one's activities, preventing and controlling pollution, and utilizing the resources efficiently and minimizing wastages.
5. Encouraging eco-friendly industries by adopting clean and efficient technologies and installing pollution control systems.
6. Solving critical global environmental issues like global warming, climate change, ozone-layer depletion, desertification, and energy crisis by using interdisciplinary knowledge and approach.
7. Sustainable developments by ensuring equal distribution of natural resources in all classes and conserve the natural resources for future generations, as well as by conserving delicate nature in every way possible.

The importance of the subject can be summed in three burning issues:

1. International importance of environmental issues especially pollution: environment issues like global warming and ozone depletion, acid rain, marine pollution and biodiversity must be tackled with international efforts and cooperation. These cannot be solved by the efforts of single society region or nation.
2. Problems due to unsustainable development: Recent uncontrolled development, led to Rapid Unplanned Urbanization, Unregulated Industrial Growth, Clogged Transportation Systems, Unsustainable Agriculture and Housing problems for masses etc. Developed world has phased out these issues locally. However, to cleanse their own environment they managed

to move the 'dirty' factories to developing nations. Rapid skewed unequal growth is an enormous issue for the developing nations and is also affecting developed world to some extent.

3. Explosively increase in population: In the developing world especially India population explosion is biggest issue. India with 16 per cent of the world's population and only 2.4 per cent of land area exerts a very heavy pressure on the natural resources including land and scarce water. Agricultural experts have recognized soil health problems like deficiency of micronutrients and organic matter, soil salinity and damage of soil structure. Water crisis is a major issue not only in India but many developed nations as well.

Future avenues

- Disaster management.
- Assessment of impact on epidemiology of both infectious and non-infectious diseases.
- Occupational health.
- Assessment of environmental changes in weather.

We should understand that development of environmental science is still in nascent phase and applications both academic and practical shall be far greater than what we currently use it for.

More than any discipline environmental studies have a major role of public awareness. That's why it has become subject right from pre-school up to university. People have to be made aware of changes around them. How the environmental changes affect their lives? How their actions are contributing to the disastrous changes in environment? What is the cost of inaction? How they can contribute in improving environment? Ultimately only collective action of whole mankind can only stop the downward spiral of changes occurring to our environment. And nobody can escape the ill effects of this biggest man-made disaster.

Governments across the world are now focusing on this issue more seriously than ever. Indian government has a separate ministry for Environment and separate green tribunal for the same. Both are contributing in not only direct efforts to conserve environment but government is taking numerous steps to educate public about the environmental pollution and resource crisis. State governments are also acting vigorously in this field.

Intergovernmental panels like United Nations Environment Programme (UNEP) and IPCC are co-coordinating between all nations on this sensitive issue.

1.5. Scope of Environmental Sciences

Environmental sciences knowledge is of tremendous use in most of the areas of development. These areas are studied as scope of the subject. Environmental science has a vast scope since it covers a wide range of subject matters or issues related to our complex life-supporting systems. The areas of applicability define the career opportunities related to the subject.

Major areas of applicability of the subject are

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- management of natural resources, water crisis, energy crisis,
- conservation of ecosystem and biodiversity, desertification
- prevention and control of pollution, including climate change, ozone layer depletion
- managing development in terms of population, urbanization, health

In last few decades, environmental science is considered important for many economic activities. This has given rise to job opportunities in this field.

Major career options related to the subject are as follows:

I. Industries: Industries need to comply with numerous environmental norms. Hence, environment experts are required to guide the industries for controlling pollution, adopting clean technologies, proper waste disposal, and carrying out environmental audit. CPCB and norms of green tribunal and other legal bodies and authorities are being implemented vigorously in industries and they need experts for the same.

II. Consultancy: Environment consultancies are hired by various government bodies, industries, advocacy and rights groups and NGOs for carrying out different types of field-based studies, laboratory based analyses or, population studies; which are often required in environment impact assessment (EIA) and other compliance processes. Environment is becoming important issue for litigation and all parties need help for the same.

III. Research and development (R&D): R&D opportunities in this area include studying pollution in detail and its implication on environment and humans. Various governments industries and NGOs bodies are supporting the research in this field as it is the biggest issue of this millennium. Enormous funding is also being done for the development of clean and efficient technologies for future.

IV. Academics: Environmental science is taught at every level of education, from school to university level. A large number of teachers or academicians are required for this purpose. Environmental studies are now being focused right from primary education.

V. Green marketing: Environmental quality certifications like ISO-14000 are also being incorporated in marketing strategy—this creates many career opportunities. Many eco-friendly products are being promoted in market, experts are required to create awareness in public about them.

VI. Media: Mainstream print and electronic media requires experts to report and analyse environmental issues to generate awareness about the environment, hence there is an immense need for skilled manpower in this field. Dedicated green media have come up in form of magazines and newspapers, who regularly publish articles on environmental theme, for example, down to Earth, a magazine published by Centre for Science and Environment.

VII. Green advocacy: Environmental lawyers are emerging as major players in ensuring proper implementation of environmental norms, laws, and programmes. Public Interest Litigation (PIL) empowers a common man to fight against any anti- environment activity.

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VIII. NGOs: These days, most of the environmental programmes are being implemented through NGOs, with the help of funds from national and international agencies. Green-peace, IPCC, WWF, CSE, CEE, TERI, Tarun Bharat Sangh, and Vatavaran are some examples of environmental NGOs. Uttarakhand has many environmental groups like Uttarakhand sewanidhi (USKN), CHIYA etc. Uttarakhand is home to historic Chipko andolan in pre-independence era.

IX. Government jobs: A number of conventional jobs are available in government bodies such as environmental ministry, pollution control boards, national parks, and biosphere reserves.

X. International agencies: Various international agencies such as UNEP, IUCN, TSBF, and World Bank require qualified human resources to implement environment-related projects.

XI. Environmentalism: Though not a direct employment scope but environmentalism is much bigger movement across world to conserve our planet, its wildlife, natural resources. It is addressing the major issues affecting people like pesticide use, air pollution, water pollution, solid waste disposal, water crisis, energy crisis, radiation and other environmental crisis. There is a constant pressure by environmentalists on all major governments and international forums to act now on this issue. They have achieved major success in form of Davos summit resolutions, etc to bring a consensus on environmental action. But a lot is still required to bring the change required for life to continue on this planet.

We must understand that we not only studying environmental sciences for just a career or academics; but for larger issues pertaining to our health and for the very sake of survival of future generations.

XII. Environmental ethics: In the era of rapid development and to provide a better lifestyle for masses, several ethical questions arise when there is always an environmental cost to pay. We all are aware that environment has to be protected, but at the same time there are harsh social, economic and political realities. We have to provide food, water, housing and basic infrastructure to masses. A minimum quality of life has to be provided to the citizens by a responsible social government. Hence ethical issues arise and have to be addressed each time. We have to develop constantly, with due concern to climate change, preserving biodiversity, reducing pollution. There are multiple unanswered questions, which we have to address in almost every public infrastructure project as regards to environment. Fortunately, in India we are establishing bodies/authorities to answer the same.

1.6 Environmental Rights and Human Rights

It is important to know that environmental rights are just extension of human rights. As you know that The United Nations (UN) is an organization of 193 Nations of the world, having its headquarters at New York city. It was established on October, 24, 1945. The two main goals of the United Nations are: Peace and human dignity. Keeping in mind its main aim of human dignity, the United Nations set up the U.N. commission of human rights in 1946, as a part of the economic and social council. This commission wrote an important document, which came to be known as the Universal Declaration on Human Rights (UNDHR). This declaration was

approved by all the member of the general Assembly of the U.N. on December 10, 1948. Therefore, 10 December celebrated as the World human Rights Day. The declaration expressed the hope that people would learn to respect the rights and dignity of others. The declaration has a preamble and 30 articles, which set a common standard of achievement for all people and all nations.

The universal Declaration of human rights of 1948 gives various rights to human beings, living in countries who are member of the U.N.O. These rights include important rights like The right to equality, right to life, liberty and security; prohibition against slavery and cruelty; equality before law; no discrimination; no arbitrary arrest or detention; freedom of movement; right to asylum i.e. protection from danger, in foreign countries to political criminals; etc.

The universal declaration of Human Rights of 1948 was reconsidered and revived in the world conference on Human Rights held on 25 June, 1993 in Vienna. In this conference 171 member countries of the U.N. General Assembly adopted by agreement called The Vienna declaration on Human Rights. This declaration proved the commitment of the states (countries) to fulfill their obligation to promote universal respect for and observance and protection of human rights and fundamental freedom for all. In this conference it was resolved that the U.N. should strengthen its mechanisms to ensure compliance of human rights and for poorer countries were also resolved to given financial aids for strengthening their infrastructure to strengthen compliance of human rights.

Although the human rights are now bestowed universally, but their exists overwhelming violations of human rights, particularly in developing and under developed countries. Population and poverty often ignores human dignity and without dignity or self-respect there is no meaning of human rights. When millions of people of the third world countries are fighting for their bread and butter, how can one expect them to fight court cases for securing their human rights? How can beggars claim for human rights? How can poor starving people give good education to their children as provided in the human rights of universal education? How can such poor people prevent child labour, when their children can help them in earning some money for running the family's expenditure? Rich people always can buy and enjoy human rights, while poor illiterate people cannot avail even what lawfully belongs to them. Human rights violations are therefore, very common and do frequently occur.

1.7 Human Rights and Environment

The first international efforts to seek the inclusion of the right to healthy environment under the human right was made in the 1972 U.N. conference on Human Environment held at Stockholm, Sweden. This conference concluded on 16 June, 1972 with adoption of declaration, consisting of a Preamble and 26 principles. These principles are given below:

- (i) Human Rights must be asserted (confidently state that something is true) and condemned.

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- (ii) Natural Resources such as forests, mineral, water, energy, land etc. must be protected.
- (iii) The capacity of earth to produce renewable resources must be maintained.
- (iv) Wild life (flora and fauna both) must be safeguarded or protected.
- (v) Non-renewable resources such as coal, petroleum, natural gases etc. must be shared and not exhausted.
- (vi) Environmental Pollution must not exceed the limit of environment to clean itself.
- (vii) Oceanic/marine pollution must be prevented.
- (viii) Development is needed to improve the environmental conditions.
- (ix) Developing countries therefore need financial assistance.
- (x) Developing countries need reasonable prices.
- (xi) Environmental policies must not slow down the developmental process.
- (xii) Developing countries need money to develop environmental safeguards/environmental protection devices.
- (xiii) Integrated development planning is needed
- (xiv) Rational planning should resolve conflicts between environment and development with appropriate solution
- (xv) Human settlements must be well planned and managed to mitigate environmental problems.
- (xvi) Governments should plan their own population policies to control the population.
- (xvii) National institutions must plan development of natural resources of Nations.
- (xviii) Science and technology must be used to improve the environmental conditions.
- (xix) Environmental education is essential to all people of world.
- (xx) Environmental research must be promoted in general and in developing countries in particular.
- (xxi) States (countries or Nations of UN) may exploit their resources as they wish but must not endanger others
- (xxii) Compensation is due to states thus endangered
- (xxiii) Each Nation must establish its own environmental standards (such as for air, water, noise, soil quality)
- (xxiv) There must be cooperation on international environmental issues (such as global warming, green house emission, ozone layer depletion, acid rain etc.)

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- (xxv) International organizations should help to improve the environment
- (xxvi) Weapon of mass destruction should be eliminated.

In the U.N. conference on Environment and Development (UNCED) held in Rio de Janeiro (Brazil) in 1992 popularly called Earth summit. This conference was an emphasis on sustainable development and environmental protection. Through principle 10 of this Rio-declaration, a link was formulated between human rights and environmental protection, largely on procedure terms.

Principle 10 of the Rio-Declaration proclaims as follows:

“Environmental issues are best held with the contribution of all related citizens. Each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information about hazardous material and activities in their communities and the opportunities to participate in the decision making policies at National level. States (countries/nations) shall make possible and encourage public alertness and responsiveness and participation by making information widely available”

Right to information, participation and remedies in respect to environmental conditions, thus, formed the focus of the Rio Declaration. In addition to Principle 10, the declaration included provisions on the participation of different components of the population such as by women (Principle 20), by youth (Principle 21) and by indigenous people and local communities (principle 22). Public participation was also emphasized in Agenda 21 drawn at the Earth Summit. The Agenda 21 also calls on governments and legislators to established judicial and administrative procedures for legal redress and remedy for actions affecting environment that may be unlawful or infringe under the law, and to provide access to individuals, groups and organizations with a recognized legal interest.

Agenda-21 also calls for public participation in Environmental Impact Assessment procedures and in decisions. It also encourages governments to create policies that facilitate a direct exchange of information between the government and the public on environmental issues, suggesting the EIA process as a potential mechanism for participation.

In order to promote and protect human rights to safety and healthy environment, as laid down in UNCED, the WHO has carried out a wide range of actions: from establishing a special department to deal with environmental concerns, to setting specific policies and strategies, carrying out and disseminating research, or providing technical advice on issues such as sanitation. The WHO, in the last decade, has formulated a new WHO Global Strategy for Health and Environment, which was endorsed by the forty-sixth World Health Assembly in May 1993. This strategy provides a unifying frame work for WHO’s activities and has following three objectives:

- (i) To achieve a sustainable basis for health for all people of world.
- (ii) To provide an environment that promotes health

(iii) To make all individual and organizations aware of their responsibility for health and its environment.

Most international organizations and UN agencies with a mandate to address developmental related issues, and multilateral financial institutions in particular, have placed the issue of poverty high up on their agenda and programmes of action. Most of them establish an explicit link between poverty and the environment, explaining as how the poor suffer more harshly the consequences of environmental problems and frequently adopting approaches similar to those introduced in the 1987 report from the World Commission on Environment and Development (Brundtland Report Our Common Future).

It could be stated that the right to information on all environmental issues; the right to participate in EIA debates on developmental projects; the right to challenge environmental pollution activities in the court through individual writs or public interest litigations (PILs) etc. have in fact, vested powerful human rights in the hands of the people, through no direct right to healthy or adequate environment as such, has been included in the policies or activities of any organizations, departments and agencies so far.

1.8 Summary

In this unit you have learnt that we need require a holistic knowledge about working of our environment supporting life on this planet and thorough understanding the changes causing problems. We need the knowledge to answer several serious environmental issues have become a focal point of the scientific community. These are mainly pollution leading to global warming, ozone layer depletion, acid rain; and deforestation leading to water crisis, desertification, global warming; also rapid population growth leading to depletion resources.

Environment is the physical, chemical and biological world that surrounds us, as well as the complex of social and cultural conditions affecting an individual or community. We have also learnt that we can study this interdisciplinary academic field by integrating various academic fields (particularly sciences) to study the structure and function of our life-supporting environment and to understand causes, effects, and solutions of different environmental problems.

We have learnt about Environment, Ecology and Ecosystem and their co-relation. Ecology is the branch of biological science concerned with the relationships and interactions between living organisms and their physical surroundings or environment.

We have classified environment physical elements, and more importantly as biotic and abiotic environment. We learnt that environment can be classified as local systems. For the purpose practicality the most important classification is “essential life-supporting biophysical environment” and “non-essential life-assisting environment”.

Understanding environment is important for supporting life on earth. We have to understand and find solutions for the problems of pollution, resource crisis and population

growth. The drastic climate change needs to be addressed to sustain life on this planet. Only public awareness and action with state and international support can solve the serious environmental issues we are facing.

The scope is unlimited not only in career options like Academics, industries, research and development, media, NGOs, marketing, government and international jobs; but more importantly in making public aware about the rapid environmental changes. Only by proactive environmentalism we can save our environment to protect our health and life of our future generations. Environmental ethical questions need to be answered in development projects related to needs of masses.

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1.10 GLOSSARY

Abiotic factors - Physical Objects like land and manmade object, light and other forms of energy, water, air etc. which surround us, and the elements/compounds found in them.

Atmosphere – Gaseous envelope around the earth, the air. It has many gases out of which N₂, O₂, CO₂ and water vapour are most important.

Biosphere – All parts of earth where the living organisms live.

Biotic factors – Living organisms in environment or ecosystem, like animals including humans, plants and microbes.

Demography – Study of populations.

Desertification – The process of desert formation, it is manifested by permanent loss of plant cover in a region, and the loss of capacity of the land to support plant growth.

Ecology – It is the branch of biological science concerned with the relationships and interactions between living organisms and their physical surroundings or environment.

Ecosystem – Entity arising out of functional interaction of biotic components with abiotic components of environment.

Environment - The physical, chemical and biological world that surrounds us, as well as the complex of social and cultural conditions affecting an individual or community.

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Epidemic – Large sudden outbreak of a infectious disease in a community.

Epidemiology – The branch of medicine which deals with the incidence, distribution, and possible control of diseases and other factors relating to health.

Fauna – The collective term for all animals in a given ecosystem or environment.

Flora - The collective term for all plants in a given ecosystem or environment.

1.11 Short Answer Questions

1. What are Environmental Human Rights?
2. Define the right to a healthy environment.
3. What is the relationship between human rights and the environment?
4. Name any four environmental human rights.
5. What is sustainable development?

1.12 Terminal Questions

1. Explain the concept and importance of Environmental Human Rights.
2. Discuss the relationship between human rights and environmental protection.
3. Explain the principles of sustainable development and their significance.
4. Describe the role of governments and citizens in protecting environmental rights.
5. Discuss the major environmental challenges affecting human rights.

1.13 True/False Questions

1. A clean environment is considered a basic human right. **(True)**
2. Environmental pollution has no effect on human health. **(False)**
3. Sustainable development means meeting present needs without harming future generations. **(True)**
4. Every citizen has a responsibility to protect the environment. **(True)**
5. Human rights and environmental protection are unrelated. **(False)**

UNIT 2: Historical Development of Environmental Protection

2.0 Learning Objectives

2.1 Introduction

2.2 Different Approaches to Environmental Protection

2.2.1 Voluntary Environment Agreements

2.2.2 Ecosystem Approach

2.3. Role of Government in Environment Protection

2.4 Protection vs Conservation

2.4.1 Protection

2.4.2 Conservation

2.5 Institutional apparatus (Local/ National/ International)

2.5.1 Local Agencies (In India)

2.5.2 National Agencies

2.5.3 International Agencies

2.6. International Programmes on Conservation

2.7 Importance of Information and Technology for Conservation of Environment

2.8 Summary

2.9 References

2.0 Learning Objectives

In this unit you will be able to understand the basics of environment protection and various agencies involved in protection work. The unit will explain:

- Basics of Environment Protection
- Difference between Protection and Conservation
- Various agencies (Local/ National/ International) involved in resource conservation
- Role of information Technology in resource conservation.

2.1. Introduction

In a broader sense environment protection means protection of environment as well as other resources from any adversely affecting agency. The damaging agency can be individuals, industry, organization etc. The objectives of environmental protection include conservation of resources as well as repairing of damaged ones. The main reasons behind the depleting and damaging resources are high population growth, overconsumption and unsustainable utilization. Considering this alarming situation now the governments have begun placing restraints on activities that cause environmental degradation. Since the 1960s, environmental movements have created more awareness of the multiple environmental problems.

The environmental protection may involve:

- (a) Changes in characteristics of goods and services,
- (b) Changes in consumption patterns,
- (c) Changes in production techniques,
- (d) Treatment or disposal of residuals in separate environmental protection facilities,
- (e) Recycling, and
- (f) Prevention of degradation of the landscape and ecosystems.

2.2 Different Approaches to Environmental Protection

Basically there are two different approaches for environmental protection- Voluntary environment agreements Ecosystem approach.

2.2.1. Voluntary Environment Agreements

In the era of industrialization there are many voluntary environmental agreements which are followed by many companies on voluntary basis. Under this agreement the companies follow the minimum regulatory standards and thus support the development as well as conservation for the best environmental practice. For instance, in India, Environment Improvement Trust (EIT) has been working for environmental and forest protection since 1998.

2.2.2 Ecosystem Approach

In ecosystem approach of resource management rather than taking a specific resource for decision making the complete ecosystem should be taken under consideration. It is more collaborative approach of planning and decision making. Under this approach all the stakeholders are taken under consideration as a unit. This approach ideally supports a better exchange of information, development of conflict-resolution strategies and improved regional conservation. Religions also play an important role in the conservation of the environment

2.3 Role of Government in Environment Protection

Commonly it is a general perception that environment protection is the responsibility of government, legislation and law enforcing agencies. But in real sense it is the responsibility of every citizen along with the government to conserve the available resources. It is an ideal condition to involve different stakeholders including industry, indigenous groups, and environmental group and community representatives for decision making in environment related issues.

The Constitution of India has a number of provisions demarcating the responsibility of the Central and State governments towards Environmental Protection. As per the article 48-A of our constitution it is the duty of state to protect and improve the environment and to safeguard the forest and wildlife of the country. By Article 51-A (g) environmental protection has been made a fundamental duty of every citizen of India. As per article 21 of the constitution is a fundamental right, which states that "No person shall be deprived of his life or personal liberty except according to the procedure established by law".

2.4 Protection vs Conservation

2.4.1 Protection

Protection means shielding something against dangers which tend to destroy it. Thus resource protection means shielding the resources against the dangers which may either completely destroy it or at least damage it to such extent that it may not be able to confer benefits it is expected to give (Negi, 1993). As protection requires efforts as well as money, its intensity is directly proportional to the value of and the benefits conferred by, the resource to be protected. The more valuable the source the more likely it is to be damaged by humans and consequently greater is the effort and more resources required to protect it.

2.4.2 Conservation

Environmental conservation is the practice of us humans saving the environment from the loss of species, and the destruction of the ecosystem, primarily due to pollution and human activities. Conservation is vital in saving and helping both animals and trees as all are dependent on one another for survival. For maintaining the supply of resources, it is important to use the resource at or below its sustained yield. The resource conservation aims to-

- Maintain ecological processes and life support systems
- Ensure continuous yield of plants, animals and materials
- Preserve the quality of environment
- Conserve biological diversity
- Achieve sustainable use of species and ecosystems

The collective resource management programmes with the involvement of local social groups have been found to be effective for the management of watershed, forest, fishery,

agriculture etc. as well as for improving community wellbeing Environmental conservation and protection are two terms that are often used interchangeably, although they are quite different. Conservation refers to the responsible management of the environment and its resources for present and future use and protection, on the other hand, is a much stricter approach where the environment, lands and natural resources are put away, not to be consumed by humans, but are instead maintained in their pristine form. If the land is to be used by humans, it should only be utilized for its natural beauty and inspiration.

In short on one hand conservation includes the responsible use of natural resources whereas in protections the environment is protected from all harmful human activities.

2.5 Institutional apparatus (Local/ National/ International)

Environment Conservation is not a matter which can be single handed managed by the Government agencies. For the sustainable development it is the need of the hour that different government and non-government agencies must work together. To address this diverse and critical issue many institutions and organization have been setup at international, national and local level. An environmental organization is an organization seeks to protect, analyse or monitor the environment against misuse or degradation or lobby for these goals. Environmental organization may be a government organization, a nongovernment organization, a charity or trust which can act at global, national, or local level.

India's approach to protect the environment and to restore it, exists from the vedic and post-Vedic times but after independence it took a back seat and economic growth became the priority in our day to day life. Only after 1972 with the formation of the National Committee on Environmental Planning and Coordination (NCEPC) the focus on environmental conservation again restarted. In 1985 a full-fledged department, Department of Environment and Forest was set up by the government. Initially the Constitution of India did not contain any provision towards the promotion/protection of environment. However, the 42nd amendment of the constitution in 1977 added some important clauses that entrusted the government the responsibility of providing a clean and well-protected environment.

2.5.1 Local Agencies (In India)

There are many Non-Governmental Organizations (NGOs) which are actively involved in the area of resource conservation. A NGO is mostly privately funded organization with no active involvement of any government agencies. Therefore, NGOs are independent of governments. In our country there are many active NGOs which are working in the field of environment conservation, sustainable development, resource conservation, wildlife conservation etc. Some of them are as follows:

Centre for Science and Environment (CSE)

The Centre for Science and Environment (CSE) is New Delhi based a research organization. The main objective of CSE is to maintain a balance between exploitation of the available natural resources and growing industrialization. The CES try to create awareness

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among people regarding the day today environmental issues and propose solutions of these issues. The main target group of CSE is the youth and students of our country with this in mind, CSE has been developing non-formal environmental education. Their tools for creating awareness are periodicals publications, films, exhibitions and other products.

Kalpavriksh

Established in the year 1979 Kalpavriksh is an Indian NGO actively working in the field of Environmental awareness. The area in which Kalpavriksh is involved in creating awareness among people, promoting research, litigation etc. For environment related issues they go upto protest letters to street demonstration etc. Kalpavriksh is actively involved in protest against the destruction of largest green area in Delhi and also actively involved in studying the impact of Narmada dam project on environment and many more. Kalpavriksh believes that a country can develop meaningfully only when ecological sustainability and social equity are guaranteed, and a sense of respect for, and oneness with nature and fellow humans is achieved. In this NGO all the decisions are taken after appropriate debate and discussion within the organization and with the community.

Development Alternatives

Development alternatives is an Indian based non-governmental organization with the aim of sustainable development without damaging the available resources. This NGO was established in the year 1983. The agenda of development alternatives is focus on a cordial interrelationship between social and environment component of the country. In short it includes the balanced relation between nature, technology and people living in the country. The development alternatives believe in sustainable development must support the economy, environment and most importantly the society. The Development Alternatives Group is, therefore, dedicated to bring about a better balance among the basic prerequisites of sustainable development: social equity, environmental quality and economic efficiency. The mission of the Development Alternatives Group is to promote sustainable national development. The development alternatives believe in generating sustainable livelihood to eradicate poverty on one hand and conservation and proper regeneration of the resources on other.

Tropical Research & Development Centre (TRDC)

Established in 1994, the vision of TRDC is to make natural resources available to all, with no discrimination. This NGO, headquartered at Bengaluru, aims to nurture development practices through education, awareness and conservation. The TRDC – Paryavaran project launched in some districts of Karnataka addresses the adversities of environmental degradation and climate change. The project also aims at conservation and betterment of local flora and fauna, revitalization of water resources, and involving the younger generation and farmers in their efforts to help in the preservation of natural resources.

Sankalp Taru Foundation

This environmental NGO is a classic example of how digital channels can be used in protection and conservation of the environment. SankalpTaru is an e-NGO, which aims at

promoting tree plantation across the country. The NGO is active in 21 states in India. The plantation drive is run on a digital platform, allowing SankalpTaru to use innovative technologies such as GPS-tagging and others. This way, the volunteers can track the progress of plantation drives. So far, millions of trees have been planted since SankalpTaru's inception by Apurva Bhandari in 2013. The NGO involves all the aspects of environmental protection – rural development, cleaner schools, tree plantation in cities and community-based land protection. Their principal aim is to create a greener, cleaner and healthier environment so that our future generations get a better and greener planet with even richer bio-diversity and abundant natural resources.

Chintan Environmental Research and Action Group

Focused on promoting sustainable and equitable growth for every member of the society, Chintan works towards ensuring responsible and sustainable consumption, thus protecting the environment. Founder Bharati Chaturvedi is an avid writer with several powerful articles promoting environmental protection. At Chintan, they endeavor to lessen surplus waste, promote sustainable consumption and facilitate better waste management. They also raise their voice against air pollution by creating awareness. The primary purpose of promoting sustainable consumption and waste management is to provide resources for the vulnerable sections of the society.

2.5.2 National Agencies

There are many national level agencies in our country which are actively involved in the protection and conservation of natural resources. Some of them are The Ministry of Environment and Forest, Central Pollution Control Board, Indian Board for Wildlife, National Biodiversity authority, Animal welfare board of India, Forest survey of India etc.

Ministry of Environment and Forest: In India the Ministry of Environment and Forests (MoEF) is one of the most important department of central government. The ministry mainly focuses on planning and promoting the matters related with environment and forest in the country. The main activities undertaken by the ministry include conservation and survey of the flora and fauna of India, forests and other wilderness areas; prevention and control of pollution; afforestation and reducing land degradation. All national parks of the country are administered by the ministry. It provides the financial support the different organizations for research, capacity building and for creating awareness among common peoples in the country. The Ministry is also the nodal agency in the country for the United Nations Environment Programme.

Central Pollution Control Board

In India to conserve the various resources against the rising pollution a statutory body namely “Central Pollution Control Board” was established in the year 1974. This body was constituted under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

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It is an apex body which provides the technical inputs to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986. The thrust areas of CPCB, is proper implementation of the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981. CPCB promotes the cleanliness and improvement of water and air quality in the country.

Indian Board for Wildlife (IBWL)

The IBWL is the apex body for wildlife conservation in India. The IBWL is headed by the honourable Prime Minister of India. The IBWL has been reconstituted w.e.f. 7.12.2001. The XXI meeting of the IBWL was held on 21.1.2002 under the Chairmanship of the Honourable Prime Minister of India at New Delhi.

National Biodiversity authority

It is a statutory autonomous body under the Ministry of Environment and Forests, Government of India established in 2003, after India signed Convention on Biological Diversity (CBD) in 1992. Its head quarter is situated in Chennai. The main objective of the authority is implementation of Biological Diversity Act, 2002. it acts as a facilitating, regulating and advisory body to the Government of India “on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.” Additionally, it advises State Governments in identifying the areas of biodiversity importance (biodiversity hotspots) as heritage sites.

Animal Welfare Board of India

Animal welfare board was established in 1962 under Section 4 of The Prevention of Cruelty to Animals Act, 1960. Its head quarter is in Chennai. The board gives advice to Government on Animal Welfare Laws and promotes animal welfare in the country. The Board issues publications to raise awareness of various animal welfare issues. The Board’s Education Team gives talks on animal welfare subjects, and trains members of the community to be Board Certified Animal Welfare Educators.

Forest Survey of India

Forest survey of India is a government organization in India under the Union Ministry of Environment, Forest and Climate Change for conducting forest surveys and studies. The organization came into being in, 1981. Its headquarter is in Dehradun, Uttarakhand. The objective of FSI is the monitoring periodically the changing situation of land and forest resources and present the data for national planning; conservation and management of environmental preservation and implementation of social forestry projects. FSI prepares State of Forest Report biennially, providing an assessment of the latest forest cover in the country and monitoring changes in these and conduct an inventory in forest and non-forest areas and develop a database on forest tree resources. Forest Survey of India assesses forest cover of the country every 2 years by digital interpretation of remote sensing satellite data and publishes the results in a biennial report called ‘State of Forest Report’(SFR).

2.5.3 International Agencies

IUCN (The World Conservation Union)

The world conservation union was founded in the year 1948. The union brings together states, government agencies and a diverse range of nongovernmental organization in a unique partnership covering some 81 countries. Its headquarter is in Gland, Switzerland. IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and sustainable use of natural resources. The union has helped many countries to prepare National Conservation Strategies, and demonstrates the application of knowledge through the field projects it supervises. The world conservation union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels. The IUCN Species Survival Commission (SSC) represents the world's most complete source of scientific and management expertise on species and their conservation.

Convention on Biodiversity

The Earth summit held in 1992 at Rio de Janeiro resulted into a Convention on Biodiversity, which came into force on 29 December 1993 and has been ratified by 183 countries. The Convention on Biodiversity has three key objectives- (i) conservation of biological diversity, (ii) sustainable use of biodiversity (iii) fair and equitable sharing of benefits arising out of the utilization of genetic resources. This convention has stimulated many countries to develop National Biodiversity Strategy and Action plan.

United Nations Environment Programme (UNEP):

The UNEP, stands for United Nations Environment Programme was established in the year 1972. It is a global authority that set ups the global environment agenda for protecting the different natural resources. The UNEP advocates environmental protection along with sustainable development without compromising the life quality of future generations. Headquartered in Nairobi, Kenya, UNEP works through its divisions as well as regional, liaison and out-posted offices and a growing network of collaborating centres of excellence. UNEP works closely with its 193 Member States and representatives from civil society, businesses, and other major groups and stakeholders to address environmental challenges through the UN Environment Assembly, the world's highest-level decision- making body on the environment.

The organization hosts the secretariats of many critical multilateral environmental agreements and research bodies.

2.6. International Programmes on Conservation

World Conservation Strategy

In 1980, the International union for conservation of natural resources (IUCN), the United Nations Environmental Programme (UNEP) and World Wide Fund for Nature (WWF) developed the world conservation strategy, a long term plan for conserving the world's

biological resources (IUCN/UNEP/WWF, 1980). This plan was expanded and followed by “Caring for the earth: a strategy for sustainable living” ((IUCN/UNEP/WWF, 1991). This report enlisted a set of principles and strategies of a sustainable society based on practical integration of environment, social and economic, concerns. Its primary goal was to maintain essential ecological processes and life support systems to preserve species and genetic diversity to ensure the use of species and ecosystems in a sustainable manner to improve the quality of human life.

World Commission on the environment and development:

In 1983 the United Nations established a commission called the World Commission on the Environment and Development. The commission is often called Brundtland Commission after the name of head of the commission. The commission proposed a global agenda to address the world’s environmental problems and people’s concerns relating to living conditions, resources, population pressures, international trade, education and health. This commission favours sustainable development as sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987).

United Nations Conference on Environment and Development (UNCED):

At the time of the United Nations Conference on Environment and development (the Earth Summit) held in Rio de Janeiro most of the leaders of the world signed the frame work convention on climate change and the convention on biological diversity. The Rio summit adopted Rio declaration and Agenda 21 for achieving sustainable development in the 21 century (UNCED, 1992). This declaration includes equal consideration of environment, society and economy.

Besides these the Agenda 21-UNCED, The Rio Summit Follow-up, Commission on Sustainable Development (CSD), Global Environmental Monitoring and Assessment are some other international programmes on environmental conservation.

2.7 Importance of Information and Technology for Conservation of Environment

Information generally has an advantage over those to whom such access is denied. The evolution of information technology, has generally led to dispersal of information to increasing broader audiences. Advances in telecommunications and other forms of information technology have contributed to the creation of new patterns of work and human association. Information technology has also increased the pace of discovery. The capacity of establishing and maintaining worldwide databases has linked environmental, researches around the globe. These information is utilized for developing and early warning system and to forecast any eventuality much earlier. A large amount of information is easily available through Remote Sensing technology, Geographical Information System (GIS) and Global Positioning System (GPS) that is being used for various environmental studies.

Realizing the importance of Environmental Information, the Government of India, in December, 1982, established an Environmental Information System (ENVIS) as a plan programme. The focus of ENVIS, is been on providing environmental information to decision makers, policy planners, scientists and engineers, research workers, etc. Total 25 ENVIS Centers have been functional in our country to cover the broad subject areas of environment. ENVIS is a decentralised system with a network of distributed subject oriented Centers ensuring integration of national efforts in environmental information collection, collation, storage, retrieval and dissemination to all concerned. Presently the ENVIS network consists of Focal Point at the Ministry of Environment and Forests and ENVIS Centers set up in different organizations/establishments in the country in selected areas of environment. These Centers have been set up in the areas of pollution control, toxic chemicals, central and offshore ecology, environmentally sound and appropriate technology, bio-degradation of wastes and environment management, etc. ENVIS focal point ensures integration of national efforts in environmental information collection, storage, retrieval and dissemination to all concerned.

Global Environment Database:

The United Nations Environment Programme (UNEP) has set up the global environmental database (GRID) within the frame work of the Global Environmental Monitoring system (GEMS). The main function of GRID is environmental data management and to establish a global network on environment using GIS and image processing technology. GRID is useful to examine interactions between different environmental databases and to provide models and scenarios. The international Geosphere and Biosphere programme uses GRID as a useful data management system for studying global change. The activities of GRID also focus on problems of land degradation, forest depletion and loss of biological diversity.

2.8 Summary

There is a serious concern about the growing fragility of the Earth's life support system. Ever growing human population and its activities are adversely affecting the various resources of the earth. Human population and economic wealth of people have significantly increased the degradation of natural resources which need to be controlled immediately. Resource protection and conservation is the need of the hours. One should protect the available resource by focusing on changing the consumption patterns, recycling, and prevention of degradation of the landscape and ecosystems. Environmental conservation and protection are two terms that are often used interchangeably, although they are quite different. Conservation refers to the responsible management of the environment and its resources for present and future use and protection, on the other hand, is a much stricter approach where the environment, lands and natural resources are put away, not to be consumed by humans, but are instead maintained in their pristine form. If the land is to be used by humans, it should only be utilized for its natural beauty and inspiration. The matter on environmental protection often focuses on the role of government, legislation, and law enforcement. However, in its broadest sense, environmental protection may be seen to be the responsibility of all the people and not simply that of government. There are many agencies which are working on local, national and international

levels. There are many Non-Governmental Organizations (NGOs) which are actively involved in the area of resource conservation at local level. Sustainable development emphasizes that the rate of consumption and use of natural resources must approximate the rate at which these resources can be substituted or replaced. At the same time, it requires that society is able to satisfy social, economic and other needs without affecting the interest of future generation.

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Terminal Questions

- Q.1. What is environment protection and explain various approaches of environment protection.
- Q.2. Write a note on role of Government in environment Protection.
- Q.3. Differentiate between Protection and conservation.
- Q.4. Discuss in detail the various local agencies involved in environment Protection.
- Q.5. Discuss in detail the various national agencies involved in environment Protection.
- Q.6. Explain different International Programmes on Conservation

Unit: 3 Environment and Right to Life

Structure

3.1 Learning Objectives

3.2 Introduction

3.3 The Concept of Right to Life

3.4 Expansive Judicial Interpretation

3.5 Judicial Expansion: Key Legal Principles

3.6 Landmark Judicial Decisions

3.7 International Recognition of the Right to a Healthy Environment

3.8 Statutory and Institutional Framework

3.9 Challenges in Enforcement

3.10 Summary

3.11 Glossary

3.12 References

3.13 Self-Assessment Questions (SAQs)

3.1 Learning Objectives

By the end of this unit, learners should be able to:

1. Understand the concept of the "Right to Life" and its evolution to include environmental protection.
2. Trace the judicial expansion of environmental rights through landmark case law.
3. Identify key legal principles that link environmental protection to fundamental human rights.
4. Examine the international recognition of the right to a healthy environment.
5. Critically evaluate the institutional and enforcement mechanisms designed to protect this right.

3.2 Introduction

The relationship between the environment and the right to life represents one of the most significant developments in modern constitutional and human rights jurisprudence. Traditionally, the "right to life" was understood narrowly as a guarantee against arbitrary deprivation of physical existence protection from unlawful killing or detention. However, over the past five decades, courts, legislatures, and international bodies around the world have progressively recognized that a meaningful life cannot be enjoyed in a degraded, polluted, or ecologically unstable environment. Clean air, safe drinking water, a stable climate, and healthy ecosystems are no longer viewed merely as matters of environmental policy; they are now understood as essential preconditions for the enjoyment of the right to life itself.

This expanded understanding did not emerge overnight. It developed through decades of environmental activism, scientific evidence of ecological harm, and, crucially, judicial interpretation particularly in jurisdictions such as India, where the right to life is enshrined in the Constitution and courts have played an activist role in reading environmental protection into this guarantee. This unit explores the conceptual foundations of this linkage, the key legal principles it has generated, landmark judicial decisions, and the international recognition of the right to a healthy environment, along with the institutional mechanisms established to enforce it.

3.3 The Concept of Right to Life

Traditional Understanding

The right to life is recognized as one of the most fundamental human rights across legal systems worldwide. In many constitutions, it is expressed in simple terms — for instance, Article 21 of the Indian Constitution states: "No person shall be deprived of his life or personal liberty except according to procedure established by law." On its face, this appears to guarantee only protection against unlawful deprivation of life by the state.

3.4 Expansive Judicial Interpretation

Over time, apex courts have interpreted the right to life expansively, holding that it encompasses not merely animal existence but the right to live with human dignity. This interpretive shift has allowed courts to read into the right to life a range of derivative rights, including the right to livelihood, the right to health, the right to shelter, and most significantly for this unit the right to a clean and healthy environment.

This expansive approach rests on the understanding that environmental degradation directly threatens human health, dignity, and survival. Air pollution causes respiratory disease; contaminated water spreads infection; deforestation and climate change threaten food and water security; and industrial hazards endanger entire communities. Recognizing environmental protection as part of the right to life therefore reflects a substantive, rather than merely formal, conception of what it means to be alive.

3.5 Judicial Expansion: Key Legal Principles

Courts, particularly in India, have developed a body of environmental jurisprudence built around several core legal principles.

The Public Trust Doctrine

This doctrine holds that certain natural resources such as air, rivers, forests, and the sea — are held by the state in trust for the benefit of the public and cannot be transferred to private ownership or exploited for narrow commercial gain. The state, as trustee, has an obligation to protect these resources for present and future generations.

The Polluter Pays Principle

This principle establishes that a party responsible for producing pollution is also responsible for bearing the costs of managing it to prevent damage to human health and the environment. It shifts the financial burden of pollution control from the general public and government to the polluter itself, incentivizing cleaner production practices.

The Precautionary Principle

The precautionary principle holds that where there are threats of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason to postpone measures to prevent environmental degradation. This shifts the burden of proof onto those proposing potentially harmful activities to demonstrate that they are environmentally safe.

Sustainable Development

Environment Justice and Human Rights

Sustainable development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Courts have increasingly used this principle to balance developmental and industrial interests against environmental protection, insisting that economic growth must not come at the cost of ecological destruction.

Intergenerational Equity

This principle recognizes that each generation holds the Earth's resources in trust for future generations, obligating present societies to preserve environmental quality and natural resources for those who come after them.

3.6 Landmark Judicial Decisions

Judicial pronouncements have played a decisive role in embedding environmental protection within the right to life framework, particularly through public interest litigation (PIL), which allows concerned citizens and organizations to approach courts on behalf of the public or affected communities.

Recognition of Environmental Rights

Early cases established that pollution-free water and air are essential components of the right to life, and that any activity that endangers this right — whether by the state or private industry could be challenged in court. This principle transformed environmental protection from a matter of policy discretion into a justiciable, enforceable right.

Industrial Pollution Cases

A series of cases addressed the closure or regulation of polluting industries located near residential areas or ecologically sensitive zones. Courts ordered the relocation or closure of hazardous industries, imposed pollution control requirements, and mandated compensation for affected communities, reinforcing those industries operate within the framework of environmental accountability rather than purely commercial freedom.

River and Water Pollution Cases

Litigation concerning the pollution of major rivers led courts to direct industries and municipal authorities to install effluent treatment plants and cease the discharge of untreated waste into water bodies. These rulings underscored that access to clean water is inseparable from the right to life and imposed continuing judicial oversight to ensure compliance.

Mining and Natural Resource Cases

Environment Justice and Human Rights

Cases involving illegal or unsustainable mining activities led courts to halt operations that caused irreversible ecological damage, emphasizing the state's duty as trustee of natural resources under the public trust doctrine.

Heritage and Ecological Zone Protection

In cases concerning protection of ecologically or culturally significant sites from industrial pollution, courts have applied the precautionary principle to mandate the use of cleaner fuels and technologies by nearby industries, recognizing that environmental degradation threatens not only ecosystems but also cultural heritage tied to community identity and well-being.

Climate and Emerging Jurisprudence

More recently, courts have begun to recognize a distinct right to be free from the adverse effects of climate change as part of the right to life and the right to equality, reflecting the growing judicial acknowledgment that climate change poses direct and disproportionate threats to vulnerable populations, particularly the poor, indigenous communities, and future generations.

3.7 International Recognition of the Right to a Healthy Environment

Early Foundations

The link between environmental quality and human rights gained international recognition beginning in the early 1970s. The Stockholm Declaration of 1972 was among the first international instruments to articulate that humanity has a fundamental right to an environment of a quality that permits a life of dignity and well-being, alongside a solemn responsibility to protect that environment for present and future generations.

The Rio Declaration

Twenty years later, the Rio Declaration on Environment and Development (1992) reaffirmed this connection, placing human beings at the center of concerns for sustainable development and asserting their entitlement to a healthy and productive life in harmony with nature.

Formal UN Recognition

In a landmark development, the United Nations General Assembly formally recognized access to a clean, healthy, and sustainable environment as a universal human right. This resolution, adopted in 2022, marked the culmination of decades of advocacy and reflected growing global consensus that environmental protection is inseparable from the protection of fundamental human rights, calling on states, international organizations, and businesses to scale up efforts to ensure this right is upheld worldwide.

Regional Human Rights Instruments

Various regional human rights frameworks including those in Africa, the Americas, and Europe have also recognized environmental rights, either explicitly or through judicial interpretation of rights to life, health, and private life, reflecting a truly global trend toward embedding environmental protection within human rights law.

3.8 Statutory and Institutional Framework

While judicial interpretation has been central to recognizing the environment-right to life linkage, statutory frameworks and specialized institutions have been established to give this right practical effect.

Environmental Legislation

Many countries have enacted comprehensive environmental protection legislation addressing air quality, water pollution, forest conservation, wildlife protection, and hazardous waste management. These laws typically establish regulatory standards, licensing and permitting systems, and penalties for non-compliance, translating constitutional and judicial principles into enforceable administrative frameworks.

Specialized Environmental Courts and Tribunals

Recognizing that ordinary courts often lack the technical expertise required to adjudicate complex environmental disputes, several countries have established specialized environmental tribunals. These bodies are empowered to handle cases involving environmental damage, provide compensation to affected parties, and enforce compliance with environmental laws through expedited and technically informed proceedings. Such tribunals often include both judicial members and technical experts, allowing them to assess scientific and engineering evidence effectively.

Environmental Impact Assessment (EIA)

Environmental Impact Assessment has become a key regulatory tool requiring proposed projects particularly large industrial, mining, or infrastructure developments — to undergo a systematic evaluation of their potential environmental consequences before approval. This procedural safeguard operationalizes the precautionary principle by ensuring that potential harms are identified and mitigated before, rather than after, they occur.

Right to Information and Public Participation

Effective enforcement of environmental rights also depends on transparency and public participation. Right to information laws enable citizens to access data on pollution levels, industrial compliance, and government decision-making, empowering communities to hold

polluters and regulators accountable and to participate meaningfully in environmental governance.

3.9 Challenges in Enforcement

Despite significant legal and institutional progress, the practical realization of the right to a healthy environment faces numerous obstacles.

Implementation Gaps

There is often a substantial gap between the existence of environmental laws and their effective enforcement, due to weak regulatory capacity, insufficient monitoring infrastructure, and inadequate penalties that fail to deter violations.

Economic and Developmental Pressures

Governments frequently face tension between promoting industrial growth and employment on one hand, and enforcing stringent environmental standards on the other, particularly in developing economies where poverty alleviation is a pressing priority.

Access to Justice

Marginalized and low-income communities, who often bear the greatest burden of environmental harm, may lack the resources, legal literacy, or institutional access needed to seek redress through courts or tribunals, undermining the practical value of environmental rights for those who need them most.

Transboundary and Global Challenges

Issues such as climate change, transboundary air and water pollution, and biodiversity loss extend beyond the jurisdiction of any single nation, complicating enforcement and requiring coordinated international action that is often difficult to achieve given differing national interests and capacities.

Corporate Accountability

Holding multinational corporations accountable for environmental harm, especially when operations span multiple jurisdictions with varying regulatory standards, remains a persistent challenge, often requiring complex litigation and international cooperation.

Strengthening the linkage between environmental protection and the right to life requires a multi-pronged approach:

- **Strengthening enforcement mechanisms**, including better-resourced regulatory agencies and specialized environmental courts.
- **Enhancing public participation** through accessible information disclosure and meaningful consultation processes in environmental decision-making.
- **Integrating environmental and human rights law** more explicitly within domestic constitutional frameworks, ensuring environmental protection is treated as a justiciable and enforceable right rather than an aspirational policy goal.
- **Promoting corporate environmental responsibility** through binding regulations, mandatory disclosure requirements, and liability frameworks for environmental harm.
- **Facilitating international cooperation** to address transboundary and global environmental challenges, recognizing that the right to a healthy environment cannot be fully realized without collective global action.
- **Prioritizing environmental justice**, ensuring that the benefits and burdens of environmental policy are equitably distributed, with particular attention to vulnerable and marginalized populations.

3.10 Summary

The right to life, once narrowly understood as protection against unlawful deprivation of physical existence, has evolved substantially to encompass the right to live with dignity in a clean and healthy environment. This transformation has been driven primarily through judicial interpretation, particularly via public interest litigation, which has established that pollution-free air and water, protection from hazardous industrial activity, and preservation of ecologically sensitive areas are integral to the right to life. Courts have developed key legal principles including the public trust doctrine, the polluter pays principle, the precautionary principle, sustainable development, and intergenerational equity to adjudicate environmental disputes and hold both state and private actors accountable for environmental harm.

This judicial evolution has been paralleled by growing international recognition of the right to a healthy environment, culminating in its formal acknowledgment as a universal human right. Statutory frameworks, environmental tribunals, impact assessment procedures, and transparency mechanisms have been established to give practical effect to this right. However, significant challenges remain, including weak enforcement, competing developmental pressures, unequal access to justice, and the transboundary nature of many environmental problems. Realizing the full promise of the right to a healthy environment as an essential component of the right to life will require sustained legal, institutional, and international efforts, guided by principles of equity, participation, and accountability.

3.11 Glossary

- **Right to Life** – A fundamental human right protecting against arbitrary deprivation of life, judicially expanded to include the right to live with dignity, encompassing health, livelihood, and a healthy environment.

- **Public Interest Litigation (PIL)** – A legal mechanism allowing individuals or organizations to bring cases before courts on behalf of the public interest, rather than for personal grievance.
- **Public Trust Doctrine** – The legal principle that certain natural resources are held by the state in trust for public benefit and cannot be exploited for private gain at the expense of public welfare.
- **Polluter Pays Principle** – The principle that those responsible for pollution must bear the costs of preventing, controlling, and remedying the resulting environmental damage.
- **Precautionary Principle** – The principle that a lack of full scientific certainty should not be used to justify inaction in the face of potential serious or irreversible environmental harm.
- **Sustainable Development** – Development that meets present needs without compromising the ability of future generations to meet their own needs.
- **Intergenerational Equity** – The principle that each generation has an obligation to preserve environmental quality and resources for future generations.
- **Environmental Impact Assessment (EIA)** – A regulatory process requiring evaluation of the potential environmental effects of a proposed project before approval.
- **Environmental Tribunal** – A specialized judicial or quasi-judicial body established to adjudicate environmental disputes, often including both legal and technical experts.
- **Right to Information** – A legal entitlement allowing citizens to access information held by public authorities, promoting transparency and accountability.
- **Environmental Justice** – The principle of fair distribution of environmental benefits and burdens across all communities, regardless of income, ethnicity, or social status.
- **Justiciable Right** – A right that can be enforced or adjudicated by courts of law.

3.12 References

- Stockholm Declaration on the Human Environment. United Nations Conference on the Human Environment, Stockholm, 1972.
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- Ministry of Environment, Forest and Climate Change, Government of India. *National Green Tribunal Act, 2010*.

3.13 Self-Assessment Questions (SAQs)

Short-Answer Questions

1. Explain how the interpretation of the "right to life" has evolved to include environmental protection.
2. Define the public trust doctrine and explain its relevance to environmental governance.
3. What is the polluter pays principle, and why is it significant in environmental law?
4. Distinguish between the precautionary principle and the principle of sustainable development.
5. What role does public interest litigation play in advancing environmental rights?

Terminal Questions

1. "The right to a healthy environment is inseparable from the right to life." Critically discuss this statement with reference to judicial reasoning and legal principles covered in this unit.
2. Evaluate the effectiveness of public interest litigation as a tool for environmental protection. What are its strengths and limitations?
3. Discuss the tension between economic development and environmental protection. How have courts and policymakers attempted to balance these competing interests?
4. Analyze the significance of international recognition of the right to a healthy environment. Does this recognition translate into meaningful protection at the national level? Justify your answer.
5. Propose a set of institutional reforms that could strengthen the enforcement of environmental rights, particularly for marginalized and vulnerable communities.

True/False Questions

1. The public trust doctrine allows the state to freely transfer natural resources to private entities for commercial exploitation. (True/False)
2. The precautionary principle shifts the burden of proof onto those proposing potentially harmful activities. (True/False)
3. The right to a clean and healthy environment was formally recognized as a universal human right by the United Nations in 2022. (True/False)
4. Environmental Impact Assessments are conducted after a project has already been completed. (True/False)
5. Intergenerational equity refers to equal treatment of all individuals within the current generation only. (True/False)

UNIT 4

STOCKHOLM DECLARATION AND RIO DECLARATION

Structure

- **4.0 Objectives**
- **4.1 Introduction**
- **4.2 Evolution of International Environmental Law**
- **4.3 The Stockholm Declaration, 1972**
- **4.4 The Rio Declaration, 1992**
- **4.5 Comparative Analysis of the Stockholm and Rio Declarations**
- **4.6 Impact on National and International Environmental Law**
- **4.7 Criticisms and Limitations**
- **4.8 Summary**
- **4.9 Glossary**
- **4.10 References**
- **4.11 Suggested Readings**
- **4.12 Terminal Questions**
- **4.13 Short Answer Questions**
- **4.14 True or False Questions**

4.0 Objectives

After studying this unit, you should be able to:

- Explain the historical background that led to the international community adopting environmental declarations.
- Describe the key principles contained in the Stockholm Declaration, 1972.
- Describe the key principles contained in the Rio Declaration, 1992.
- Compare and contrast the Stockholm and Rio Declarations in terms of scope, philosophy, and outcomes.
- Analyse the influence of both declarations on national environmental legislation, including in India.
- Critically evaluate the strengths and weaknesses of these soft-law instruments.

4.1 Introduction

Environmental degradation is not confined by national borders. Air pollution, ozone depletion, marine contamination, and the loss of biodiversity are transboundary problems that no single state can resolve on its own. Recognition of this reality in the second half of the twentieth century gave rise to the modern discipline of international environmental law, a body of principles, treaties, and customary rules that regulate how states use, protect, and share the natural environment.

Two international conferences occupy a place of special importance in this history: The United Nations Conference on the Human Environment held at Stockholm in 1972, and the United Nations Conference on Environment and Development held at Rio de Janeiro in 1992, popularly known as the Earth Summit. Each conference produced a declaration of principles, non-binding in the strict legal sense, yet enormously influential in shaping the direction of domestic and international law thereafter. This unit examines the background, content, and significance of the Stockholm and Rio Declarations, compares their approaches, and considers their lasting impact on environmental governance.

4.2 Evolution of International Environmental Law

Before 1972, environmental protection was addressed only in a fragmented, sector-specific manner, through instruments dealing with particular resources such as fisheries, migratory birds, or oil pollution at sea. There was no comprehensive framework treating the environment as a single, interconnected system deserving of protection in its own right.

Several developments in the 1960s changed this. Scientific research revealed the scale of industrial pollution, chemical contamination, and resource depletion. Public awareness grew rapidly following influential publications that documented the ecological costs of unregulated industrial and agricultural practices. Developing countries, newly independent after decolonisation, began to insist that any international environmental regime must also address poverty, underdevelopment, and their right to economic growth. Against this background, the United Nations General Assembly decided to convene a global conference devoted exclusively to the human environment, culminating in the Stockholm Conference of 1972.

Twenty years later, growing evidence of ozone layer depletion, climate change, deforestation, and biodiversity loss, combined with a renewed emphasis on linking environmental protection with economic development, led to the Rio Conference of 1992. Rio built upon the Stockholm foundation but introduced the concept of sustainable development as its organising philosophy.

4.3 The Stockholm Declaration, 1972

4.3.1 Background and Context

The United Nations Conference on the Human Environment was held in Stockholm, Sweden, from 5 to 16 June 1972. It was the first major international conference to treat environmental protection as a matter of global concern requiring coordinated state action. Representatives of 113 countries participated, along with numerous intergovernmental and non-governmental organisations. The Conference was convened largely due to the initiative of Sweden, which had raised concerns regarding acid rain and transboundary pollution, and due to mounting international recognition that industrialisation, population growth, and resource exploitation were placing unsustainable pressure on ecological systems.

A central tension at Stockholm arose between industrialised and developing nations. Developed countries were primarily concerned with pollution control and conservation, having already achieved a substantial degree of industrial growth. Developing countries, by contrast, feared that strict environmental standards would curtail their own developmental aspirations, and argued that poverty itself was a major cause of environmental degradation. This tension was partly reconciled through the Declaration's recognition that development and environmental protection were interconnected concerns, a theme that would be developed much further at Rio two decades later.

The Conference adopted three principal instruments: The Stockholm Declaration on the Human Environment, containing twenty-six principles; an Action Plan comprising over a hundred specific recommendations; and a resolution establishing institutional arrangements, most notably the creation of the United Nations Environment Programme (UNEP), which remains the principal UN body coordinating environmental action today.

4.3.2 Key Principles of the Stockholm Declaration

The twenty-six principles of the Stockholm Declaration may conveniently be grouped under the following themes.

(a) Fundamental Right to a Healthy Environment

The Declaration proclaimed that human beings possess a fundamental right to freedom, equality, and adequate conditions of life in an environment that permits a life of dignity and well-being, coupled with a solemn responsibility to protect and improve that environment for present and future generations. This linkage between environmental protection and human rights was a novel and far-reaching idea at the time.

(b) Management of Natural Resources

Several principles addressed the safeguarding of natural resources, including air, water, land, flora, and fauna, through careful planning and management. States were called upon to maintain the capacity of the earth to produce renewable resources, to conserve non-renewable resources against the risk of future exhaustion, and to take responsibility for safeguarding wildlife and its habitat, which had been placed in serious jeopardy by human activity.

(c) Pollution Control

The Declaration addressed the discharge of toxic substances into the environment, urging states to halt the release of pollutants in quantities or concentrations exceeding the capacity of the environment to render them harmless. Particular attention was given to the protection of the seas from pollution that could harm marine life, damage amenities, or interfere with other legitimate uses of the ocean.

(d) Development and Environment

Recognising the concerns of developing nations, the Declaration affirmed that economic and social development is essential for ensuring a favourable living and working environment, and that developing countries require assistance, including financial and technical support, to fulfil their environmental responsibilities without compromising their development. It further called for rational planning as a tool to reconcile any conflict between development needs and the necessity of protecting the environment.

(e) Science, Technology, and Education

States were encouraged to promote scientific research and technological innovation in the service of environmental protection, to share knowledge and experience, and to foster environmental education for both the young and the adult population, so as to cultivate an informed public opinion regarding the importance of protecting the environment.

(f) International Cooperation and State Responsibility

Perhaps the most celebrated provision, Principle 21, declared that states have the sovereign right to exploit their own resources pursuant to their own environmental policies, but bear the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond national jurisdiction. This principle, drawing on earlier arbitral reasoning, has since been widely regarded as reflecting customary international law. The concluding principles called upon states to cooperate in developing international law regarding liability and compensation for environmental damage, and expressed the aspiration for the elimination of nuclear weapons and other means of mass destruction, understood as instruments of profound environmental harm.

4.3.3 Significance and Contribution of the Stockholm Declaration

The Stockholm Declaration is widely regarded as the foundational instrument of modern international environmental law. Its significance may be summarised as follows.

- **First**, it was the first international instrument to articulate environmental protection as a matter of universal concern, moving the subject from a marginal, sector-specific issue to a central item on the global agenda.
- **Second**, it led directly to the establishment of the United Nations Environment Programme, which has since coordinated the negotiation of numerous multilateral environmental agreements.

- **Third**, Principle 21 on state responsibility for transboundary harm has attained the status of customary international law and continues to be cited in international judicial and arbitral decisions.
- **Fourth**, it inspired a wave of domestic environmental legislation across the world, including in India, where it directly influenced the insertion of Articles 48A and 51A(g) into the Constitution through the Forty-second Amendment, and the subsequent enactment of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, and the Environment (Protection) Act, 1986.
- **Fifth**, it introduced the enduring, though not fully resolved, idea that development and environmental protection must be reconciled rather than treated as competing objectives, a theme that matured into the doctrine of sustainable development articulated at Rio.

4.4 The Rio Declaration, 1992

4.4.1 Background and Context

The United Nations Conference on Environment and Development, popularly called the Rio Conference or the Earth Summit, was held at Rio de Janeiro, Brazil, from 3 to 14 June 1992, twenty years after Stockholm. It was, at the time, the largest gathering of world leaders ever assembled, with representatives of over 170 countries and thousands of non-governmental organisations in attendance.

The intervening two decades had witnessed growing scientific consensus regarding ozone layer depletion, the accumulating threat of climate change, large-scale deforestation, desertification, and an accelerating loss of biological diversity. The report of the World Commission on Environment and Development, published in 1987 and widely known by the name of its chairperson, had popularised the concept of sustainable development, defined broadly as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This concept became the guiding philosophy of the Rio Conference.

The Rio Conference produced five major outcomes: The Rio Declaration on Environment and Development, containing twenty-seven principles; Agenda 21, a detailed programme of action for sustainable development in the twenty-first century; a non-binding statement of forest principles; and two binding treaties opened for signature at the Conference, namely the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity. This unit is concerned specifically with the Rio Declaration.

4.4.2 Key Principles of the Rio Declaration

The twenty-seven principles of the Rio Declaration expand considerably upon the Stockholm framework and may be grouped as follows.

Environment Justice and Human Rights

(a) Human-Centred Sustainable Development

The very first principle placed human beings at the centre of concerns for sustainable development, declaring that they are entitled to a healthy and productive life in harmony with nature. This human-centred formulation was a deliberate refinement of the Stockholm approach and set the tone for the entire Declaration.

(b) Sovereignty and Responsibility

Echoing Stockholm's Principle 21, the Rio Declaration reaffirmed the sovereign right of states to exploit their own resources according to their own environmental and developmental policies, coupled with the responsibility to ensure that activities under their jurisdiction do not cause damage to the environment of other states or areas beyond national jurisdiction.

(c) The Right to Development

The Declaration recognised a right to development, to be fulfilled so as to equitably meet the developmental and environmental needs of present and future generations, thereby placing the developmental aspirations of poorer nations on an equal footing with environmental concerns.

(d) Eradication of Poverty and Special Needs of Developing Countries

Poverty eradication was recognised as an indispensable requirement for sustainable development. The Declaration further acknowledged that developing countries, particularly the least developed and those most environmentally vulnerable, warrant special priority, and that the international community should take full account of their particular circumstances and needs.

(e) Common but Differentiated Responsibilities

One of the most influential contributions of the Rio Declaration is the principle of common but differentiated responsibilities. It recognises that although all states share responsibility for pursuing sustainable development in view of the different contributions to global environmental degradation, developed countries bear a greater share of responsibility in light of the pressures their societies place on the global environment and the greater technological and financial resources they command. This principle has since become a cornerstone of climate change negotiations.

(f) Precautionary Approach and Polluter Pays

The Declaration articulated the precautionary approach, providing that where there are threats of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation. It also endorsed the polluter pays principle, under which national authorities should promote the internalisation of environmental costs, so that the party responsible for pollution ordinarily bears the cost of remedying it, having regard to the public interest and without distorting international trade and investment.

(g) Environmental Impact Assessment and Access to Information

States were called upon to undertake environmental impact assessment as a national instrument for proposed activities likely to have a significant adverse effect on the environment. Principle 10 further recognised that environmental issues are best handled with the participation of all concerned citizens, requiring appropriate access to environmental information held by public authorities, an opportunity to participate in decision-making processes, and effective access to judicial and administrative proceedings, including redress and remedy.

(h) Role of Women, Youth, and Indigenous Communities

The Declaration recognised the vital role of women in environmental management and development, the creativity and courage of youth in shaping a sustainable future, and the role of indigenous peoples and their communities in environmental management owing to their traditional knowledge and practices.

(i) Peace, Warfare, and the Environment

The Declaration affirmed that peace, development, and environmental protection are interdependent and indivisible, that warfare is inherently destructive of sustainable development, and that states must therefore respect international law providing protection for the environment in times of armed conflict, and cooperate in its further development where necessary.

(j) Cooperation and Legislative Development

Concluding principles called upon states to notify one another promptly of natural disasters or emergencies likely to produce sudden harmful effects, to enact effective environmental legislation domestically, and to cooperate in good faith in the further development of international law in the field of sustainable development.

4.4.3 Significance and Contribution of the Rio Declaration

The Rio Declaration is regarded as having consolidated and substantially advanced the framework established at Stockholm. Its principal contributions include the following.

- **First**, it firmly established sustainable development, rather than pollution control alone, as the organising concept of international environmental governance.
- **Second**, the principle of common but differentiated responsibilities provided the conceptual basis for subsequent climate change instruments, including the Kyoto Protocol and the Paris Agreement, both of which distinguish between the obligations of developed and developing states.
- **Third**, Principle 10 laid the foundation for participatory environmental governance, later given more detailed treatment in regional instruments such as the Aarhus Convention in Europe and the Escazu Agreement in Latin America and the Caribbean.

- **Fourth**, the precautionary approach and the polluter pays principle have since been incorporated into numerous domestic legal systems, including Indian environmental jurisprudence, where the Supreme Court has recognised both as integral to the constitutional guarantee of a healthy environment.
- **Fifth**, the Rio Conference produced two binding treaties, the Framework Convention on Climate Change and the Convention on Biological Diversity, giving the Conference an operational legacy considerably more concrete than that of Stockholm.

4.5 Comparative Analysis of the Stockholm and Rio Declarations

Although the Rio Declaration builds directly upon the foundation laid at Stockholm, the two instruments differ in several important respects.

- **Scope:** Stockholm was chiefly concerned with pollution control and the conservation of natural resources, whereas Rio adopted the considerably broader and more integrated concept of sustainable development, expressly linking environmental protection with economic development and poverty eradication.
- **Number and depth of principles:** Stockholm contained twenty-six principles, largely programmatic in character, while Rio contained twenty-seven principles that introduced more precise legal concepts, such as the precautionary approach, the polluter pays principle, and environmental impact assessment.
- **Treatment of developing countries:** Stockholm acknowledged the developmental concerns of poorer nations in general terms, whereas Rio went further by articulating the principle of common but differentiated responsibilities, giving concrete expression to differentiated obligations based on historical contribution to environmental harm and capacity to act.
- **Public participation:** Rio's Principle 10 introduced an explicit commitment to public access to information, participation, and justice in environmental matters, a dimension largely absent from the Stockholm text.
- **Institutional and treaty outcomes:** Stockholm led to the creation of the United Nations Environment Programme, an institutional outcome, while Rio produced, in addition to institutional follow-up, two binding multilateral treaties opened for signature at the Conference itself.
- **Underlying philosophy:** Stockholm treated environmental protection and development as concerns to be reconciled through planning, while Rio treated them as mutually reinforcing dimensions of a single objective, namely sustainable development.

Notwithstanding these differences, both declarations share a common thread: neither is a binding treaty in the formal sense, yet both have exerted profound normative influence on the subsequent development of environmental law at the national, regional, and international

levels, illustrating the significant role that soft-law instruments can play in shaping legal norms over time.

4.6 Impact on National and International Environmental Law

The influence of the Stockholm and Rio Declarations extends well beyond their formal, non-binding status.

(a) Influence on International Law

Principles first articulated at Stockholm and refined at Rio, particularly the responsibility not to cause transboundary environmental harm, the precautionary approach, and the polluter pays principle, have been cited and applied by international courts and tribunals, including the International Court of Justice, and have informed the drafting of numerous multilateral environmental agreements on climate change, biological diversity, hazardous wastes, and ozone depletion.

(b) Influence on Indian Law

India's environmental jurisprudence has been substantially shaped by both declarations. Following Stockholm, Parliament enacted comprehensive pollution control legislation and the Constitution was amended to include environmental protection as both a directive principle of state policy under Article 48A and a fundamental duty of citizens under Article 51A(g). The Supreme Court of India has, in a long line of decisions, read the right to a healthy environment into the fundamental right to life under Article 21 of the Constitution. Following Rio, the Supreme Court expressly incorporated the precautionary principle and the polluter pays principle into Indian environmental law as essential features of sustainable development, treating them as part of the law of the land even in the absence of specific legislative enactment.

(c) Influence on Subsequent International Conferences

Both declarations set a template for subsequent global environmental conferences and their outcome documents, including the Johannesburg Declaration on Sustainable Development of 2002 and the Rio+20 outcome document of 2012, titled 'The Future We Want', as well as the 2030 Agenda for Sustainable Development and its seventeen Sustainable Development Goals adopted in 2015.

4.7 Criticisms and Limitations

Despite their significance, both declarations have attracted sustained criticism.

- Neither declaration is legally binding; they create political and moral commitments rather than enforceable obligations, and contain no mechanism for monitoring compliance or imposing consequences for non-compliance.

- The principles are frequently expressed in broad, aspirational language, which affords states considerable latitude in interpretation and implementation, often diluting their practical effect.
- Developing countries have long argued that developed nations have not honoured commitments regarding financial assistance and technology transfer envisaged in both instruments, leaving obligations of differentiated responsibility largely unfulfilled in practice.
- The absence of any dispute resolution or enforcement mechanism means that the ultimate impact of these declarations depends almost entirely on the willingness of individual states to give effect to their principles through domestic legislation and policy.
- Critics also note that despite thirty years having passed since Rio, indicators such as greenhouse gas emissions, biodiversity loss, and deforestation continue to worsen, raising questions about the practical efficacy of declaratory instruments in altering state behaviour.

4.8 Summary

The Stockholm Declaration of 1972 and the Rio Declaration of 1992 together represent the two foundational milestones of modern international environmental law. The Stockholm Declaration, adopted at the first major global environmental conference, established the principle that human beings possess a right to a healthy environment coupled with a duty to protect it, articulated the principle of state responsibility for transboundary environmental harm, and led to the creation of the United Nations Environment Programme. Twenty years later, the Rio Declaration built upon this foundation by placing human beings at the centre of sustainable development, articulating the principle of common but differentiated responsibilities, endorsing the precautionary approach and the polluter pays principle, and recognising the importance of public participation in environmental decision-making.

Although neither instrument is legally binding, both have exercised a profound and lasting influence on the development of domestic and international environmental law, including in India, where their principles have been absorbed into constitutional provisions, legislative enactments, and an extensive body of judicial precedent. At the same time, both declarations remain subject to criticism regarding their lack of enforceability and the uneven implementation of the commitments they contain, particularly with respect to assistance for developing countries. Understanding these two instruments is therefore essential to any study of how international environmental norms have evolved and continue to shape law and policy today.

4.9 Glossary

Environment Justice and Human Rights

Anthropogenic	Originating from human activity, as distinguished from natural causes.
Common but Differentiated Responsibilities	A principle recognising that all states share responsibility for environmental protection, but that developed states bear a greater share owing to their historical contribution to environmental degradation and greater capacity to act.
Customary International Law	Rules of international law that arise from the consistent and general practice of states, followed out of a sense of legal obligation, even without a written treaty.
Declaration	A formal statement of principles adopted at an international conference, generally regarded as a non-binding, soft-law instrument.
Environmental Impact Assessment	A process for evaluating the likely environmental consequences of a proposed project or activity before it is carried out.
Polluter Pays Principle	The principle that the party responsible for causing pollution should bear the cost of remedying the resulting environmental harm.
Precautionary Approach	The principle that a lack of full scientific certainty should not be used as a reason to postpone cost-effective measures to prevent serious or irreversible environmental harm.
Soft Law	Instruments or principles that, while not legally binding in themselves, carry normative weight and influence the development and interpretation of binding legal rules.
Sustainable Development	Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.
Transboundary Harm	Environmental damage originating in one state that produces harmful effects in another state or in areas beyond national jurisdiction.

4.10 References

1. United Nations, Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972, U.N. Doc. A/CONF.48/14/Rev.1.
2. United Nations, Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I).
3. Report of the World Commission on Environment and Development, Our Common Future, Oxford University Press, 1987.
4. P. Sands and J. Peel, Principles of International Environmental Law, Cambridge University Press.
5. P. Leelakrishnan, Environmental Law in India, LexisNexis.

6. Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India*, Oxford University Press.
7. United Nations Environment Programme, official records and documentation on the Stockholm and Rio Conferences, available at unep.org.

4.11 Suggested Readings

1. P. Sands, J. Peel, A. Fabra and R. MacKenzie, *Principles of International Environmental Law*, Cambridge University Press, latest edition.
2. Philippe Sands, *Lawless World*, Penguin Books (chapters on the evolution of international environmental governance).
3. P. Leelakrishnan, *Environmental Law in India*, LexisNexis, latest edition.
4. Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India: Cases, Materials and Statutes*, Oxford University Press.
5. United Nations, *Agenda 21 and the Rio Declaration on Environment and Development*, official UN publication.
6. Reports and outcome documents of the Johannesburg Summit (2002) and Rio+20 (2012), 'The Future We Want', available on the United Nations website.

4.12 Terminal Questions

1. Discuss the background and circumstances that led to the convening of the Stockholm Conference of 1972. Examine the key principles contained in the Stockholm Declaration.
2. 'The Rio Declaration built substantially upon the foundation laid by the Stockholm Declaration.' Discuss this statement with reference to the key principles of both instruments.
3. Explain the principle of common but differentiated responsibilities as articulated in the Rio Declaration. Discuss its significance in subsequent international environmental negotiations.
4. Critically examine the precautionary approach and the polluter pays principle as set out in the Rio Declaration, with reference to their reception in Indian environmental jurisprudence.
5. Compare and contrast the Stockholm Declaration, 1972, and the Rio Declaration, 1992, highlighting the differences in their scope, philosophy, and institutional or treaty outcomes.

4.13 Short Answer Questions

1. When and where was the Stockholm Conference held, and how many countries participated?

Environment Justice and Human Rights

2. State the significance of Principle 21 of the Stockholm Declaration.
3. What institutional body was established as a direct outcome of the Stockholm Conference?
4. When and where was the Rio Conference held?
5. Define the concept of sustainable development as understood at the Rio Conference.

4.14 True or False Questions

- 1 The Stockholm Conference was held in 1972 in Sweden.
- 2 The Stockholm Declaration contains thirty principles.
- 3 The United Nations Environment Programme was established as a direct outcome of the Stockholm Conference.
- 4 Principle 21 of the Stockholm Declaration deals exclusively with the rights of indigenous communities.
- 5 The Rio Conference, also known as the Earth Summit, was held in Brazil in 1992.

(Answer key: 1-True, 2-False, 3-True, 4-False, 5-True)

Unit-5

Global Climate Change Framework

5.1 Objectives

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5.1 Objectives

After studying this unit, learners will be able to:

1. Understand the concept, causes, and impacts of global climate change.
2. Explain the evolution of the international climate change regime and the need for global cooperation.
3. Examine the objectives, principles, and institutional framework of the **United Nations Framework Convention on Climate Change (UNFCCC)**.
4. Analyze the significance and key provisions of the **Kyoto Protocol** and the **Paris Agreement**.
5. Evaluate the role of Conferences of the Parties (COPs), climate finance, technology transfer, and capacity-building mechanisms in addressing climate change.
6. Assess the role of developed and developing countries, including India, in implementing global climate commitments.
7. Critically examine the achievements, challenges, and future prospects of the global climate change framework in promoting sustainable development and environmental justice.

5.2 Introduction

Climate change has emerged as one of the most significant global challenges of the twenty-first century. Rising global temperatures, changing precipitation patterns, melting glaciers, sea-level rise, biodiversity loss, and the increasing frequency of extreme weather events have profound implications for ecosystems, economies, and human societies. These impacts threaten food security, water resources, public health, livelihoods, and the realization of fundamental human rights, particularly for vulnerable populations in developing countries.

Unlike many environmental problems that are confined within national boundaries, climate change is a transboundary issue requiring coordinated international action. Greenhouse gas emissions released in one part of the world contribute to global warming everywhere, making climate change a shared responsibility of the international community. Consequently, governments, international organizations, scientific institutions, civil society, and the private sector have collaborated to develop a comprehensive global framework aimed at mitigating climate change and enhancing resilience to its impacts.

The modern international climate governance framework began with the adoption of the **United Nations Framework Convention on Climate Change (UNFCCC)** at the Rio Earth Summit in 1992. The Convention established the foundation for global cooperation by recognizing climate change as a common concern of humankind and introducing the principle of **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**. It acknowledged that while all countries share responsibility for addressing climate change, developed countries bear greater obligations due to their historical contributions to greenhouse gas emissions and their greater financial and technological capacities.

Subsequent agreements strengthened the global climate regime. The **Kyoto Protocol (1997)** introduced legally binding emission reduction targets for developed countries, marking the first international effort to regulate greenhouse gas emissions. Later, the **Paris Agreement (2015)** transformed global climate governance by requiring all Parties to submit Nationally Determined Contributions (NDCs) and collectively pursue efforts to limit global warming to well below 2°C, while striving to keep temperature rise below 1.5°C above pre-industrial levels.

The global climate change framework also encompasses various institutional mechanisms, including the **Conference of the Parties (COP)**, the **Intergovernmental Panel on Climate Change (IPCC)**, the **Green Climate Fund (GCF)**, technology transfer initiatives, carbon markets, adaptation strategies, and climate finance arrangements. These institutions facilitate international cooperation, scientific assessment, policy development, and financial support for climate action.

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India, as one of the world's largest developing economies, plays a significant role in global climate governance. While maintaining that climate equity and sustainable development remain central to international negotiations, India has adopted ambitious renewable energy targets, expanded climate adaptation programmes, and committed to achieving net-zero emissions by 2070. India's climate policies demonstrate the balancing of developmental priorities with environmental responsibilities.

Despite substantial progress, the global climate change framework continues to face significant challenges. Differences in national interests, inadequate climate finance, technological inequalities, implementation gaps, and concerns regarding climate justice often complicate international negotiations. Nevertheless, the framework remains the principal mechanism through which the international community seeks to address one of humanity's greatest collective challenges.

This unit examines the evolution, principles, institutions, agreements, achievements, and limitations of the global climate change framework. It also highlights the role of international cooperation in promoting sustainable development, environmental protection, and climate justice while addressing the complex realities of a changing global climate.

5.3 Conventions and negotiations on Climate Change

The first World Climate Conference (WCC)	1979
The Intergovernmental Panel on Climate Change is set up	1988
IPCC's first assessment report released. IPCC and second World Climate Conference call for a global treaty on climate change. United Nations General Assembly negotiations on a framework convention begin.	1990
First meeting of the Intergovernmental Negotiating Committee (INC) takes place.	1991
The INC adopts UNFCCC text. At the Earth Summit in Rio, the UNFCCC is opened for signature along with its sister Rio Conventions, UNCBD and UNCCD.	1992
UNFCCC enters into force.	1994
The first Conference of the Parties (COP 1) takes place in Berlin	1995
The UNFCCC Secretariat is set up to support action under the Convention	1996
Kyoto Protocol formally adopted in December at COP3	1997
Release of IPCC's Third Assessment Report.	2001

Entry into force of the Kyoto Protocol. The first Meeting of the Parties to the Kyoto	2005
Protocol (MOP 1) takes place in Montreal.	
IPCC's Fourth Assessment Report released. Climate science entered into popular consciousness.	2007
Copenhagen Accord drafted at COP15 in Copenhagen. This was taken note of by the COP. Countries later submitted emissions reductions pledges or mitigation action pledges, all non-binding.	2009
Cancun Agreements drafted and largely accepted by the COP, at COP16	2010
The Durban Platform for Enhanced Action drafted and accepted by the COP, at COP17	2011

Climate change may pose a threat to food security through erratic rainfall patterns and decreasing crop yields, contributing to increased hunger and malnutrition in India. Furthermore, adverse climate change impacts on natural systems and resources, infrastructure, and labour productivity may lead to reduced economic growth and increasing poverty. These effects threaten the achievement of MDG 1. Loss of livelihood assets, displacement and migration may lead to reduced access to education opportunities, thus hampering the realization of MDG 2. Depletion of natural resources and decreasing agricultural productivity may place additional burdens on women's health and reduce time for decision-making processes and income generating activities, worsening gender equality and women's empowerment (MDG 3). Increased incidence of vector-borne diseases, increases in heat-related mortality, and declining quantity and quality of drinking water will lead to adverse health effects threatening the achievement of MDGs 4, 5, 6 and 7. In general terms, the realization of MDG 7 may be approached through climate change negatively impacting quality and productivity of natural resources and ecosystems, possibly irreversibly, threatening environmental sustainability. Climate change, a global phenomenon, calls for a collective response in the form of global partnerships (MDG 8).

5.4 Mitigation and Adaptation

Anticipating the negative effects of climate change and acting appropriately to prevent or minimize the harm they can bring, or seizing opportunities that may present themselves, is what is meant by adaptation. Examples of adaptation strategies include extensive infrastructure modifications, such as the construction of sea level rise fortifications, as well as behavioural changes, such as people cutting back on food waste. The process of adjusting to the present and future effects of climate change can be viewed as the essence of adaptation.

By preventing or limiting the production of greenhouse gases (GHG) into the atmosphere, mitigation refers to lessening the severity of the effects of climate change. Mitigation can be accomplished by either reducing the sources of these gases, such as by increasing the

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proportion of renewable energies or implementing a cleaner transportation system, or by improving the storage of these gases, such as by expanding forests. In a nutshell, mitigation refers to human action that lowers GHG emission sources and/or improves sinks.

We must prepare for the change that is now here and will continue to affect us for the foreseeable future because mitigation measures will take decades to have an impact on rising temperatures. Mitigation may prompt a range of policy discussions and actions. In a recent survey of land trusts, 60% of respondents said they were building awareness or incorporating climate change into their conservation efforts. By considering the impacts of climate change in their normal land conservation activities, land trusts can provide strategic investments and effective land management to help reduce the vulnerability of natural areas, working lands, and the human communities that depend on them. Mitigation case studies highlight how some land trusts are encouraging mitigation through land use interventions as well as leading by example to adopt green energy technologies and support sustainable growth policies.

Mitigation through Land Use Interventions: As stewards of the land, conservation organizations can play a unique role to encourage and practice climate change mitigation. From engaging in regional planning, like the Jefferson Land Trust, to actively acquiring critical properties slated for development, as the Hawaiian Islands Land Trust did with their Waihe'e Coastal Dunes and Wetlands Refuge, land trusts are developing expertise to facilitate less carbon-intensive land uses by effectively influencing land use planning processes. Some groups, such as the Vermont Land Trust, structure their agricultural conservation easements to allow the use of small-scale renewable energy technology and infrastructure, which can mitigate greenhouse gas emissions as well as offer an example of good stewardship practices that may inspire other community members. Other groups, such as the Downeast Lakes Land Trust, Pacific Forest Trust, and The Conservation Fund, have identified and implemented opportunities for carbon projects that avoid or offset greenhouse gas emissions in concert with other management objectives.

Mitigation by Example – Conservation Leadership at Work: By planning for climate change, your land trust is already making a positive impact in your community. You can extend that reach by connecting with your audience, raising their awareness and inspiring action to reduce emissions and thus the impacts of climate change.

By raising awareness and calling for individual and community climate action, land trusts can play a critical role in guiding future land use planning in their region. Ultimately, land trusts may be able to help shape climate change policy, reduce community-wide carbon footprints and enhance the resilience of natural and developed environments to climate change impacts.

- Inspiring climate change action in your community involves three steps:
- Raise awareness of climate change, and how it affects the things your audience cares about.
- Engage your community through publications and programs.
- Launch climate action projects in your community.

5.5 Adaptation and Mitigation strategies

Both mitigation and adaptation are needed to significantly reduce the risks and increase the resilience of the world's most vulnerable citizens. In the near term, adaptation actions can reduce the impacts of climate change (although they cannot be reduced to zero). In the longer term, a failure to mitigate climate change will lead to such massive impacts that adaptations will be unsuccessful. Mitigation means taking action to reduce greenhouse gas emissions to avoid further climate change than has already occurred due to historic and current emissions. It is about transforming the way that individuals, governments and industry produce and use energy, changing activities to reduce or eliminate emissions, and developing clean and efficient infrastructure where it does not currently exist. Adaptation and mitigation should not be considered as either/or strategies, but rather as complementary ones that should be pursued together.

Some of the major schemes/policies significantly addressing adaptation objectives are as follows:

- ☐ Mahatma Gandhi Swarnajayanti Gram Swarozgar Yojana (Rural selfemployment program)
- ☐ Sampoorna Grameen Rozgar Yojana (Comprehensive rural employment scheme)
- ☐ Pradhan Mantri Gram Sadak Yojana (Prime Minister's rural roads program)
- ☐ National Rural Health Mission
- ☐ Accelerated Rural Water Supply Programme
- ☐ Desert Development Programme
- ☐ Major and Medium Irrigation
- ☐ Sustainability of Dryland/ Rainfed Farming System and
- ☐ Disaster Management

Eight key interventions may be identified that will contribute to reductions in human security risks and health vulnerability among the people.

- (i) Household water supply, sanitation and hygiene- including water treatment, oral rehydration therapy, hygiene education and sanitation.
- (ii) Groundwater recharge and watershed remediation- including rainwater harvesting, run-off catchments, watershed clean-ups, tree planting and restoration of biodiversity.
- (iii) Disaster risk reduction and preparedness- including risk mapping and evacuation plans.
- (iv) Environmental protection and restoration- such as school and community gardens, tree planting and clean-up of stagnant water and solid waste.
- (v) Renewable energy solutions- including clean energy for homes, communities, solar and wind water pumps and clean and efficient household solutions for cooking and heating.

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- (vi) Health-related interventions- including improvements to basic public health infrastructure, environmental health surveillance, insecticide-treated mosquito nets and malaria prophylaxis and treatment.
- (vii) Community capacity-building- including environmental education, micro enterprise for women, education for sustainable development, participatory local actions and vocational training/job creation.
- (viii) Social protection and psychosocial support- including life skills and conflict resolution, education and other programmes to support livelihoods and community functioning, 'safety net' interventions to help prevent dislocation and exploitation of children, and interventions to address family and individual stress and trauma.

Measures for Mitigating Climate change

The important measures for mitigating climate change are as follows:

- 1) Improving energy efficiency and conservation as well setting up a Bureau of Energy Efficiency
 - 2) Power sector reforms
 - 3) Promoting hydro and renewable energy
 - 4) Promotion of clean coal technologies
 - 5) Coal washing and efficient utilization of coal
 - 6) Afforestation and conservation of forests
 - 7) Reduction of gas flaring
 - 8) Cleaner and lesser carbon intensive fuel for transport
 - 9) Encouraging Mass Rapid Transport systems
 - 10) Environmental quality management and improving energy efficiency
- Below are five solutions that can both curb climate change and help us cope with its impacts at the same time:
1. Protect Coastal Wetlands: Mangroves, seagrass, and salt marshes are distinctive coastal ecosystems that act as marine habitats and natural water filters. By absorbing storm surges and floodwaters, they protect coastlines from sea level rise. They also store massive amounts of carbon in the soil and roots of their plants. Mangrove forests presently store more than two years' worth of global emissions, which, if these forests were to be destroyed, would be released into the atmosphere and exacerbate the consequences of climate change. By 2050, it is possible to reduce one gigaton of CO₂ annually, or more than three years' worth of emissions, by increasing protected coastal wetlands and recovering roughly 40% of the ecosystem's global coverage. Local communities that depend on these ecosystems for their homes and means of subsistence must be included in efforts to preserve coastal wetlands. To manage these wetlands and aid in the development of neighboring communities, nations like

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Fiji and Papua New Guinea have had success with community-based conservation and education.

2. **By Promoting the Benefits of Sustainable Agroforestry:** It is obvious that the current land management practices need to alter because land use changes from forestry and agriculture contribute for almost 25% of anthropogenic greenhouse gas emissions. Agro forestry techniques combine various trees or shrubs with animals and crops. For example, compared to treeless regions of the same size, pastures with trees can trap five to ten times more carbon. By simultaneously raising cattle and growing crops, farmers may increase their productivity while using much less area. Farmers can increase their sources of income and lessen the dangers to their livelihoods posed by climate change and unpredictable weather by diversifying their crops and keeping livestock on these sites.

3. **Decentralize the Distribution of Energy:** Infrastructure for electricity transmission and distribution will be significantly impacted by climate change. The demand for and use of energy are both rising concurrently with development and population expansion. Since interruptions at one point in the system can have an impact on the entire network, centralized energy systems with huge power plants and infrastructure connecting across long distances are particularly sensitive to climate change. Power sources that are smaller and easier to control can also recover from disasters more quickly. Hospitals in distant places without grid access or who frequently face power outages can receive dependable, clean energy from low-carbon solutions like solar panels and batteries.

4. **Protect the land rights of indigenous peoples:** Around 2.5 billion people rely on the nearly 50% of the planet's land that is managed by indigenous and local populations for their livelihoods. As a result of these communities' generations-long application of adaptation principles on their lands, they have amassed a rich corpus of folk wisdom that may instruct others on how to adjust to changing environmental conditions. Additionally, as demonstrated in Bolivia, Brazil, and Colombia, areas where indigenous people have secure tenure over their property experience at least a twofold reduction in deforestation compared to comparable areas without such rights. A quarter of the above-ground carbon in tropical forests is stored in woods that indigenous people and local communities have preserved. Yet less than a quarter of this land is really legally owned by these groups. The protection of indigenous peoples' rights will enable them to maintain their rights to their land, save the environment, and better maintain their way of life in the face of climate change.

5. **Strengthen Public Transit:** In the absence of more affordable and accessible lowcarbon transportation options, road transport now contributes 72% of all emissions connected to transportation in the world. Storms and high temperatures are only two examples of how climate change will affect transportation infrastructure. Extreme weather-related network outages will disproportionately affect low-income individuals and other vulnerable urban populations who have fewer transportation options. Both issues are addressed by resilient, low-carbon public transportation. By 2050, urban public transit may be increased by 40%, which would reduce the number of cars on the road and prevent 6.6 gigatons of carbon emissions. Mass transit may be made safe and reliable by being retrofitted and designed to withstand climate hazards such natural catastrophes, sea level rise, and excessive heat.

6. Prioritizing multidimensional climate solutions: These are only a few instances of climate measures that simultaneously address adaptation and mitigation. There are numerous others that can accommodate various industries, ecosystems, nations, and communities. The urgent and severe climate problem, the necessity for such coordinated efforts must be prioritized by policymakers due to the limited budget, resources, and attention that can be given to fixing the problem.

The international community became alive to climate change and its likely impact on the plant and humans especially in the late twentieth century. Accordingly, various efforts were made to contain, combat and mitigate the effects of climate change. These can be broadly discussed under the following heads:

- (i) Montreal Protocol to Vienna Convention

- (ii) Setting up of IPCC

- (iii) Adoption of UNFCCC

- (i) Montreal Protocol to Vienna Convention

Vienna Convention for the protection of ozone layer was signed in 1985. The Convention was the result of the efforts of the world community to protect ozone layer when a huge hole was detected in it over Antarctica. Vienna Convention was aimed at promoting cooperation among nations regarding the depletion of ozone layer and to promote research and information exchange on the impact of human activities on ozone layer. However, the Convention was not a binding document and it provided for adoption of Protocols of binding nature for reducing the emission of Ozone Depleting Substances (ODS). To have a legally binding instrument, Montreal Protocol to Vienna Convention was adopted in 1987 which is a supplementary agreement to the Protocol. Montreal Protocol aimed at controlling and curbing global emission of substances that deplete the Ozone layer or modify the Ozone Layer and ultimately elimination of ODS. Though originally the Protocol was adopted to protect the Ozone Layer yet the potential effects of emission of ODS on climate change have been recognized since ODS are also potent greenhouse gases and contribute significantly to climate change. So far Protocol has been amended six times i.e. London Amendment, 1990; Copenhagen, 1992; Vienna Accord, 1995; Montreal Amendment, 1997; Beijing Amendment, 1999 and; Kigali Amendment, 2016. These amendments have added list of controlled substances which are required to be phased out for protection of Ozone layer. Kigali amendment added HFC's as a controlled substance and provided schedule for reduction of use of HFCs by 80-85%. HFC phasing out is expected to prevent 105 million tonnes of carbon dioxide equivalent of greenhouse gases and will help to avoid 0.5-degree temperature rise by 2100 (UNEP).

- (ii) Intergovernmental Panel on Climate Change (IPCC)

IPCC was set up in 1988 by World Meteorological Organization and United Nations Environment Programme (UNEP) with the following objectives:

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- ☐ To assess climate change, the scientific basis of climate change and submit reports thereon so that governments can take steps and frame policies to deal with climate change on scientific basis
- ☐ To study the effects of Climate Change
- ☐ To study and analyse future risks associated with climate change and
- ☐ Develop a suitable approach to combat, mitigate and adapt to climate change

Since its establishment IPCC has completed five assessment cycles and is currently in sixth assessment cycle. IPCC assessments are authored by select leading scientists and the reports are meticulously drafted, reviewed and finalized to provide factsheet and scientific data. It has established three working groups on the following basis

- ☐ Physical Science Basis
- ☐ Impacts Adaptation and Vulnerability
- ☐ Mitigation of Climate Change

(iii) United Nations Framework Convention on Climate Change (UNFCCC)

UNFCCC is an intergovernmental treaty which has been entered into for coping up with the issue of climate change and it provides a framework for dealing with climate change. UNFCCC was opened for signature in Rio Earth Summit in June 1992 i.e. in United Nations Conference on Environment and Development (UNCED) and it entered into force on 21st March 1994. The main aim of UNFCCC is to stabilize greenhouse gas concentration in a time bound manner so as to reduce and contain the impact of GHG on climate change. UNFCCC recognizes and is based on the Doctrine of 'Common but Differentiated Responsibilities and respective capabilities'. This principle takes into account that the damage to environment and climate as a result of emission of GHG is caused primarily by developed nations since their emission levels and per capita emissions are much higher than developing countries but the adverse impact of the emission of GHG is on the entire community.

Therefore, it is the common responsibility of all nations to reduce the emission of GHG but at the same time it recognizes special needs of developing and least developed countries to develop and therefore, it is recognized that their level of emission of GHG is likely to increase yet and they are also likely to cause damage to environment and contribute to climate change. The onus is cast on Developed countries which are detailed in Annex A to reduce emission of GHG and also to help developed and developing countries in containing GHG by technology transfer and financial support. UNFCCC mandates preparation of annual inventory of GHG emissions including data for base year (1990). It is worth mentioning here that initially the thrust of UNFCCC was on mitigating the climate change and therefore to contain the emission of GHG. However, after the adoption of Cancun Adaptation Framework (CAF) at Cancun Climate Change Conference, 2010, the focus on adaptation to climate change has also been made. The purpose of CAF is to accord same level of priority to adaptation as is given to mitigation and accordingly to prepare the developing countries to adapt to climate change so as to reduce their vulnerability.

Kyoto Protocol: UNFCCC provided for a framework to deal with climate change. Immediately after adoption of UNFCCC and its entry into force in 1994, it was felt that UNFCCC should be further strengthened by enacting a Protocol which should lay down mandatory targets for reduction of GHG emissions and accordingly, negotiations began to enter into a Protocol. The negotiations resulted in adoption of Kyoto Protocol in December 1997 in Kyoto, Japan. The Protocol entered into force on 16th February 2005. The Protocol has provided mandatory targets for reduction of GHG emissions by Annex 1 countries i.e. developed countries and countries with economies in transition to market economy. The object of the Protocol was to reduce emission of GHG by atleast 5% below 1990 levels during the first commitment period i.e. 2008-2012. The Protocol was based on CBDR and therefore the targets were different for different countries like the target was 8% for European Union, 6% for Canada, 7% for USA and 6% for countries like Hungary, Japan, Poland, New Zealand, Russia, Ukraine etc. Higher targets have been prescribed for second commitment period i.e. for 2013 to 2020 e.g. European Union has agreed to have joint target of 20% reduction of GHG of its 1990 level. The Protocol offers flexibility to the nations to reduce emissions in their own territory or to finance projects in other countries to reduce emissions. Further, the emission targets can be compensated by increasing sinks of carbon dioxide. Oceans and forests are the sinks of carbon dioxide therefore increasing forest cover can reduce increased carbon dioxide from the atmosphere. Protocol has also established Clean Development Mechanism (CDM) which allows flexibility to developed countries to achieve their emission reduction targets by sponsoring emission reduction projects in developing countries and earning saleable Certified Emission Reduction (CER) credits which can be used to achieve reduction targets.

Paris Agreement: Much celebrated Paris Agreement under UNFCCC was entered into in 2015 in 21st Conference of Parties of UNFCCC. The Paris Agreement is viewed as a major breakthrough in climate change efforts wherein the countries of the world came together and agreed for reduction in emissions so as to limit increase in global average temperature upto 2 degree Celsius above pre-industrial levels. The ambitious aim of the Paris Agreement is to contain temperature increase upto 1.5 degree Celsius above pre-industrial levels. Paris Agreement, being entered into under the Framework Convention, also recognized and applied principle of CBDR and therefore, it recognizes that the emissions of developing countries and least developed countries are yet to peak to meet their developmental needs. Therefore, the agreement desires that the global emissions of GHG should peak as early as possible and there should be rapid reductions thereafter. The Agreements calls for ensuring that the global emission of GHG during the period 2050 to 2100 should be to that level only which can be absorbed by natural sinks. Agreement mandated parties to submit Intended National Determined Contributions (INDC) containing the action plan of the country parties to contain climate change and to reduce the emission of GHG. Agreement provides for revisions of targets periodically i.e. every five years. Like the CAF, it also stresses 'adaptation' strategies so as to adapt to climate change to reduce the vulnerability to the adverse impacts of climate change.

Climate Change Change Performance Index (CCPI): After briefly discussing climate change, its effects, and the global initiatives to fight it, reduce its effects, and adapt to it as a result of

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human activity. It is important to consider how various nations are performing in this area. Since 2006, German watch and the Climate Action Network, Europe have released an annual Climate Change Performance Index. They have been keeping an eye on the activities of the nations that emit 90% of the greenhouse gases for the past thirteen years. The fundamental objective of the CCPI is to increase accountability in global climate policies and make it possible to compare the climate protection initiatives of signatory countries in order to highlight successes and failures. The CCPI uses 14 metrics to assess each nation's performance across four categories (Figure 4):

- ☐ Greenhouse gas emissions account for 40% of the overall rating, Renewable energy makes up 20%.
- ☐ Use of energy: 20%
- ☐ 20% for climate policy
- ☐ According to the CCPI 2022 study, Denmark receives a "High" rating (Fourth ranking) in the categories of greenhouse gas emissions, renewable energy, and climate policy. SWEDEN (5th), NORWAY (6th), THE UNITED KINGDOM (7th), MOROCCO (8th), CHILE (9th), AND INDIA (10 th) are the top-ranked nations overall. The top three rankings are unfilled because no country has received the highest rating according to the CCPI categories (Figure 5).

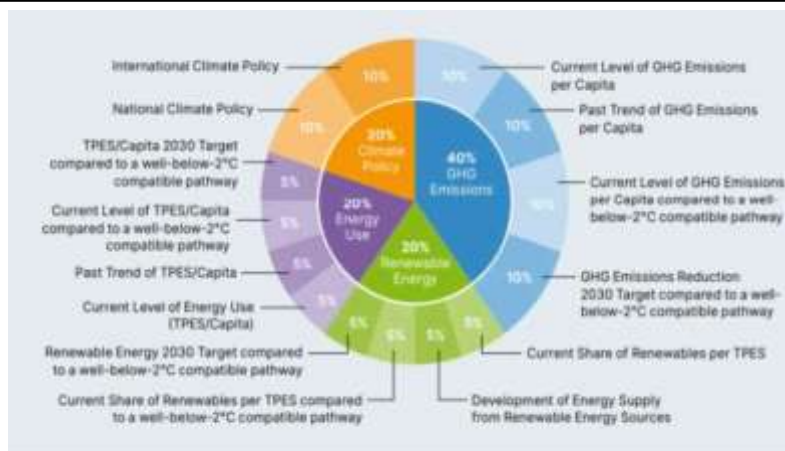


Figure 4. CCPI Categories and it's 14 Indicators that are used for country rating
Source: <https://pcsstudies.com/climate-change-performance-index-ccpi-2022/>

With a score of 69.22 out of 100, INDIA has maintained its position as one of the top 10 best-performing nations for the last three years. India's performance was rated HIGH in the categories of "Greenhouse Gas (GHG) Emission, Energy Use, and Climate Policy," and MEDIUM in renewable energy.

- ☐ No country this year achieved the highest ranking in the CCPI performance categories; hence the top three spots were once again vacant.

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- Denmark has the highest rating and is ranked fourth in the CCPI 2022, even though it hasn't done well enough overall to get such a high grade.
- G20 Countries: According to the report, the UK is the G20's top performer, followed by India (10th), Germany (13th), and France (17th). Eleven nations were given an overall ranking of Low or Very Low.
- The G20 nations account for over 75% of global greenhouse gas (GHG) emissions.
- Saudi Arabia is placed 63rd overall and the G20's worst performing nation.
- According to the CPPI report for 2022, Australia is the least performing country, having dropped 4 spots to rank 58th. Look Australia has consistently performed poorly and received very low ratings across all CCPI rating categories going all the way back to CCPI 2014.
- According to the CCPI, the bottom 10 low-performing nations are Algeria (ranked 54), the United States (ranked 55), the Russian Federation (ranked 56), Malaysia (ranked 57), Australia (ranked 58), Korea (ranked 59), Chinese Taipei (ranked 60), Canada (ranked 61), the Islamic Republic of Iran (ranked 62), Saudi Arabia (ranked 63), and Kazakhstan (64th).

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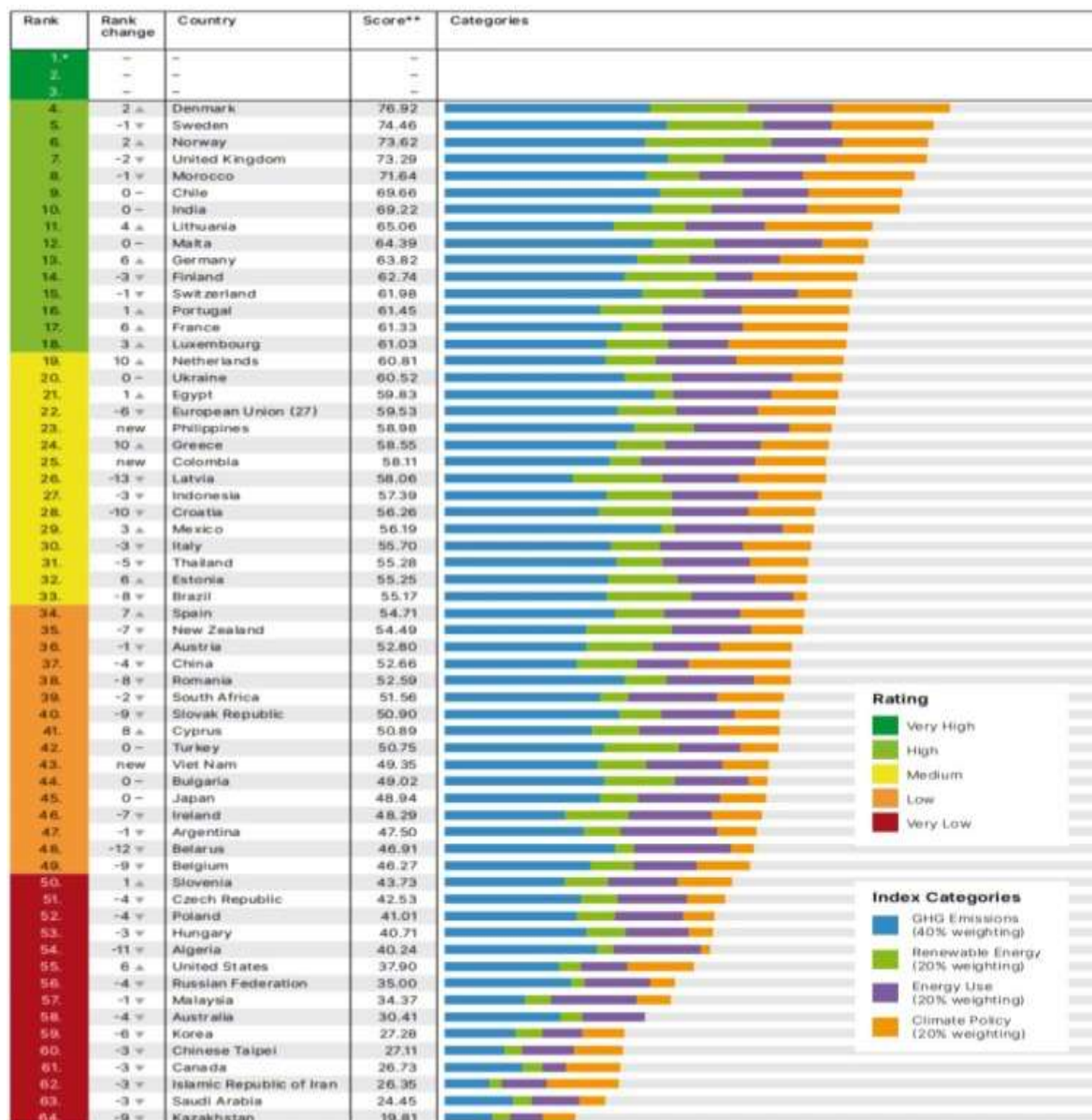


Figure 5: Climate Change Performance Index 2022 Ranking Table Source: <https://ccpi.org/>

Summary and Conclusion

Climate change refers to a change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time period. Major natural sources of climate change are solar variability, changes in Earth's orbit and tilt, plate tectonics, and biological evolution. Various anthropogenic activities lead to emissions of four principal greenhouse gases: carbon dioxide, methane, nitrous oxide and the halocarbons. These gases accumulate in the atmosphere and have increased with the passage of time.

The increase in greenhouse gases within a small period of human history is a problem since it has adverse and differential impacts on different sectors and region. Some of the adverse impacts would be: melting of ice cap, rise in sea level, submergence of many island countries and densely populated coastal areas, increasing frequency of extreme weather events etc.

There are certain global parameters that provide indication of warming of climate. Some of these indicators are increasing temperatures over land and ocean surfaces; increasing sea surface temperature and ocean heat content; melting glacial ice and sea ice; rising sea level; increasing humidity and increase in extreme events.

In India, Ministry of Environment, Forest and Climate Change is the nodal agency which has been sending reports to UNFCCC. Till now it has already sent two reports titled as India's First and Second National Communications to the United Nations Framework Convention on Climate Change in 2004 and 2012 respectively.

Climate change mitigation involves efforts to reduce or prevent emission of greenhouse gases such as carbon dioxide. Mitigation activities may include increasing the use of renewable energy technology, making older equipment more energy efficient, or changing management practices or consumer behavior. From implementing management strategies to sequester carbon, avoid deforestation and promote reforestation, to encouraging appropriate renewable energy siting or socially responsible investment and divestment from fossil fuels, there are many ways the conservation community can encourage climate change mitigation among land owners and local communities.

5.6 Summary

Global climate change is one of the most pressing environmental challenges facing humanity. It results primarily from increased greenhouse gas emissions caused by human activities such as industrialization, deforestation, and the burning of fossil fuels. Since climate change affects all countries regardless of national boundaries, international cooperation has become essential to address its causes and impacts.

The international climate regime was established through the **United Nations Framework Convention on Climate Change (UNFCCC)** in 1992, which laid the foundation for global climate governance. It introduced important principles such as **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**, recognizing that developed countries have greater responsibility due to their historical emissions and greater economic capacity. The **Kyoto Protocol (1997)** was the first legally binding international agreement requiring developed countries to reduce greenhouse gas emissions. It was followed by the **Paris Agreement (2015)**, which expanded climate action by requiring all countries to submit **Nationally Determined Contributions (NDCs)** and work collectively to limit global warming to well below 2°C, while pursuing efforts to limit it to 1.5°C. Various institutions, including the **Conference of the Parties (COP)**, the **Intergovernmental Panel on Climate Change (IPCC)**, and the **Green Climate Fund (GCF)**, play vital roles in scientific assessment, policy formulation, climate finance, and capacity building. These mechanisms support countries in implementing mitigation and adaptation measures.

India has emerged as an active participant in global climate governance by promoting renewable energy, sustainable development, and climate resilience while emphasizing climate equity and the developmental needs of developing countries. Although the global climate change framework has achieved significant progress in promoting international cooperation,

several challenges remain, including inadequate climate finance, uneven implementation of commitments, technological disparities, and political differences among nations. Strengthening international collaboration and ensuring climate justice remain essential for achieving sustainable development and protecting present and future generations.

5.7 Glossary

1. **UNFCCC (United Nations Framework Convention on Climate Change):** An international treaty adopted in 1992 to combat climate change through global cooperation.
2. **Kyoto Protocol:** A legally binding international agreement adopted in 1997 that required developed countries to reduce greenhouse gas emissions.
3. **Paris Agreement:** A global climate agreement adopted in 2015 under the UNFCCC that requires all countries to prepare and implement Nationally Determined Contributions (NDCs).
4. **CBDR-RC (Common but Differentiated Responsibilities and Respective Capabilities):** A principle recognizing that while all countries share responsibility for addressing climate change, developed countries bear greater obligations due to historical emissions and greater capacities.
5. **Climate Finance:** Financial resources provided by developed countries and international institutions to help developing countries mitigate and adapt to climate change.

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5.10 Short Answer Questions

1. What is global climate change?
2. What are the objectives of the UNFCCC?
3. Explain the principle of CBDR-RC.
4. What are Nationally Determined Contributions (NDCs)?
5. State any two objectives of the Paris Agreement.

5.11 Terminal Questions

1. Discuss the evolution of the global climate change framework from the UNFCCC to the Paris Agreement.
2. Critically examine the role of the UNFCCC in addressing global climate change.
3. Explain the major provisions and significance of the Kyoto Protocol and the Paris Agreement.
4. Discuss the principle of Common but Differentiated Responsibilities and its relevance in international climate negotiations.
5. Evaluate India's role in global climate governance and sustainable development.

5.12 True or False

1. The UNFCCC was adopted during the Rio Earth Summit in 1992. **(True)**
2. The Kyoto Protocol imposed legally binding emission reduction targets on all developing countries. **(False)**
3. The Paris Agreement requires every country to submit Nationally Determined Contributions (NDCs). **(True)**
4. Climate finance is intended to support developing countries in climate mitigation and adaptation efforts. **(True)**
5. The principle of CBDR-RC states that all countries have identical responsibilities irrespective of their historical emissions. **(False)**

Unit:6

International Environmental Institutions

6.1 Introduction

6.2 Learning Objectives

6.3 Early Foundations

6.3.1 The Rio Era

6.3.2 Post-2000 Developments

6.4 Core United Nations Institutions

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6.13 Self-Assessment Questions (SAQs)

6.1 Introduction

Environmental problems such as climate change, biodiversity loss, ozone depletion, and transboundary pollution do not respect political borders. A factory's emissions in one country can alter rainfall patterns in another; the extinction of species in one region can disrupt global food chains; and greenhouse gases released anywhere on Earth contribute to warming everywhere. Because of this inherently global and interconnected nature, addressing environmental degradation requires coordinated international action that goes beyond the capacity of any single nation-state.

International environmental institutions have emerged over the past half-century to provide the architecture for this coordinated response. These institutions include intergovernmental organizations established under the auspices of the United Nations, specialized scientific bodies, multilateral environmental agreements (treaties negotiated between states), financial mechanisms designed to fund environmental action, and hybrid governance networks involving state and non-state actors. Together, they form what is often referred to as the "global environmental governance" architecture a complex, evolving, and sometimes fragmented system of institutions, rules, and norms aimed at protecting the planet's ecological systems.

This unit examines the origins, structures, and functions of the most significant international environmental institutions, the major multilateral agreements they oversee, and the persistent challenges of coordination, compliance, and effectiveness that characterize this field.

6.2 Learning Objectives

By the end of this unit, learners should be able to:

1. Identify the major international institutions engaged in global environmental governance.
2. Explain the mandate, structure, and functions of key environmental organizations and agreements.
3. Understand the role of multilateral environmental agreements (MEAs) in shaping global environmental policy.
4. Analyze the relationships between international institutions, national governments, and non-state actors.
5. Critically evaluate the effectiveness and limitations of international environmental governance.

2. Historical Background

International environmental cooperation is a relatively recent phenomenon in the history of international relations, gaining serious momentum only in the latter half of the twentieth century.

6.3 Early Foundations

Prior to the 1970s, international environmental concerns were addressed only sporadically, primarily through narrow agreements on specific issues such as fisheries or migratory birds. The turning point came with the 1972 United Nations Conference on the Human Environment, held in Stockholm, which was the first major international conference to place environmental issues at the center of the global political agenda. This conference produced the Stockholm Declaration and led directly to the creation of the United Nations Environment Programme (UNEP), marking the beginning of institutionalized international environmental governance.

6.3.1 The Rio Era

Twenty years later, the 1992 United Nations Conference on Environment and Development, held in Rio de Janeiro (commonly known as the "Earth Summit"), represented a further watershed moment. It produced the Rio Declaration, Agenda 21 (a comprehensive action plan for sustainable development), and opened three major treaties for signature: The United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and later the United Nations Convention to Combat Desertification (UNCCD). This period cemented the practice of addressing global environmental challenges through legally binding multilateral treaties.

6.3.2 Post-2000 Developments

Subsequent decades saw further institutional consolidation, including the adoption of the Millennium Development Goals and later the Sustainable Development Goals (SDGs), the Paris Agreement of 2015, and growing recognition of the need to integrate environmental governance with broader economic and social development frameworks.

6.4 Core United Nations Institutions

United Nations Environment Programme (UNEP)

Established in 1972 and headquartered in Nairobi, Kenya, UNEP serves as the leading global authority on environmental matters within the UN system. Its mandate includes coordinating international environmental activities, assisting countries in implementing sound environmental policies, monitoring the state of the global environment, and providing scientific and technical guidance to governments. UNEP played a central role in initiating major environmental treaties, including those on ozone depletion and hazardous chemicals, and continues to publish influential assessments such as the *Global Environment Outlook* and *Emissions Gap Report*.

Intergovernmental Panel on Climate Change (IPCC)

Environment Justice and Human Rights

Established in 1988 jointly by UNEP and the World Meteorological Organization (WMO), the IPCC is the leading international body for assessing climate change science. It does not conduct original research but synthesizes and evaluates the vast body of peer-reviewed scientific literature on climate change, producing periodic assessment reports that inform international climate negotiations. Its reports are widely regarded as the most authoritative scientific consensus on climate change and its impacts, and its findings have directly shaped major agreements such as the Kyoto Protocol and the Paris Agreement.

United Nations Framework Convention on Climate Change (UNFCCC) Secretariat

The UNFCCC, adopted in 1992, established the overarching international framework for addressing climate change. Its secretariat, based in Bonn, Germany, supports the annual Conference of the Parties (COP) meetings, where governments negotiate climate commitments, monitors national reporting on emissions, and facilitates technical and financial cooperation between developed and developing nations.

Convention on Biological Diversity (CBD) Secretariat

The CBD, also opened for signature in 1992, aims to conserve biological diversity, promote its sustainable use, and ensure fair and equitable sharing of benefits arising from genetic resources. Its secretariat, based in Montreal, Canada, coordinates the Conference of the Parties for biodiversity, oversees protocols such as the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access and Benefit-sharing, and monitors global progress toward biodiversity targets.

UN-Habitat and Other Specialized Agencies

Other UN bodies contribute to environmental governance in specific domains: the World Meteorological Organization (WMO) monitors atmospheric and climatic data; the Food and Agriculture Organization (FAO) addresses sustainable agriculture, forestry, and fisheries; and UN-Habitat focuses on sustainable urban development.

6.5 Major Multilateral Environmental Agreements (MEAs)

Multilateral environmental agreements are legally binding treaties negotiated between multiple states to address specific environmental issues. They form the backbone of international environmental law.

The Montreal Protocol (1987)

Widely regarded as one of the most successful international environmental agreements, the Montreal Protocol was designed to phase out the production and consumption of ozone-depleting substances, such as chlorofluorocarbons (CFCs). Its success is attributed to clear

scientific consensus on the problem, availability of technological alternatives, strong compliance mechanisms, and a dedicated financial mechanism to assist developing countries in transitioning away from harmful substances.

The Kyoto Protocol (1997) and the Paris Agreement (2015)

The Kyoto Protocol, adopted under the UNFCCC, established legally binding emissions reduction targets for developed countries. However, its effectiveness was limited by the non-participation of major emitters and rigid target structures. The Paris Agreement, adopted in 2015, replaced this approach with a more flexible framework based on nationally determined contributions (NDCs), wherein each country sets its own emissions reduction targets, subject to periodic review and a mechanism for progressively increasing ambition over time. The Agreement's overarching goal is to limit global warming to well below 2°C above pre-industrial levels, pursuing efforts to limit it to 1.5°C.

The Convention on International Trade in Endangered Species (CITES)

Adopted in 1973, CITES regulates international trade in endangered plant and animal species to ensure that such trade does not threaten their survival. It operates through a permit system and categorizes species into different levels of protection based on their conservation status.

The Basel Convention

This convention addresses the transboundary movement of hazardous wastes, aiming to prevent the transfer of hazardous waste from developed to developing countries and to promote environmentally sound waste management practices globally.

The Ramsar Convention on Wetlands

Adopted in 1971, this convention provides the framework for the conservation and sustainable use of wetlands, recognizing their ecological, economic, and cultural importance.

The United Nations Convention to Combat Desertification (UNCCD)

Established in 1994, the UNCCD addresses land degradation and desertification, particularly in arid, semi-arid, and dry sub-humid areas, promoting sustainable land management practices and supporting affected countries, especially in Africa.

6.6 Financial Mechanisms

Global Environment Facility (GEF)

Environment Justice and Human Rights

Established in 1991, the GEF serves as the primary financial mechanism for several major environmental conventions, including the UNFCCC, CBD, and UNCCD. It provides grants and concessional funding to developing countries for projects addressing biodiversity loss, climate change, land degradation, and international waters, channeling resources from developed nations to support environmental action where it is most needed.

Green Climate Fund (GCF)

Established under the UNFCCC in 2010, the Green Climate Fund supports developing countries in their efforts to mitigate and adapt to climate change. It represents one of the largest dedicated climate finance mechanisms, funding projects ranging from renewable energy infrastructure to climate-resilient agriculture.

World Bank Environmental Programs

While not exclusively an environmental institution, the World Bank plays a significant role in financing environmental and climate-related projects worldwide, incorporating environmental safeguards into its broader development lending and hosting or co-financing mechanisms such as the GEF.

6.7 Non-Governmental and Scientific Institutions

International Union for Conservation of Nature (IUCN)

Founded in 1948, the IUCN is a unique hybrid organization combining government agencies and civil society organizations. It is best known for maintaining the IUCN Red List of Threatened Species, a comprehensive inventory of the global conservation status of species, which serves as a critical tool for biodiversity monitoring and policy-making worldwide.

World Wide Fund for Nature (WWF) and Other International NGOs

Large international non-governmental organizations, such as WWF, Greenpeace, and Conservation International, play significant roles in environmental advocacy, scientific research, on-the-ground conservation projects, and public awareness campaigns. While lacking formal treaty-making authority, these organizations exert substantial influence on international environmental policy through research, lobbying, and direct action.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

Established in 2012, IPBES functions similarly to the IPCC but for biodiversity, providing policymakers with objective scientific assessments on the state of the world's biodiversity, ecosystems, and the services they provide, along with policy-relevant options for their conservation and sustainable use.

6.8 Regional Environmental Institutions

Beyond global bodies, regional institutions play an important role in environmental governance tailored to specific geographic and political contexts.

European Union Environmental Governance

The European Union has developed one of the most comprehensive regional environmental regulatory frameworks in the world, encompassing binding directives on air and water quality, waste management, biodiversity protection, and climate policy, enforced through the European Court of Justice.

Regional Seas Programmes

UNEP coordinates numerous Regional Seas Programmes, bringing together neighboring coastal states to jointly manage shared marine environments, addressing issues such as marine pollution and coastal ecosystem degradation through legally binding regional conventions and action plans.

African, Asian, and Latin American Regional Bodies

Various regional economic and political bodies, such as the African Union, ASEAN, and Mercosur, have also developed environmental protocols and cooperative frameworks addressing shared challenges, including transboundary haze pollution, shared river basin management, and regional biodiversity conservation.

Functions of International Environmental Institutions

International environmental institutions perform several critical functions in global governance:

- **Norm-setting:** Establishing internationally recognized principles, standards, and targets for environmental protection.
- **Scientific assessment:** Synthesizing and disseminating authoritative scientific knowledge to inform policy decisions.
- **Negotiation platforms:** Providing forums, such as Conference of the Parties (COP) meetings, where states negotiate binding or voluntary commitments.
- **Monitoring and reporting:** Tracking national compliance with international commitments and publishing regular assessments of global environmental trends.
- **Capacity building:** Assisting developing countries in building the technical, institutional, and financial capacity needed to implement environmental commitments.
- **Financing:** Mobilizing and channeling financial resources toward environmental protection and climate action, particularly for developing nations.

- **Dispute resolution:** Providing mechanisms, where available, for resolving disputes between states regarding compliance with environmental obligations.

6.9 Challenges Facing International Environmental Institutions

Weak Enforcement Mechanisms

Unlike domestic legal systems, international environmental law generally lacks strong centralized enforcement mechanisms. Most MEAs rely on self-reporting, peer review, and reputational pressure rather than binding sanctions, limiting their capacity to ensure compliance.

Sovereignty and National Interest

States remain the primary actors in international relations, and environmental commitments often compete with national economic and political interests. This tension can result in weak commitments, non-ratification of treaties, or non-compliance with agreed targets.

Fragmentation and Coordination Challenges

The proliferation of numerous separate institutions and agreements addressing overlapping environmental issues can lead to fragmentation, duplication of efforts, and inconsistent policy approaches, complicating coherent global governance.

North-South Divide

Persistent disagreements between developed and developing countries over the distribution of responsibility for environmental degradation, and the allocation of financial and technological resources for mitigation and adaptation, continue to complicate international negotiations. The principle of "common but differentiated responsibilities" attempts to address this by recognizing historical disparities in contribution to environmental problems, though its practical application remains contentious.

Funding Gaps

Financial mechanisms such as the GEF and GCF frequently face funding shortfalls relative to the scale of resources needed to address global environmental challenges, particularly in the context of escalating climate adaptation and mitigation costs in vulnerable developing nations.

Political Volatility

Shifts in national political leadership can lead to withdrawal from or reduced commitment to international environmental agreements, introducing instability and unpredictability into global environmental governance.

Toward More Effective Global Environmental Governance

Efforts to strengthen international environmental institutions include proposals for greater institutional coherence and coordination among overlapping agreements, strengthened compliance and monitoring mechanisms, increased and more predictable financing for developing countries, greater integration of environmental governance with broader sustainable development frameworks such as the SDGs, and enhanced roles for non-state actors, including businesses, cities, and civil society organizations, in complementing state-led governance efforts.

6.10 Summary

International environmental institutions form the backbone of global efforts to address environmental challenges that transcend national borders. Emerging from foundational moments such as the 1972 Stockholm Conference and the 1992 Rio Earth Summit, this institutional architecture includes core United Nations bodies such as UNEP, the IPCC, and the secretariats of major conventions like the UNFCCC and CBD; landmark multilateral environmental agreements such as the Montreal Protocol, Paris Agreement, and CITES; financial mechanisms such as the GEF and Green Climate Fund; scientific and non-governmental organizations such as IUCN and IPBES; and regional bodies tailored to specific geographic contexts.

These institutions perform vital functions, including scientific assessment, norm-setting, negotiation facilitation, monitoring, capacity building, and financing. However, the effectiveness of international environmental governance remains constrained by weak enforcement mechanisms, tensions between national sovereignty and global environmental obligations, institutional fragmentation, persistent North-South disparities, funding shortfalls, and political volatility. Strengthening this governance architecture will require greater institutional coordination, more robust compliance mechanisms, increased financing, and deeper integration of environmental governance within broader sustainable development efforts.

6.11 Glossary

- **Global Environmental Governance** – The system of institutions, agreements, norms, and processes through which states and other actors coordinate action to address environmental challenges at the international level.
- **Multilateral Environmental Agreement (MEA)** – A legally binding treaty negotiated between three or more states to address a specific environmental issue.
- **Conference of the Parties (COP)** – The governing body of a multilateral environmental agreement, comprising representatives of all signatory states, which meets periodically to review implementation and negotiate further commitments.

Environment Justice and Human Rights

- **Nationally Determined Contributions (NDCs)** – Voluntary national pledges submitted under the Paris Agreement outlining a country's climate mitigation and adaptation targets.
- **Common but Differentiated Responsibilities (CBDR)** – A principle of international environmental law recognizing that all states share responsibility for addressing global environmental problems, but that this responsibility varies according to differing historical contributions and capacities.
- **Secretariat** – The administrative body responsible for supporting the implementation and operation of an international agreement or organization.
- **Ozone-Depleting Substances** – Chemical compounds, such as chlorofluorocarbons (CFCs), that damage the stratospheric ozone layer.
- **Red List** – A comprehensive inventory maintained by the IUCN assessing the global conservation status of plant and animal species.
- **Regional Seas Programme** – A UNEP-coordinated initiative bringing together neighboring coastal states to jointly manage and protect shared marine environments.
- **Climate Finance** – Financial resources directed toward mitigating or adapting to climate change, particularly flows from developed to developing countries.
- **Sovereignty** – The principle that states have supreme authority over their own territory and internal affairs, which can create tension with binding international environmental obligations.

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6.13 Self-Assessment Questions (SAQs)

Short-Answer Questions

Environment Justice and Human Rights

1. What event marked the beginning of institutionalized international environmental governance, and what institution did it create?
2. Explain the primary function of the Intergovernmental Panel on Climate Change (IPCC).
3. What is a multilateral environmental agreement (MEA)? Give two examples.
4. Why is the Montreal Protocol often cited as one of the most successful international environmental agreements?
5. Distinguish between the compliance approaches of the Kyoto Protocol and the Paris Agreement.

Terminal Questions

1. "International environmental institutions lack effective enforcement power, making them largely symbolic." Critically evaluate this statement with reference to specific institutions and agreements covered in this unit.
2. Compare and contrast the roles of UNEP, the IPCC, and the UNFCCC Secretariat in global climate governance.
3. Discuss the North-South divide in international environmental negotiations. How has this tension shaped the design of agreements such as the Paris Agreement?
4. Evaluate the role of non-state actors, such as NGOs and scientific bodies like IPBES, in shaping international environmental governance.
5. Propose reforms that could strengthen the coherence and effectiveness of the global environmental governance architecture.

True/False Questions

1. UNEP was established as a result of the 1992 Rio Earth Summit. (True/False)
2. The Paris Agreement relies on nationally determined contributions rather than centrally imposed binding targets. (True/False)
3. The IPCC conducts its own original scientific research on climate change. (True/False)
4. The Global Environment Facility serves as a financial mechanism for conventions including the UNFCCC and CBD. (True/False)
5. CITES regulates international trade in endangered species. (True/False)

Unit 7: Constitutional Framework for Environmental Protection

- 7.0 Objectives**
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- 7.2 Indian Constitution and Environmental Protection**
- 7.3 Preamble to the Indian Constitution**
- 7.4 Directive Principles of State Policy**
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- 7.6 Fundamental Rights**
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- 7.12 Short Answer Questions**
- 7.13 Terminal Questions**
- 7.14 True/False**

7.0 Objectives

After going through this unit you will be able -

- To apprise about the constitutional provisions concerning the protection of environment and promotion of clean and healthy environment
- To understand about the fundamental right and duty
- To understand about the directive principles of state policy
- To understand about the legal regime established under the Constitution.

7.1 Introduction

Traditionally, environmental ethics have formed an inherent part of Indian religious precepts and philosophy. Protection of forests and environment has always been part of Dharma (PC Joshi, 2007). Worship of nature – Sun, Moon, Earth, Air and Water – was not merely a primitive man's response to the fear of the unknown, but it arose from the deep reverence shown to the forces of nature which sustained and preserved human life on earth. The basic tenet that underlies this deep reverence for nature is the belief that life is a singular, continuous and uniform phenomenon and even a small change in one part of the eco-system is likely to reverberate throughout. Guru Nanak (Founder of the Sikh Religion, 1469-1539), said 'Pawan Guru, Pani Pita Mata Dhart Mahat, Divis Raat Doi Daia, Khele Sagal Jagat' (Air is like God, Water is father and Earth is the mother. It is through the harmonious interaction of all these three vital ingredients that the whole universe is being sustained) [Jaspal Singh, 2009]. However, rapid industrialization and urbanization coupled with declining social values have contributed towards degradation of environment throughout the globe and India has also witnessed and contributed towards the same. (Manoj Kumar, 2011).

Constitution of India is a dynamic instrument which echoes the values, aspirations and the ideals of our freedom movement. Constitutional provisions strive for having clean environment and it is reflected in Constitutional provisions as interpreted by the higher judiciary.

7.2 Indian Constitution and Environmental Protection

Constitution of India lays down unique federal structure for India. It is a bulky piece of legislation which not only gives shape to the aspirations of freedom fighters by laying emphasis on fundamental rights but also lays down the Directive Principles of State Policy which the legislature should keep in mind while legislating. Part XI of the Constitution dealing with legislative relations lays down detailed division of subjects on which Union and State governments can legislate. This part deals with the constitutional provisions pertaining to environment contained in different parts of the constitution.

7.3 Preamble to the Indian Constitution

The Preamble to the Indian Constitution which starts with “We the People” sets out the goals and objectives of the Constitution. It declares India to be a Sovereign Socialist Secular Democratic Republic. It has been declared to be a key to open the mind of constitution makers. Though Words “Secular and Socialist” were added later on to the Constitution by 42nd Amendment yet the Constitution had secular as well as socialist fabric right from its inception. Various provisions in the Constitution deal with the socialist and secular fabric of the nation in particular Part IV lays down emphasis on Socialistic pattern of governance and Part III spells out the secular fabric of the country.

Word Socialist in the Indian Constitution read in conjunction with Part IV of the Indian Constitution points out that the Constitution adopted welfare government on socialistic pattern whose prime aim was welfare of people. Social welfare is not possible if the people are forced to live in unclean environment which jeopardise their health and lives. The use of words “Democratic Republic” further brings the point home that the government is to work for the welfare of the masses and that the people have right in participate in government process. This implies that government shall seek to provide, apart from other things, a clean environment suitable for human abode.

The Preamble also aims to achieve Justice - Social, Economic and Political. A nation where rich and influential pollute the environment by uncontrolled and rampant industrialization and unregulated, unhindered and illegal mining without caring for the environment causing irreparable loss to the ecology and people cannot be said to be a nation having welfare state and providing social and economic justice. Hence, the Preamble not only talks about socialistic pattern but also that there shall be economic, political and social justice. Thus, though the Preamble does not expressly deal with environment yet the language of Preamble is wide enough to cover environment protection and clean environment as implicit therein.

7.4 Directive Principles of State Policy

Part IV of the Constitution of India lays down Directive Principles of State Policy. They lay down the socio-economic goals of the nation. Though Directive Principles are non-justifiable yet they have been declared to be fundamental in the governance of the country (Article 37). Before 42nd Amendment, there was no specific provision in Part IV dealing exclusively with environment. However, goal of environment protection in the Indian Constitution can be inferred from the provisions enshrined in Articles 38, 47 and 50 read with Article 37.

Article 37 casts a duty on the State (i.e. all the organs of the State – legislature, executive and judiciary) to apply directive principles in making laws.

Article 38 seeks to achieve welfare of the people by casting obligation on the State to target social, economic and political justice. As explained earlier, social, economic and political justice along with welfare of people enjoins a duty upon State to protect and preserve the environment which is essential for the well-being of the country and of future generation.

Environment Justice and Human Rights

Article 47 spells out the primary duty of the State to improve public health (Article 47). Improvement of Public Health takes within itself that the environment is free from pollution and conducive for human dwelling and public health. The surrounding environment filled with smoke, pollutants and smog caused by rampant, uncontrolled and unregulated industrialization, construction activities and stubble burning causing irreparable damage to the lungs of people living in vicinity and causing other health hazards is surely anti-thesis to the goal enshrined in Article 47 i.e. improvement of public health. Thus, though article 47 does not spell out in express terms the duty of the government to protect environment and promote clean environment yet it is implicit in it because improvement of public health is not possible in an unclean environment.

Article 51 provide for promotion of internal peace and security and for fostering respect for international law and treaty obligations. Henceforth, State shall endeavour to implement international law and treaties and foster respect for them including but not limited to international obligations pertaining to protection of environment. Thus Article 51 seeks to promote protection of environment in consonance with international obligations.

Thus, though there were no express provisions pertaining to protection of environment in the Constitution yet promotion of environmental protection was implicit in Part IV of the Constitution of India even prior to its amendment by Constitution (Forty-second Amendment) Act, 1976.

Constitution (Forty-second Amendment) Act, 1976 inserted an express provision pertaining to environmental protection in Part IV in the form of Article 48A. It reads as under:

“The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.”

After insertion of an express provision in Part IV along with other provision in other parts of the Constitution, it became incumbent on the part of the State to protect the environment and to promote clean environment. As stated earlier directive principles are fundamental in the governance of the country and all the organs of the State while making laws are to apply directive principles. ii

It must be remembered that though directive principles of state policy are non-justifiable yet it does not preclude the courts to declare any law as unconstitutional which is in violation of Part IV (Paramjit Jaswal, 2015). Similarly, courts are to ensure that the other organs of the State act as per the law of the land. Moreover, as observed by the Supreme Court in *Mumbai Kamgar Sabha v. Abdul Bhai* where two choices are available in the interpretation of the laws, the judiciary should lean in favour of the construction which is in conformity with the socio-economic philosophy enshrined in Part IV of the Constitution. Further, as will be evident from the discussion in the next section, many of the directive principles of state policy when interpreted in conjunction with Part III and Part IV-A have been elevated to the status of fundamental right including the right to live in pollution free environment.

7.5 Fundamental Duties

Part IV A of the Constitution of India inserted by Constitution (Forty-second Amendment) Act, 1976 imposes duties upon every citizen of India. Article 51A casts eleven duties upon the citizens of India. iv Article 51A(g) casts the following duty upon the citizens of India

“To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures”

Mode of enforcement of fundamental duties was not expressly provided by the Constitution. However, the powerful pronouncement of the Rajasthan High Court in *L.K. Koolwal v. State of Rajasthan* v clarified the co-relation between rights and duties when the court observed that rights and duties co-exist and there cannot be any right without any duty and there cannot be duty without any right. Hence, the duty of one is the right of another and rights are justifiable.

While considering the enforcement of fundamental duty enshrined in Article 51A (g) and the directive principle contained in Article 48A, the Supreme Court in *Shri Sachidanand Pandey v. State of West Bengal* vi observed that Court cannot shrug its shoulders on the ground that priorities are matter of policy and therefore, the court should leave the matter. The court concluded that court can always give necessary directions in the matter.

7.6 Fundamental Rights

Part III of the Constitution of India enumerates fundamental rights. One of the most important fundamental rights is the right to life and personal liberty enshrined in Article

21. Article 21 provides as under

“No person shall be deprived of his life or liberty except according to procedure established by law.”

Taking leaf from the observation of Field, J. in *Munn v. Illinois* vii wherein it was held that life does not mean mere animal existence it is much more than that, the Supreme Court of India has held in *Francis Coralie v. Union Territory of Delhi* viii that right to life includes right to live with human dignity and what Article 21 prohibits is not only the deprivation of life but deprivation of all those limbs and faculties by which life is enjoyed including the basic necessities of life such as food, shelter, clothing etc.

The Supreme Court in *Maneka Gandhi v. Union of India* ix interpreted the expression ‘procedure established by law’ to mean that the procedure must be just, fair and reasonable. After this interpretation coupled with judicial activism, many rights have come to be included within the ambit Article 21. Of late, Article 21 whose potential was never discovered in the past was ultimately pulled out of its deep slumbers and harnessed to engineer social justice which is one of the goals to be attained by the Constitution (Shailja Chander, 1992). Liberal court decisions in the field of life and personal liberty have opened new vistas in the Indian

Constitutional Law Whereby Article 21 read with Articles 14 and 19 may become a substitute for all other fundamental rights. It has come to be regarded as bundle of rights.

With the expansive interpretation of terms ‘life’ and ‘personal liberty ’x, right to live in clean and unpolluted environment has been held to be part of fundamental right guaranteed under Article 21.xi The pragmatic approach of the Supreme Court including right to clean environment in Article 21 has been discussed in the next sections.

7.7 Distribution of Legislative Powers between Union and States

Constitution of India provides a federal structure of governance. Part XI and XII of the Constitution of India deals relations with Union and States. Part XI deal with the legislative relations between Union and States. Whereas Article 246 confer legislative competence on Union and States, Schedule VII distribute the subjects of legislation between the Union and States. Schedule VII contains three lists viz., List-I (Union List), List-II (State List) and List-III (Concurrent List). Union has exclusive competence to legislate with reference to subjects enumerated in list I, States have exclusive competence to legislate on subjects listed in List-II and Union and States have concurrent jurisdiction to make laws on subjects mentioned in List III subject to Union supremacy in case of repugnancy. xii There is no explicit entry pertaining to environment in any of the lists under the Seventh Schedule. Though List I contains subjects like UNO, entering into treaties and agreements with foreign countries and implementing Conventions, treaties and agreements. It also contains subjects relating to regulations of industry, mines and minerals, ports etc. i.e. which have inter-state and Pan-India impact. List II contains subjects like Public Health and Sanitation apart from other subjects regarding agriculture and industry. Under Article 248 read with entry 97 List I, Union has exclusive competence to make laws on subjects not enumerated in any of the lists. Constitution (Forty-second Amendment) Act, 1976 inserted entries 17A and 17B in the Concurrent List relating to Forests and Protection of Wild Animals and birds respectively.

This apart, Part XI of the Constitution of India contains Article 253 which empowers the Parliament to legislate for the purpose of giving effect to any treaty, agreement or convention with any country or countries and for the purpose of implementing decisions made at any international conferences. Accordingly, Parliament has enacted laws under Article 253 read with entries 13 and 14 of Union List to meet its international obligations under the International Conventions and agreements like Stockholm Declaration of 1972.xiii

Thus, there are adequate provisions in the Constitution of India concerning the protection of environment in various parts of the Constitution. Though the subject of environment was not explicitly mentioned in the Constitution prior to Constitution (Forty-Second Amendment) Act, 1976 yet the goals enshrined in the Preamble and the directive principles together with provisions incorporated in Part III, in particular Article 21 and its interpretation by the judiciary to include right to clean environment in it coupled with provisions incorporated in Part XI were sufficient to deal with the subject and issues relating to environment. Constitution (Forty-second Amendment) Act, inserted specific provisions pertaining to environment in the Indian Constitution.

7.8 Judicial Approach

The Indian judiciary has been alive to environmental concerns and has adopted pragmatic and activist approach in interpreting constitutional provisions concerning environment protection. The pragmatic and realistic approach of the judiciary has enabled it to read right to live in clean environment as included in right to life and personal liberty enshrined in article 21. The most remarkable feature of this expansion of Article 21 is that many of non-justifiable Directive Principles embodied in Part-IV of the constitution have now been resurrected as enforceable fundamental rights by the magic wand of judicial activism, playing on Article 21, which was almost a surplus age in the days of Gopalan.

Pollution is the result of modern industrialization and urbanization. Rich and literate raise cry against pollution though sometimes they are themselves responsible for it. The poor and slum dwellers remain dumb about it (V.K. Bansal, 1987). Discharge of industrial effluents in water, ponds of dirty water in streets, lack of sewage facilities etc. add to grim water pollution scenario. Air suffocating with smoke and smog created by polluting vehicles, industry and stubble burning have created lots of air pollution thereby adversely affecting health of millions of people. The legislature had enacted various laws to curb and control environmental pollution but they failed to have cut much ice. This being the plight of Indian masses the Supreme Court had to come forward and read right against environment pollution as part of right to life enshrined in Article 21, to relieve the ignorant masses from the trauma and tyranny caused by increasing environmental pollution.

In *B.L. Wadehra v. Union of India* xiv, the petition was filed for directions to Municipal Corporation, Delhi and the New Delhi Municipal Corporation to perform their duties, in particular the collection, removal and disposal of garbage and other waste. Apex court speaking through Kuldeep Singh J expressed grave dissatisfaction over the pollution in the Capital of India and observed, Historic City of Delhi – the Capital of India – is one of the most polluted cities of the world. The authorities responsible for pollution control and environment protection have not been able to provide clean and healthy environment to the residents of Delhi. The ambient air is so much polluted that it is difficult to breathe. More and more Delhi-its are suffering from respiratory diseases and throat infections. The River Yamuna – the main source of drinking water – is the free dumping place for untreated sewage and industrial waste. Apart from Air and water pollution, the city is virtually an open dust- bin. Garbage thrown all over Delhi is a common sight.... It is no doubt correct that rapid industrial development, urbanization and regular flow of persons from rural to urban areas have made major contribution towards environmental degradation but at the same time the Authorities – entrusted with the work of pollution control – cannot be permitted to sit back with folded hands on the pretext that they have no financial or other means to control pollution and protect the environment...xv

The court held that right against environmental pollution and to have clean environment is a fundamental right to be found in Article 21 read with article 48A and thus issued directions

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to Municipal Corporation, Delhi and New Delhi Municipal Corporation regarding collection and disposal of garbage to keep the city clean.

In *Ratlam Municipality v. Vardhi Chand* xvi Supreme Court ordered the closure of limestone quarries in Dehra Dun-Mussoorie Area. It realized that the closure of limestone quarries would cause financial hardships but the court observed that it is the price that has to be paid for protecting and safeguarding the right of the people to live in a healthy environment with minimal disturbance of ecological balance, and without avoidable hazard to them and to their cattle, homes and agricultural land and undue affection of air, water and environment.

In *Subash Kumar v. State of Bihar* xvii it was held that right to live is a fundamental right under Article 21 of the constitution and it includes the right to enjoyment of pollution free water and air for full enjoyment of life. If anything endangers or impairs that quality of life in derogation of laws, a citizen has a right to have recourse to Article 32 of the constitution for removing the pollution of water or air which may be detrimental to the quality of life.

In *Vellore Citizens Welfare Forum v. Union of India* xviii the petition was directed against the pollution caused by enormous discharge of untreated effluent by the tanneries and other industries in the State of Tamil Nadu. It was argued that untreated effluents discharged by tanneries in the State of Tamil Nadu have polluted the main water supply source and the ground water. The petitioner argued that the ground water near these tanneries have been so polluted that it has become unsuitable for drinking, large pieces of agricultural land had been turned into barren land and the productivity of large area of land has been reduced considerably. The court discussed Precautionary Principle and concluded that right against environmental pollution is implicit in right to life enshrined in Article 21 of the constitution. After having so concluded, the court proceeded to direct the closure of industries which are not complying with the directions of the Pollution Control Board and NEERI.

Similarly in *M.C. Mehta v. Union of India* xix where a petition was filed for preventing the degradation of the Taj Mahal due to pollution caused by coal using industries via Trapezium, the Apex Court issued directions to 292 industries located in Agra to change over within a time schedule to Natural Gas as industrial fuel or stop functioning with coal/coke and to apply for relocation or otherwise stop functioning w.e.f. 30-04- 1997 on account of violation of Articles 21, 48A, 51A and 47 of the Constitution.

In *M.C. Mehta v. Kamal Nath* xx it was contended by the petitioner that if a person disturbs the ecological balance and tinkers with the natural conditions of rivers, forests, air and water, which are the gifts of nature, he will be violating the fundamental right guaranteed under Article 21 of the Constitution. Supreme Court accepted the contention of the petitioner and held that any disturbance of basic environment elements namely air, water, soil which is necessary for “life” would be hazardous to “life” within the meaning of Article 21 of the constitution. The court after holding it to be a violation of article 21 proceeded to observe that in these cases polluter pays principle and principle of Public Trust Doctrine applied. In *M.C. Mehta v. Union of India* xxi with a view to safeguard the countrymen from the vices of air pollution, the Supreme Court refused to grant blanket extension of dead line for conversion of

vehicles to CNG. It is pertinent to mention here that the Supreme Court vide its order dated 28th July 1998^{xxii} issued guidelines to convert vehicles to CNG in a reasonable time schedule.

In *N.D. Jayal v. Union of India* ^{xxiii}, the Supreme Court again reiterated that right to clean environment is implicit in right to life and personal liberty guaranteed under Article 21. Again, in *Municipal Corporation of Greater Mumbai v. Kohinoor CTNL Infrastructure Co. (P) Ltd.* ^{xxiv}, the Apex court laid down that right to live in clean and healthy environment is part of right to life and personal liberty guaranteed under Article 21. The court went on to hold that this right is also part of common law jurisprudence.

Thus the courts have clearly held that right to live in unpolluted environment is a fundamental right implicit in right to life and personal liberty enshrined in Article 21. Not only this, judiciary has also issued guidelines in certain cases to prevent and remedy ecological balance including the directions to close certain industrial establishments.

7.9 Summary

From the foregoing analysis, it can be safely concluded that the constitution of India is a dynamic document and Indian judiciary has, by using interpretative tools, declared various unremunerated rights as fundamental rights. Judiciary has not only declared right to clean environment as a fundamental right but has also developed environmental jurisprudence underlying various important principles like Polluter Pays Principle, Precautionary Principle, Public Trust Doctrine etc. However, despite active role played by the judiciary, the environmental pollution is on the rise. Moreover, no right can be fully protected and guaranteed unless the entire community recognize their moral, ethical, social and constitutional duties and rise up to abide by them.

7.10 References

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7.11 Glossary

Environment Justice and Human Rights

1. **Environmental Rights** – Rights that ensure a clean, healthy, and sustainable environment.
2. **Fundamental Rights** – Basic rights guaranteed by the Constitution of India.
3. **Directive Principles of State Policy (DPSPs)** – Guidelines to the government for promoting welfare, including environmental protection.
4. **Fundamental Duties** – Moral obligations of citizens under the Constitution.
5. **Sustainable Development** – Development that meets present needs without harming future generations.
6. **Pollution** – Contamination of air, water, or land that harms living beings.
7. **Biodiversity** – The variety of plants, animals, and microorganisms in an ecosystem.
8. **Public Interest Litigation (PIL)** – A legal action filed to protect public interest, including environmental concerns.
9. **Judicial Activism** – The proactive role of courts in protecting constitutional and environmental rights.

7.12 Short Answer Questions

1. What are environmental rights?
2. Explain the relationship between Article 21 and environmental protection.
3. What is sustainable development?
4. Define Public Interest Litigation (PIL).
5. What is the role of the judiciary in environmental protection?

7.13 Terminal Questions

1. Explain the constitutional framework for environmental protection in India.
2. Discuss the role of the judiciary in protecting environmental rights with suitable examples.
3. Explain the significance of Articles 21, 48A, and 51A(g) in environmental conservation.
4. Describe the concept of sustainable development and its importance in India.
5. Explain the role of Public Interest Litigation (PIL) in environmental protection.

7.14 True/False

1. Article 21 includes the right to a clean and healthy environment. **(True)**
2. Article 48A is a Fundamental Right. **(False)**
3. Article 51A(g) makes it the duty of every citizen to protect the environment. **(True)**
4. Sustainable development ignores the needs of future generations. **(False)**
5. Public Interest Litigation (PIL) can be used in environmental cases. **(True)**

Unit 8: Environment legislations in India

- 8.0 Objectives**
- 8.1 Introduction**
- 8.2 The Atomic Energy Act, 1962**
- 8.3 The Factories Act, 1948**
- 8.4 National Environmental Appellate Authority Act, 1997**
- 8.5 The Public Liability Insurance Act, 1991**
- 8.6 The National Environment Tribunal Act, 1995**
- 8.7 The Mines and Minerals Act, 1957**
- 8.8 References**

8.0 Objectives

After studying this unit, you will be able to

- Understand the complex scientific, historic, institutional and legal framework in respect to nuclear energy development and its use.
- Understand the objectives, scope and coverage of The Factories Act, 1948.
- Understand the depth knowledge of The National Environmental Appellate Authority Act, 1997;
- Understand the depth knowledge of The Public Liability Insurance Act, 1991;
- Understand the depth knowledge of The National Environment Tribunal Act, 1995
- Understand the depth knowledge of The Mines and Minerals Act, 1957

8.1 Introduction

The unit provides a board understanding of the Environment Related acts ie., The Atomic Energy Act, 1962; The Factories Act, 1948; The National Environmental Appellate Authority Act, 1997; The Public Liability Insurance Act, 1991; The National Environment Tribunal Act, 1995 and The Mines and Minerals Act, 1957.

8.2 The Atomic Energy Act, 1962

❖ Nuclear Program - Early Beginnings

The modern development of nuclear science had its beginnings as early as 1789 with the discovery of uranium by Martin Klaproth, a German chemist. Throughout the period from

1800-1900, efforts have been directed to find more about the nature, composition and use of uranium and its properties. Extraordinary works of Wilhelm Rontgen; Antoine Henri Becquerel; Pierre Curie and Marie Curie and many others in understanding the properties of uranium furthered the scientific progress. The British physicist Ernest Rutherford who is considered as the father of nuclear science for his contribution to the theory of atomic structure in 1904 wrote: If it were ever possible to control at will the rate of disintegration of the radio elements, an enormous amount of energy could be obtained from a small amount of matter (US DOE, 2006).

In 1938, Otto Hahn and Fritz Strassman through their experiments discovered the process of fission in uranium for the first time. Consequent to this, chain reaction became a possibility which subsequently made the work in developing an atomic bomb a step closer. The World War II (1939-1945) hastened the development of military application of nuclear science. On 2 December 1942, scientists led by Enrico Fermi achieved the first self-sustained nuclear chain reaction in Chicago. With the prospects of Germany acquiring the nuclear bomb seeming closer, Albert Einstein's letter to President Roosevelt informing how close are the Germans led to the formation of the Manhattan Project. The Manhattan Project was conceived in 1939 and led by the United States with participation from United Kingdom and Canada became the nerve centre in the development of atomic bomb during the years of 1942- 1945.

In July 1945, the United States tested its first atomic bomb in Los Alamos, New Mexico. Soon after, in August 1945, USA exploded two atomic bombs on Hiroshima (6 August 1945) and Nagasaki (9 August 1945), showing the world the destructive power of nuclear energy, i.e., human and environmental consequences from nuclear radiation exposure. It may be remembered that the action of bombing Japan took place only few weeks after the Heads of States signed the United Nations Charter on 26 June 1945 in San Francisco. With the war ending, and knowing well that the United States and its allies may no longer hold monopoly in nuclear science, efforts were directed to control the spread of nuclear weapons. At the same time attention was also being directed for peaceful application of nuclear energy. The newly formed United Nations became the focal point in this effort.

These efforts led to the development of nuclear energy law as we know it today. As Werner Boulanger stated, the purpose and function of nuclear law is to promote and to protect: to promote the development of nuclear science and technology and to protect mankind against any hazards possibly connected with nuclear energy [1]. Nuclear energy law in effect had to confront or deal with multiple factors such as proliferation (diversion of civilian use to weapons program); protecting the industry and the public equally (from massive compensation claims and provision for the same); establishment of an effective and credible regulator (for ensuring that the operator and all others follow the strictest regulations for a safe program) and also making sure that the program does not have any unintended consequences for the environment and people (like waste management, public consultation, radiation risk etc.)

❖ Institutional Developments

- **Development of the United Nations Atomic Energy Commission**

The United Nations shouldered much of the responsibility to answer the nuclear question - its uses and concerns, since this topic is best discussed formally at a multi-lateral institutional level involving all the permanent five members of the UN Security Council (they include China, France, Russia, the United Kingdom, and the United States) and other countries. In 1945, there were extensive consultations in particular between the United States, the United Kingdom, Canada and later the USSR on “the need in an effort to reach agreement on the conditions under which international co-operation might replace rivalry in the field of atomic power” (Bathurst, 1947). Subsequently, on 15 November 1945, during a summit in Washington DC, the United States, the United Kingdom and Canada issued the Agreed Declaration on Atomic Energy stating that: in order to attain the most effective means of eliminating entirely the use of atomic energy for destructive purposes and promoting its widest use for industrial- and humanitarian purposes, a commission should be set up at the earliest practicable date, under the United Nations, to prepare recommendations for submission to that Organization. On 27 December 1945, at a meeting of the Council of Foreign Ministers in Moscow, the United States and the United Kingdom proposed, and the USSR agreed, to create the United Nations Atomic Energy Commission (UNAEC). On 24 January 1946, the United Nations General Assembly passed the 1st Resolution in its first Session creating the UNAEC with representatives from the United States, USSR, Canada, United Kingdom and others in an effort, “to consider problems arising from the discovery of atomic energy and related matters” (Fischer, 1947).

Though well intended in its efforts to establish an international oversight of the use of atomic energy with the hope of avoiding unchecked proliferation of nuclear power post-World War II, the working of the UNAEC has been contentious. The United States and the then USSR proposed different proposals, i.e. Baruch and Gromyko Plans at the UNAEC leading to non-acceptance of either proposal. After three years of deliberation and almost 200 meetings, the UNAEC failed to reach any major agreement. In September 1949, the USSR conducted its first nuclear weapons test followed by the United Kingdom in 1952. The Soviet nuclear test effectively ended the UNAEC’s role and the UN General Assembly, by its resolution 502(VI) of January 1952, formally dissolved the UNAEC, creating in its place the United Nations Disarmament Commission under the Security Council with a general mandate on disarmament.

- **Towards peaceful uses of nuclear energy**

While negotiations were going on, countries continued their research to establish their technical superiority over nuclear energy. An important effort towards the production of electricity from atomic energy became successful in 1951 when electricity was first generated from a nuclear reactor, the EBR-I (Experimental Breeder Reactor-I) at the National Reactor Testing Station in Idaho, USA. Many countries initiated their programs during this period. India was one of the early starters of the program, which is briefly discussed below. Immediately after World War II, in order to institutionalize the post-world war nuclear energy program, the United States government enacted the Atomic Energy Act, 1946 on 1 August 1946 (AE Act) emphasizing the need to harness atomic energy for peaceful purposes (section 1(a)). The AE Act created the United States Atomic Energy Commission (USAEC) as a civilian controlled authority. Acknowledging the importance of civilian applications, US Congress while enacting the AE

Act stated: “atomic energy should be employed not only in the Nation’s defense, but also to promote world peace, improve the public welfare, and strengthen free competition in private enterprise” (Buck 1983). In parallel, throughout the 1940s, the USSR also directed much of its effort to the development of nuclear technology; including both for military and civilian purposes. In respect of the civilian power program, the 1940s saw giant strides at various centers in refining existing reactor designs and developing new ones. The Institute of Physics and Power Engineering (FEI) was set up in May 1946 at the then-closed city of Obninsk, 100 km southwest of Moscow, to develop nuclear power technology (WNA, 2014). Obninsk became one of the nerve centers of the Soviet nuclear energy program and became famous when on 27 June 1954, the world’s first nuclear power station at Obninsk with a capacity of 5MW was connected to the Moscow grid.

Dr. Morokhov, the First Deputy Chairman of the State Committee on the Utilization of Atomic Energy of the USSR in his speech to the IAEA in 1968 said that invaluable conclusions on the power program have been drawn from the operation of the Obninsk reactor, which are, (1) transformation of nuclear energy to electricity was proved to be practical; (2) atomic power was sufficiently reliable and flexible in operation and fulfilled the requirements for utilization in an electrical network; and (3) it was completely safe both for personnel in the plant as well as the surrounding population.

- **Creation of the International Atomic Energy Agency (IAEA)**

Once all the major powers of the day acquired atomic technology, international efforts were re- directed to arrive at a common ground on the use of nuclear technology for peaceful applications. On 8 December 1953, the “Atoms for Peace” speech by US President Eisenhower before the UN General Assembly called for “the governments principally involved” (naming all the nuclear technology powers of the day) to make joint contributions from their stockpiles of normal uranium and fissionable materials to an international atomic energy agency set up under the UN.

Eisenhower spoke on the peaceful use of the proposed atomic energy agency:

- a) The more important responsibility of this atomic energy agency would be to devise methods whereby this fissionable material would be allocated to serve the peaceful pursuits of mankind. Experts would be mobilized to apply atomic energy to the needs of agriculture, medicine and other peaceful activities. A special purpose would be to provide abundant electrical energy in the power- starved areas of the world.
- b) Among the agency’s responsibilities would be to store and safeguard the material and to “devise methods” whereby it would be allocated to serve the “peaceful pursuits of mankind” (IAEA transcript 1953).
- c) Moving forward on peaceful application, in 1954, the United States provided a legal basis for “Atoms for Peace” by amending the AE Act to permit peaceful international nuclear cooperation, leading to bilateral agreements with a number of States (Fischer, 1997). The amended Atomic Energy Act, 1954 (amended AE Act) drastically altered the policy

thereby facilitating participation of private enterprises in the development of atomic energy (section 3).

- d) The progress of power production from atomic energy thus became a reality in 1954 in Obninisk, USSR, and along with the leap of faith through the “Atoms for Peace” speech and the amended AE Act, nuclear energy had forever crossed the divide from military uses to civilian applications.

The UN General Assembly, in a plenary session in December 1954, unanimously adopted a resolution which provided for the establishment of the International Atomic Energy Agency (IAEA), and for the holding of an international technical conference of governments under the auspices of the United Nations. This international conference was held from 8 to 25 August 1955 in the Palais des Nations, Geneva. The event was a landmark intergovernmental conference, which elucidated progress on a new technology, where international scientific community for the first time came out freely mingled and exchanged views, educated the world that peaceful applications of nuclear energy, in particular the generation of electricity, are now a reality.

The President of the Conference was India’s Homi Bhabha. In the context of scientific and technological progress, he envisioned that, “during the next two decades” scientists would have found a way of “liberating [thermonuclear] fusion energy in a controlled manner... When that happens, the energy problems of the world will truly have been solved forever” (Fischer, 1997). Developing countries saw the progress and acquisition of nuclear technology as a means to give them access to unlimited energy source which can be used to develop their countries faster and catch up with the industrial world (Fischer, 1997).

For the international institutional initiative, the success of the international conference took the slow pace of negotiations to establish an international atomic nuclear agency to a level of urgency. Majority of the countries thought that the IAEA could be used to access nuclear technology in setting up nuclear power plants. The interest generated during the conference persuaded many nations to launch nuclear research and development programs and sharpened their interest in the proposed IAEA (Fischer, 1997). From 1955 to 1957, after a series of hard fought negotiations, 12 governmental representatives from Australia, Belgium, Brazil, Canada, Czechoslovakia France, India, Portugal, South Africa, the United Kingdom, the United States and the USSR concluded the drafting of the Statute of the IAEA. The Statute of the IAEA was approved on 23 October 1956 by the Conference on the Statute of the International Atomic Energy Agency, which was held at the Headquarters of the United Nations. It came into force on 29 July 1957.

The main functions of the IAEA (Article III.A) are:

1. Take any action needed to promote research on, development of, and practical applications of nuclear energy for peaceful purposes;
2. Provide materials, services, equipment and facilities for such research and development, and for practical applications of atomic energy “with due consideration for the needs of the under- developed areas of the world”;

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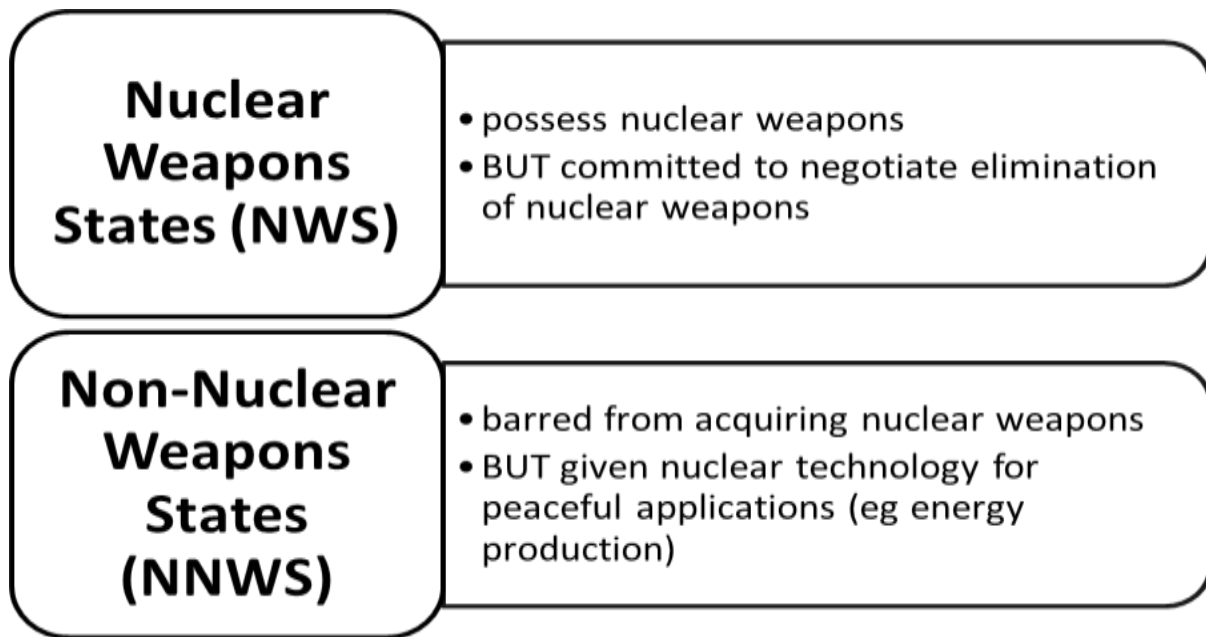
3. Foster the exchange of scientific and technical information;
4. Encourage the exchange of training of scientists and experts in the field of peaceful uses of atomic energy;
5. Establish and apply safeguards to ensure that any nuclear assistance or supplies with which the IAEA was associated should not be used to further any military purposes — and apply such safeguards, if so requested, to any bilateral or multilateral arrangement;
6. Establish or adopt nuclear safety standards;
7. Acquire or establish any facilities, plant and equipment useful in carrying out its authorized functions.

India is one the architects of the Statute of the IAEA and it played an instrument role in shaping the working of the IAEA. Particularly, on the constitution of the Governing Board of the IAEA, Fisher (1997) explains “in the twelve-nation group the Indian delegation came up with a complex but ingenious formula that has stood the test of time”.

- **Nuclear Non-Proliferation Treaty**

Along with the institutional developments in the form of the IAEA, the progress of nuclear technology in particular the development of nuclear weapons during the 1960s was viewed with alarm that there exists a possibility that nuclear weapons technology could become widespread. Many governments came together to reduce or eliminate such a possibility. The Nuclear Non-Proliferation Treaty (NPT) was an agreement signed in 1968 by both major nuclear and non-nuclear countries pledging their cooperation in stemming the spread of nuclear technology. 188 states are party to the NPT; only India, Pakistan, and Israel are outside the treaty regime and North Korea withdrew in 2003. Adherence to the treaty by 188 states, including five nuclear- weapon states, renders the treaty the most widely adhered to multilateral disarmament agreement.

The treaty classifies nations into two categories.



Today although many of the provisions of the treaty remain unfulfilled, there can be no doubt about the importance of the treaty towards global nuclear disarmament and promotion of nuclear energy for peaceful purposes.

- India and Nuclear Energy

India initiated its nuclear program as early as in 1945, with the establishment of the Tata Institute of Fundamental Research in Bombay. The Atomic Energy Act was passed in Parliament soon after the country gained independence in 1948, and set forth India's objective for the development and utilization of atomic energy solely for peaceful purposes. In 1954, the Government established a Department of Atomic Energy charged with the sole responsibility for all nuclear activities in the country.

The Indian Atomic Energy Act, 1948 is the principal legislation that deals with all aspects of atomic energy production and its associated activities in India. The Atomic Energy Act, 1962 gives the Central Government monopoly over production, development, usage, and disposal of atomic energy. Under the provisions of the law, the Central Government undertakes the above activities either by itself or through any authority or corporation established by it or through a government company. Towards the production of nuclear energy, India follows an unconventional path that no other country follows. Realizing that India does not have major uranium reserves but has one of the largest reserves of thorium in the world, the country, from the beginning, conceived a three-stage nuclear fuel cycle strategy. The reactor programme that was conceived was with the installation of natural uranium reactors in the first phase, followed by fast breeder reactors in the second phase, using plutonium from the first generation reactors with either uranium-238 or thorium in the blanket, followed eventually by reactors based on the self-sustaining thorium uranium- 233 cycle (Sethna IAEA).

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Today, India has many nuclear reactors spread across the country producing electricity which is operated by Nuclear Power Corporation of India Limited (NPCIL). The current status and future plans are detailed in Table 1.

Table 1: Operational, under-construction and proposed sites

States	Site	Capacity (MW)		
		Operational	Under construction	Proposed (initial clearance received)
Maharashtra	Tarapur	2x160 + 2x540	—	—
	Jaitapur*	—	—	2x1650
Rajasthan	Rawatbhata	100+200+(4x220)	2x700	—
	Mahi, Banswara*	—	—	2x700
Tami Nadu	Kalpakkam	2x220	1x500	2x500
	Kudankulam	1 x 1000	1x1000	2x1000
Uttar Pradesh	Narora	2x220	—	—
Gujarat	Kakrapar	2x220	2x700	—
	Chhaya Mithi Virdi*	—	—	2x1100
Karnataka	Kaiga	4x220	—	2x700
Haryana	Gorakhpur *	—	—	2x700
Madhya Pradesh	Chutka *	—	—	2x 700
	Bhimpur *	—	—	Pre-projectactivities
Andhra Pradesh	Kovvada *	—	—	2x1500
West Bengal	Haripur *	—	—	Pre-projectActivities

Source: Rajya Sabha, 2012 and updated by the author

Government of India seems determined that the nuclear energy forms an indispensable form of energy for India towards industrialization and providing electricity access to large number of population. The advantage of nuclear energy is been stated that on small fuel and limited land there could be high output. For example, from the Jaitapur and Kudankulam projects alone, there are possibilities of having close 10000MW and 9000 MW power respectively. However, to have a successful program public acceptance will be crucial; engagement and consultation with communities living close by would greatly benefit the overall program. The Government ought to allay any fears through a sustained education program backed by clear legal regime that benefits all the parties.

❖ Legal & Regulatory Framework concerning Nuclear Energy

- Liability and Compensation Laws

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Having experienced the consequences of the horrific bombings in Japan and knowing well that the traditional principles of state responsibility and liability may not suffice in respect to a nuclear accident, the Organization for Economic Cooperation and Development (OECD) established the Convention on Third Party Liability in the Field of Nuclear Energy, 1960 (Paris Convention), a nuclear liability regime for most of Western Europe. Supplementing the Paris Convention, the 1963 Convention Supplementary to the Paris Convention of 29 July 1960 (Brussels Supplementary Convention) was established to provide for enhanced compensation. The International Atomic Energy Agency (IAEA) sponsored an international regime in 1963 - the Vienna Convention on Civil Liability for Nuclear Damage (Vienna Convention), largely on the principles laid down in the Paris Convention.

The principles, detailed below, remain the bed rock of state responsibility and liability.

- a) First: no-fault liability (absolute liability);
- b) Second: liability is channelled exclusively to the operator of the nuclear installation (legal channeling);
- c) Third: only courts of the State in which the nuclear accident occurs have jurisdiction (exclusive jurisdiction);
- e) Fourth: limitation of the amount of liability and the time for claiming damages (limited liability)
- f) Fifth: limitation of time for claiming damages (limitation in time); and
- g) Sixth: the operator must secure insurance or financial guarantee to the extent of his liability amount.

With both these conventions being independent of each other, it was open to States to adopt either of these conventions. This raised the issue of coordination and harmonization between the two conventions. After the Chernobyl nuclear accident in 1986, to rectify this problem, the two conventions were linked by the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (1988 Joint Protocol), which came into force in 1992.

Along with this, there was a complete revision of the Paris and Brussels conventions. The 2004 Protocol to Amend the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960 (2004 Protocol) that amended both the Paris and Brussels Conventions is the most important of these revisions. The Vienna Convention has also undergone significant changes. In 1997, over 80 States adopted a Protocol to amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage (1997 Protocol), which came into force in 2003.

In addition to the Paris and Vienna conventions, at the instance of the United States, the IAEA sponsored another international nuclear liability regime – the Convention on Supplementary Compensation (Compensation Convention) in 1997. It is structured as umbrella legislation. The Compensation Convention provides additional amounts to be offered through contributions by the State parties on the basis of installed nuclear capacity. The convention is still not in force.

In India, the Civil Liability for Nuclear Damage Bill was passed by the Parliament and received Presidential assent on 21 September 2010 (Act No 38 of 2010). After a year and two months, the Act was notified, coming into force on 11 November 2011. The Civil Liability for Nuclear Damage Rules, 2011 have also been framed in respect of a few provisions, and were notified on the same day along with the Act. The Indian law retains most of the established international principles, but it is argued that it deviates on two major contentious points: one is the right of recourse against suppliers, in respect of who are covered and the extent of liability, and second is the right of citizens under tort laws to approach courts for claiming more compensation. These are yet to be settled.

- **Nuclear Regulatory Regime**

From the very beginning of nuclear energy development, countries were fully aware of the dangers associated with this form of energy and sought to create safety parameters as necessary conditions for further development. The IAEA summarizes and states, “Safety was an important concern and “prevention” was also identified as an important and effective safety factor”.

In order to do this, countries established nuclear regulatory institutions. Many institutions like the United States Nuclear Regulatory Commission (NRC) started with promotional and regulatory duties together, but later changed to perform specific regulatory roles. Today, the NRC’s regulatory activities are focused on reactor safety oversight and reactor license renewal of existing plants, materials safety oversight and materials licensing for a variety of purposes, and waste management of both high-level waste and low-level waste. In addition, the NRC is preparing to evaluate new applications for nuclear plants.

The IAEA on its part, taking forward the obligation under the Statute, has been at the forefront of framing, collaborating and disseminating standards of safety through its program - Fundamental Safety Principles, Safety Requirements and Safety Guides.

- a) As the primary publication in the IAEA Safety Standards Series, Fundamental Safety Principles establishes the fundamental safety objectives and principles of protection and safety. They convey the basis and rationale for the safety standards for persons at senior levels in government and regulatory bodies.
- b) The Safety Requirements establish the requirements that must be met to ensure the protection of people and the environment, both now and in the future. The requirements are governed by the objective and principles of the Safety
- a) Fundamentals. The format and style of the requirements facilitate their use by Member States for the establishment, in a harmonized manner, of their national regulatory framework.
- b) The Safety Guides provide recommendations and guidance on how to comply with the safety requirements, indicating an international consensus on the recommended measures. The Safety Guides present international good practices, and increasingly they reflect best practices, to help users striving to achieve high levels of safety.

These reflect an international consensus on what constitutes a high level of safety for protecting people and the environment from harmful effects of ionizing radiation. The IAEA safety standards are applicable throughout the entire lifetime of facilities and activities – existing and new – utilized for peaceful purposes, and to protective actions to reduce existing radiation risks.

In India, the Atomic Energy Regulatory Board (AERB) is the regulatory body that lays down safety standards and frames rules and regulations in regard to the regulatory and safety requirements envisaged under the Atomic Energy Act, 1962. The AERB was constituted on 15 November 1983 by the President of India by exercising the powers conferred by the Atomic Energy Act to carry out certain regulatory and safety functions under the Act. The regulatory authority of AERB is derived from the rules and notifications promulgated under the Atomic Energy Act and the Environment (Protection) Act, 1986. AERB is currently structured under the Atomic Energy Commission (AEC) reporting to the Chairman of the AEC. In order to provide independent legal status, the government has tabled a legislation called Nuclear Safety Regulatory Authority Bill 2010 (NSRA Bill). When the bill becomes a law there will be structural changes in the current AERB and the bill says AERB may be subsumed under the NSRA Bill.

- **Addressing security and safety through national and international legal frameworks**

There are a host of national and international legal and institutional instruments in respect to nuclear energy production, its use and safe disposal of waste. The list covers terrorism, securing safety of the facilities, transboundary issues, transportation of nuclear materials, personnel working on the facilities their safety and security, export and import of nuclear materials, safe disposal of nuclear waste and its management, decommissioning, etc.

Governments, nationally and at the international level, from the beginning of the program itself have made great effort towards creating a robust safety and security system. The Three-Mile Island nuclear accident in the United States (1979), Chernobyl in the former Soviet Union (USSR) (1986), and the nuclear fallout subsequent to the earthquake and tsunami in Japan (2011) exposed the nature of nuclear accidents and their possible impacts on humans and the environment. In the post-9/11 attacks in the United States, there has been heightened concern regarding the possibility of nuclear materials getting into the hands of terrorists. Governments world over have taken a series of measures to counter this possibility.

In order to share valuable regulatory experience on safety, the Convention on Nuclear Safety was adopted in Vienna on 17 June 1994 under the auspices of the IAEA. Its aim is to legally commit participating States operating land-based nuclear power plants to maintain a high level of safety by setting international benchmarks to which States would subscribe. The obligations of the Parties are based to a large extent on the principles contained in the IAEA Safety Fundamentals Document Fundamental Safety Principles (SF-1). These obligations cover for instance, siting, design, construction, operation, the availability of adequate financial and human resources, the assessment and verification of safety, quality assurance and emergency preparedness.

Nuclear energy development has had a history both as technological sensation and risks. The energy it can produce is enormous and has many medical and agriculture benefits. At the same time, a probable accident could lead to human and environmental devastation. Nuclear law as a discipline as we have observed covers legal instruments and institutions governing the production and use of nuclear energy.

World over many countries could power their economies towards industrialization based on the strength of nuclear power. They equally sought to allay any fears through establishment of robust laws and institutions for regulation and protection. The accidents in Chernobyl and now in Fukushima shows even the most technologically advanced countries still carry the risk. Further, the legal instruments that were in existence still may require more acceptances.

8.3 The Factories Act, 1948

The Act, which came into force with effect from 1st April, 1949, contains elaborate provisions regarding health, safety and welfare of workers in factories where manufacturing process is carried on. The objective is to provide for satisfactory working conditions as well as for health, safety and welfare of factory workers. Towards the same end, the Act includes restrictive provisions regarding the working hours for adults, women and young persons, and has provided for annual leave with wages for workers in factories. As per Section 2(m) of the Act, a factory means any premises where 10 or more workers are engaged and in any part of which a manufacturing process is carried on with the aid of power, or a premises where 20 or more persons are engaged and a manufacturing process is carried on without the aid of power. A manufacturing process is also defined as any process for making, altering, repairing, ornamenting, finishing, packing, oiling, washing, cleaning, breaking up, demolishing, or otherwise treating or adapting any article or substance with a view to its use, sale, transport, delivery or disposal. It may also include pumping oil, water or sewage, or generation and transmission of power, constructing, repairing, refitting, or braking up of ships or vessels, preservation or storage of articles in cold storage, etc.

Provisions relating to health of employees: Under Sections! 1-20, the Act has laid down necessary steps to be taken for

- Cleanliness in the factory
- Disposal of wastes and effluents; m= providing adequate ventilation and such temperature in work rooms as will secure reasonable comfort to workers and prevent injury to health
- Prevention of inhalation and accumulation of dust or fume or other impurity in work room which may be injurious or offensive to the workers
- Prescribing standards and regulating the humidity in the air where it is artificially increased in the factory; prevention of overcrowding in any workroom
- Maintaining sufficient and suitable lighting
- Arranging and maintaining at suitable points sufficient supply of wholesome drinking water
- Providing latrines and urinals of prescribed types separately for male and female workers

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- Arranging sufficient number of spittoons to be placed at convenient places which are to be maintained in a clean and hygienic condition.

❖ Safety provisions

The safety provisions are mostly in the nature of precautions and due safeguards in connection with the machinery used in the factory. Fencing of certain types of machinery is a very important requirement as also the dangerous parts of machinery. Precautions are required to be taken as regards work on or near machinery in motion. Where, necessary, suitable striking gear or other mechanical appliance, and suitable devices for cutting off power must be provided along with arrangement for locking the device to prevent accidental starting of transmission or other machinery. Employment of young person's on dangerous machines is prohibited unless they have been fully instructed and sufficiently trained. Likewise, employment of women and children is prohibited near cotton openers. The Act requires every hoist way and lift way to be sufficiently protected by an enclosure fitted with gates, maximum safe working load must be marked on the lift or hoist, and devices must be there to support the cage if there is breakage of ropes or chains. Precautions and safeguards are also required to be provided in the case of lifting machines, chains, ropes and lifting tackles, revolving machinery and pressure plant, against dangerous fumes, regarding the use of portable light, against explosive or inflammable dust, gas, etc. In case a manufacturing process involves risks of injury to the eyes from particles or fragments thrown off or exposure to excessive light, the state government may by rules requires require that effective screens or suitable goggles be provided for the protection of persons employed on, or in the vicinity of, the process. Certain other requirements of the Act in relation to safety are:

- (a) In every factory, all floors, steps, stairs, passages, gangways and means of access must be of sound construction, properly maintained and kept free from obstructions and substances likely to cause persons to slip, and where necessary, must be provided with handrails
- (b) If there are pits, sumps or tank in the ground or opening in floors which is a source of danger, the same must be securely covered or fenced
- (c) No person should be employed in factory to lift, carry or move any load so heavy as to be likely to cause him injury
- (d) Safeguards against results of fire are laid down in detail which includes provision of means of escape, nature of fire-fighting apparatus to be maintained, etc.

❖ Provisions relating to labor welfare

Under Section 42-49 of the Act, certain facilities are required to be provided in all factories irrespective of the number of workers employed, such as:

- (a) Separate and adequately screened washing facilities for male and female workers
- (b) Facilities for storing and drying wet clothing
- (c) Facilities for sitting for workers. Obligated to work in a standing position in order that they may take advantage of any opportunities for rest, and for workers who may be able to do their work efficiently in a sitting position

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- (d) First-aid appliances kept in first-aid box or cupboard which should be readily accessible during working hours. In addition, the following facilities are required to be provided in specified factories:
 - (ii) One or more canteens where more than 250 workers are ordinarily employed
 - (iii) Shelters, rest rooms and lunch rooms where more than 150 workers are employed
 - (iv) Crèches under the charge of trained women for the use of children under six years in factories where more than 30 women workers are employed. The Act also requires factories where more than 500 workers are employed to employ one or more welfare officers to take care of welfare facilities with duties prescribed by the State Government.

❖ Working hours for adults

Provisions in the Factories Act regulating the hours of work of adults consist of a number of rules. A summary of the rules is given below.

- h) The maximum number of hours of work that an adult worker may be required to do is 48 hours in any week, but not exceeding 9 hours in any day with a provision for at least half an hour rest after five hours of work.
 - (i) Every worker must have a weekly holiday.
 - (ii) Where a worker is deprived of any of the weekly holidays, he is to be allowed compensatory holiday within the months in which the holidays were due to him, or within two months immediately following that month.
 - (iii) When a worker is on shift duty which extends beyond midnight, the weekly holiday will be for a period of twenty-four consecutive hours beginning when his shift ends. Also overlapping shifts are prohibited.
 - (iv) Workers are to be paid for overtime work (in excess of nine hours in a day or 48 hours in a week) at twice the ordinary rate of wages,
 - (v) Women workers shall not be employed except between the hours of 6 a.m. and 7 p.m.
 - (vi) An advance notice must be displayed and correctly maintained showing clearly for every day the periods during which adult workers may be required to work.
 - (vii) The manager of every factory is required to maintain a register of adult workers with the name, nature of work, and other particulars about each adult worker, complete in itself and up to date.

❖ Employment of children

There is absolute prohibition of employment in a factory of any child who has not completed his fourteenth year age and it is the duty of the employees to ascertain the age of children and not depend on their application. For a child who has completed his fourteenth year or is an adolescent, if employed, must be granted a certificate of fitness, and he must carry a token while at work giving reference to such certificate granted. He shall not be employed or permitted to work during the night, i.e., between 10 p.m. and 6a.m., and for more than four and a half hours in any day. The period of work must be limited to two shifts only and these shall not overlap.

❖ Annual leave with wages

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According to Section 79 (1), where a worker has worked for a minimum period of 240 days or more in a factory during any calendar year, he is entitled to leave with wages on the following basis:

- (a) For adults - one day for every 20 days of work
- (b) For children — one day for every 15 days of work

If a worker does not commence his services from 1st January, he is entitled to these leaves at the above mentioned rates provided he has worked for $\frac{2}{3}$ of the total number of days in the remaining part of the calendar year. If any worker does not avail the earned leave entitled to him during the calendar year, it can be carried forward to the next calendar year subject to the maximum of 30 days for an adult worker and 40 days for a child worker.

❖ Administrative set-up

The State Government is responsible for the administration of the Act and the implementation of various provisions thereof in its state through the inspectorate headed by a Chief Inspector. The Chief Inspector is assisted by Additional Chief Inspectors, Joint Chief Inspectors, Inspectors and other officers as may be appointed by the State Government. The State Government has the powers to

- a. Apply all or any of the provisions of the Act even to a factory employing less than 10 workers if working with power and less than 20 workers if working without power
- b. Exempt in case of public emergency any factory or a class of factories from all or any of the provisions of the Act except Section 67 (prohibiting employment of children) for not more than 3 months at a time.
- c. Make rules for enforcement of the Act, registration and licensing of factories, and collection of license fee.

8.4 The National Environmental Appellate Authority Act, 1997

National Environment Appellate Authority Act, 1997 comprised of 23 Sections in brief which deals with the Constitution of Appellate Authority and matters relating to the powers functions of members, Central Government to perform the functions established a body under Section 3 of the Act called as National Environment Appellate Authority.

An Act to provide for the establishment of a National Environment Appellate Authority to hear appeals with respect to restriction of areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986 and for matters connected therewith or incidental thereto.

Be it enacted by Parliament in the Forty-eighth Year of the Republic of India as follows: —

❖ Short title and commencement:

- (i) This Act may be called the National Environment Appellate Authority Act, 1997.
- (ii) It shall be deemed to have come into force on the 30th day of January, 1997.

❖ Definitions:

In this Act, unless the context otherwise requires:

- (a) “Act” means the Environment (Protection) Act, 1986 (29 of 1986).
- (b) “Authority” means the National Environment Appellate Authority established under sub-section (1) of section 3.
- (c) “Chairperson” means the Chairperson of the Authority.
- (d) “Member” means a Member of the Authority.
- (e) “Prescribed” means prescribed by rules made under this Act.
- (f) “Vice-Chairperson” means the Vice-Chairperson of the Authority.

❖ Establishment of Authority:

- (i) The Central Government shall, by notification in the Official Gazette, establish a body to be known as the National Environment Appellate Authority to exercise the powers conferred upon, and to perform the functions assigned to, it under this Act.
- (ii) The head office of the Authority shall be at Delhi.

❖ Composition of Authority

The Authority shall consist of a Chairperson, a Vice-Chairperson and such other Members not exceeding three, as the Central Government may deem fit.

❖ Appeals to Authority:

- Any person aggrieved by an order granting environmental clearance in the areas in which any industries, operations or processes or class of industries, operations and processes shall not be carried out or shall be carried out subject to certain safeguards may, within thirty days from the date of such order, prefer an appeal to the Authority in such form as may be prescribed: Provided that the Authority may entertain any appeal after the expiry of the said period of thirty days but not after ninety days from the date aforesaid if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.
- For the purposes of sub-section:
 - (i) “person” means—
 - (a) Any person who is likely to be affected by the grant of environmental clearance
 - (b) Any person who owns or has control over the project with respect to which an application has been submitted for environmental clearance
 - (c) Any association of persons (whether incorporated or not) likely to be affected by such order and functioning in the field of environment
 - (d) The Central Government, where the environmental clearance is granted by the State Government and the State Government, where the environmental clearance is granted by the Central Government; or
 - (e) Any local authority, any part of whose local limits is within the neighborhood of the area wherein the project is proposed to be located.
 - (ii) On receipt of an appeal preferred under sub-section (1), the Authority shall, after giving the appellant an opportunity of being heard, pass such orders, as it thinks fit.

- (iii) The Authority shall dispose of the appeal within ninety days from the date of filing the appeal: Provided that the Authority may for reasons to be recorded in writing, dispose of the appeal within a further period of thirty days.

❖ **Procedure and powers of Authority:**

- (1) The Authority shall not be bound by the procedure laid down in the Code of Civil Procedure, 1908 (5 of 1908) but shall be guided by the principles of natural justice and subject to the other provisions of this Act and of any rules made by the Central Government, the Authority shall have power to regulate its own procedure including the fixing of places and times of its inquiry and deciding whether to sit in public or in private.
- (2) The Authority shall have, for the purposes of discharging its functions under this Act, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 (5 of 1908), while trying a suit, in respect of the following matters, namely: —
 - (a) Summoning and enforcing the attendance of any person and examining him on oath
 - (b) Requiring the discovery and production of documents; (c) receiving evidence on affidavits
 - (c) Subject to the provisions of sections 123 and 124 of the Indian Evidence Act, 1872 (1 of 1872), requisitioning any public record or document or copy of such record or document from any office
 - (d) Issuing commissions for the examination of witnesses or documents; (f) reviewing its decisions
 - (f) Dismissing a representation for default or deciding it, ex parte
 - (e) Setting aside any order of dismissal of any representation for default or any order passed by it ex parte
 - (f) Any other matter which is required to be, or may be, prescribed by the Central Government.

❖ **Financial and administrative powers:**

The Chairperson shall exercise such financial and administrative powers as may be vested in him under the rules: Provided that the Chairperson shall have authority to delegate such of his financial and administrative powers as he may think fit to the Vice- Chairperson or any other officer subject to the condition that the Vice-Chairperson or such other officer shall, while exercising such delegated powers, continue to act under the direction, control and supervision of the Chairperson.

• **Staff of Authority**

- (1) The Central Government shall determine the nature and categories of the officers and other employees required to assist the Authority in the discharge of its functions and provide the Authority with such officers and other employees as it may think fit.
- (2) The officers and other employees of the Authority shall discharge their functions under the general superintendence of the Chairperson.
- (3) The salaries and allowances and conditions of service of the officers and other employees shall be such as may be prescribed.
- **Bar of jurisdiction:** With effect from the date of establishment of the Authority, no civil court or other authority shall have jurisdiction to entertain any appeal in respect of any matter with which the Authority is so empowered by or under this Act.

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- Proceedings before the Authority to be judicial proceedings: All proceedings before the Authority shall be deemed to be judicial proceedings within the meaning of sections 193, 219 and 228 of the Indian Penal Code (45 of 1860).
- Members and staff of Authority to be public servants: The Chairperson, the Vice-Chairperson and the Members and the officers and other employees of the Authority shall be deemed to be public servants within the meaning of section 21 of the Indian Penal Code (45 of 1860).
- Protection of action taken in good faith: No suit, prosecution or other legal proceeding shall lie against the Central Government or against the Chairperson, the Vice-Chairperson or a Member of the Authority or any other person authorized by the Chairperson, the Vice-Chairperson or a Member for anything which is in good faith done or intended to be done in pursuance of this Act or any rule or order made there under.

❖ **Penalty for failure to comply with orders of Authority:**

Whoever fails to comply with any order made by the Authority, he shall be punishable with imprisonment for a term which may extend to seven years, or with fine which may extend to one lakh rupees, or with both.

- Offences by companies
 - (i) Where any offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly: Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he has exercised all due diligence to prevent the commission of such offence.
 - (ii) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.
- **Explanation: For the purposes of this section:**
 - (a) “Company” means anybody corporate and includes a firm or other association of individuals
 - (b) “Director”, in relation to a firm, means a partner in the firm.
- **Power to remove difficulties:**
 - (i) If any difficulty arises in giving effect to the Provisions of this Act, the Central Government may, by order published in the Official Gazette, make such provisions, not inconsistent with the provisions of this Act, as appear to it to be necessary or expedient for removing the difficulty: Provided that no such order shall be made after the expiry of the period of three years from the date on which this Act receives the assent of the President.

- (ii) Every order made under this section shall, as soon as may be after it is made, be laid before each House of Parliament.
- **Power to make rules**
 - (i) The Central Government may, by notification, make rules for carrying out the provisions of this Act.
 - (ii) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:
 - (a) The procedure under sub-section (4) of section 8 for the investigation of misbehavior or incapacity of the Chairperson, the Vice-Chairperson or a Member
 - (b) The salaries and allowances payable to and the other terms and conditions of service of the Chairperson, the Vice-Chairperson and the Members under section 9
 - (c) The form which an appeal shall contain under sub-section (1) of section 11
 - (d) Financial and administrative powers of the Chairperson under section 13
 - (e) The salaries and allowances and conditions of service of the officers and other employees of the Authority
 - (f) Any other matter which is required to be, or may be, prescribed.
 - (iii) Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.
- **Repeal and saving:**
 - (i) The National Environment Appellate Authority Ordinance, 1997 (Ord. 12 of 1997) is hereby repealed.
 - (ii) Notwithstanding such repeal, anything done or any action taken under the said Ordinance shall be deemed to have been done or taken under the corresponding provisions of this Act.

8.5 The Public Liability Insurance Act, 1991

An Act to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the Forty-first Year of the Republic of India as follows:

❖ **Short title and commencement:**

- (1) This Act may be called the Public Liability Insurance Act, 1991.
- (2) It shall come into force on such date¹ as the Central Government may, by notification, appoint.

❖ **Definitions: In this Act, unless the context otherwise requires, —**

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- “Accident” means an accident involving a fortuitous or sudden or unintended occurrence while handling any hazardous substance resulting in continuous or intermittent or repeated exposure to death of, or injury to, any person or damage to any property but does not include an accident by reason only of war or radio-activity;]
- “Collector” means the Collector having jurisdiction over the area in which the accident occurs;
- “Handling”, in relation to any hazardous substance, means the manufacture, processing, treatment, package, storage, transportation by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like of such hazardous substance;
- “Hazardous substance” means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act, 1986 (29 of 1986), and exceeding such quantity as may be specified, by notification, by the Central Government;
- “Insurance” means insurance against liability under sub-section (1) of section 3;
- “Notification” means a notification published in the official Gazette;
- “Owner” means a person who owns, or has control over handling, any hazardous substance at the time of accident and includes, —
 - (i) in the case of firm, any of its partners;
 - (ii) in the case of an association, any of its members; and
 - (iii) in the case of a company, any of its directors, managers, secretaries or other officers who is directly in charge of, and is responsible to, the company for the conduct of the business of the company;]
- (g) “Prescribed” means prescribed by rules made under this Act;
- (h) “Relief Fund” means the Environmental Relief Fund established under section 7A];
- (j) “rules” means rules made under this Act;
- (k) “Vehicle” means any mode of surface transport other than railways.

❖ Liability to give relief in certain cases on principle of no fault:

- (1) Where death or injury to any person (other than a workman) or damage to any property has resulted from an accident, the owner shall be liable to give such relief as is specified in the Schedule for such death, injury or damage.
- (2) In any claim for relief under sub-section (1) (hereinafter referred to in this Act as claim for relief), the claimant shall not be required to plead and establish that the death, injury or damage in respect of which the claim has been made was due to any wrongful act, neglect or default of any person.

❖ Duty of owner to take out insurance policies:

- (1) Every owner shall take out, before he starts handling any hazardous substance, one or more insurance policies providing for contracts of insurance whereby he is insured against liability to give relief under sub-section (1) of section 3 provided that any owner handling any hazardous substance immediately before the commencement of this Act shall take out such insurance policy or policies as soon as may be and in any case within a period of one year from such commencement.

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(2) Every owner shall get the insurance policy, referred to in sub-section (1), renewed from time to time before the expiry of the period of validity thereof so that the insurance policies may remain in force throughout the period during which such handling is continued.

1[(2A) No insurance policy taken out or renewed by an owner shall be for an amount less than the amount of the paid-up capital of the undertaking handling any hazardous substance and owned or controlled by that owner, and more than the amount, not exceeding fifty crore rupees, as may be prescribed. Explanation. — For the purposes of this sub-section, “paid-up capital” means, in the case of an owner not being a company, the market value of all assets and stocks of the undertaking on the date of contract of insurance.

(2B) The liability of the insurer under one assurance policy shall not exceed the amount specified in the terms of the contract of insurance in that insurance policy.

(2C) Every owner shall also, together with the amount of premium, pay to the insurer, for being credited to the Relief Fund established under section 7A, such further amount, not exceeding the sum equivalent to the amount of premium, as may be prescribed.

(2D) The insurer shall remit to the authority specified in sub-section (3) of section 7A the amount received from the owner under sub-section (2C) for being credited to the Relief Fund in such manner and within such period as may be prescribed and where the insurer fails to so remit the amount, it shall be recoverable from insurer as arrears of land revenue or of public demand.]

(3) The Central Government may, by notification, exempt from the operation of sub- section (1) any owner, namely: —

- (a) the Central Government;
- (b) any State Government;
- (c) any corporation owned or controlled by the Central Government or a State Government; or
- (d) any local authority:

Provided that no such order shall be made in relation to such owner unless a fund has been established and is maintained by that owner in accordance with the rules made in this behalf for meeting any liability under sub-section (1) of section 3.

Verification and publication of accident by Collector: Whenever it comes to the notice of the Collector that an accident has occurred at any place within his jurisdiction, he shall verify the occurrence of such accident and cause publicity to be given in such manner as he deems fit for inviting applications under sub-section

(1) of section 6.

❖ Application for claim for relief:

(1) An application for claim for relief may be made—

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- (a) by the person who has sustained the injury;
- (b) by the owner of the property to which the damage has been caused;
- (c) where death has resulted from the accident, by all or any of the legal representatives of the deceased; or
- (d) by any agent duly authorized by such person or owner of such property or all or any of the legal representatives of the deceased, as the case may be:

Provided that where all the legal representatives of the deceased have not joined in any such application for relief, the application shall be made on behalf of or for the benefit of all the legal representatives of the deceased and the legal representatives who have not so joined shall be impleaded as respondents to the application.

(2) Every application under sub-section (1) shall be made to the Collector and shall be in such form, contain such particulars and shall be accompanied by such documents as may be prescribed.

(3) No application for relief shall be entertained unless it is made within five years of the occurrence of the accident.

❖ Award of relief:

(1) On receipt of an application under sub-section (1) of section 6, the Collector shall, after giving notice of the application to the owner and after giving the parties an opportunity of being heard, hold an inquiry into the claim or, each of the claims, and may make an award determining the amount of relief which appears to him to be just and specifying the person or persons to whom such amount of relief shall be paid.

(2) The Collector shall arrange to deliver copies of the award to the parties concerned expeditiously and in any case within a period of fifteen days from the date of the award.

(3) When an award is made under this section, —

(a) the insurer, who is required to pay any amount in terms of such award and to the extent specified in sub-section (2B) of section 4, shall, within a period of thirty days of the date of announcement of the award, deposit that amount in such manner as the Collector may direct;

(b) the Collector shall arrange to pay from the Relief Fund, in terms of such award and in accordance with the scheme made under section 7A, to the person or persons referred to in sub-section (1) such amount as may be specified in that scheme;

(c) the owner shall, within such period, deposit such amount in such manner as the Collector may direct.

(4) In holding any inquiry under sub-section (1), the Collector may, subject to any rules made in this behalf, follow such summary procedure as he thinks fit.

(5) The Collector shall have all the powers of Civil Court for the purpose of taking evidence on oath and of enforcing the attendance of witnesses and of compelling the discovery and production of documents and material objects and for such other purposes as may be prescribed; and the Collector shall be deemed to be a Civil Court for all the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973 (2 of 1974).

(6) Where the insurer or the owner against whom the award is made under sub-section

(1) fails to deposit the amount of such award within the period specified under sub-section (3), such amount shall be recoverable from the owner, or as the case may be, the insurer as arrears of land revenue or of public demand.

(7) A claim for relief in respect of death of, or injury to, any person or damage to any property shall be disposed of as expeditiously as possible and every endeavor shall be made to dispose of such claim within three months of the receipt of the application for relief under sub-section (1) of section 6.

1[(8) Where an owner is likely to remove or dispose of his property with the object of evading payment by him of any amount of award, the Collector may, in accordance with the provisions of rules 1 to 4 of Order XXXIX of the First Schedule to the Code of Civil Procedure, 1908 (5 of 1908), grant a temporary injunction to restrain such act.]

❖ **Establishment of Environmental Relief Fund:**

(1) The Central Government may, by notification, establish a fund to be known as the Environmental Relief Fund.

(2) The Relief Fund shall be utilised for paying, in accordance with the provisions of this Act and the scheme made under sub-section (3), relief under the award made by the Collector under section 7.

(3) The Central Government may, by notification, make a scheme specifying the authority in which the Relief Fund shall vest, the manner in which the Relief Fund shall be administered, the form and the manner in which money shall be drawn from the Relief Fund and for all other matters connected with or incidental to the administration of the Relief Fund and the payment of relief therefrom.]

❖ **Provisions as to other right to claim compensation for death, etc:**

(i) The right to claim relief under sub-section (1) of section 3 in respect of death of, or injury to, any person or damage to any property shall be in addition to any other right to claim compensation in respect thereof under any other law for the time being in force.

(ii) Notwithstanding anything contained in sub-section (1), where in respect of death of, or injury to, any person or damage to any property, the owner, liable to give claim for relief, is also liable to pay compensation under any other law, the amount of such compensation shall be reduced by the amount of relief paid under this Act.

- ❖ **Power to call for information:** Any person authorized by the Central Government may, for the purposes of ascertaining whether any requirements of this Act or of any rule or of any direction given under this Act have been complied with, require any owner to submit to that person such information as that person may reasonably think necessary.
- ❖ **Power of entry and inspection:** Any person, authorized by the Central Government in this behalf, shall have a right to enter, at all reasonable times with such assistance as he considers necessary, any place, premises or vehicle, where hazardous substance is handled for the purpose of determining whether any provisions of this Act or of any rule or of any direction given under this Act is being or has been complied with and such owner is bound to render all assistance to such person.

Power of search and seizure:

(1) If a person, authorized by the Central Government in this behalf, has reason to believe that handling of any hazardous substance is taking place in any place, premises or vehicle, in contravention of sub-section (1) of section 4, he may enter into and search such place, premises or vehicle for such handling of hazardous substance.

(2) Where, as a result of any search under sub-section (1) any handling of hazardous substance has been found in relation to which contravention of sub-section (1) of section 4 has taken place, he may seize such hazardous substance and other things which, in his opinion, will be useful for, or relevant to, any proceeding under this Act:

Provided that where it is not practicable to seize any such substance or thing, he may serve on the owner an order that the owner shall not remove, part with, or otherwise deal with, the hazardous substance and such other things except with the previous permission of that person.

(3) He may, if he has reason to believe that it is expedient so to do to prevent an accident dispose of the hazardous substance seized under sub-section (2) immediately in such manner as he may deem fit.

(4) All expenses incurred by him in the disposal of hazardous substances under sub-section (3) shall be recoverable from the owner as arrears of land revenue or of public demand.

Power to give directions: Notwithstanding anything contained in any other law but subject to the provisions of this Act, the Central Government may, in exercise of its powers and performance of its functions under this Act, issue such directions in writing as it may deem fit for the purposes of this Act to any owner or any person, officer, authority or agency and such owner, person, officer, authority or agency shall be bound to comply with such directions.

For the removal of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct—

- (a) Prohibition or regulation of the handling of any hazardous substance; or
- (b) Stoppage or regulation of the supply of electricity, water or any other service.

Power to make application to Courts for restraining owner from handling hazardous substances:

- (1) If the Central Government or any person authorized by that Government in this behalf has reason to believe that any owner has been handling any hazardous substance in contravention of any of the provisions of this Act, that Government or, as the case may be, that person may make an application to a Court, not inferior to that of a Metropolitan Magistrate or a Judicial Magistrate first class for restraining such owner from such handling.
- (2) On receipt of the application under sub-section (1), the Court may make such order as it deems fit.
- (3) Where under sub-section (2), the Court makes an order restraining any owner from handling hazardous substance, it may, in that order—
 - (a) direct such owner to desist from such handling;
 - (b) authorize the Central Government or, as the case may be, the person referred to in sub-section (1), if the direction under clause (a) is not complied with by the owner to whom such direction is issued, to implement the direction in such manner as may be specified by the Court.
- (4) All expenses incurred by the Central Government, or as the case may be, the person in implementing the directions of Court under clause (b) of sub-section (3), shall be recoverable from the owner as arrears of land revenue or of public demand.

Penalty for contravention of sub-section (1) or sub-section (2) of section 4 or failure to comply with directions under section 12:

- (1) Whoever contravenes any of the provisions of 1[sub- section (1) or sub-section (2) or sub-section (2A) or sub-section (2C)] of section 4 or fails to comply with any direction issued under section 12, he shall be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years, or with fine which shall not be less than one lakh rupees, or with both.
 - (2) Whoever, having already been convicted of an offence under sub-section (1), is convicted for the second offence or any offence subsequent to the second offence, he shall be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine which shall not be less than one lakh rupees.
 - (3) Nothing contained in section 360 of the Code of Criminal Procedure, 1973 (2 of 1974), or in the Probation of Offenders Act, 1958 (20 of 1958), shall apply to a person convicted of an offence under this Act unless such person is under eighteen years of age.
- ❖ Penalty for failure to comply with direction under section 9 or order under section 11 or obstructing any person in discharge of his functions under section 10 or 11:

If any owner fails to comply with direction issued under section 9 or fails to comply with order issued under sub-section (2) of section 11, or obstructs any person in discharge of his functions

under section 10 or sub-section (1) or sub-section (3) of section 11, he shall be punishable with imprisonment which may extend to three months, or with fine which may extend to ten thousand rupees, or with both.

❖ **Offences by companies:**

(i) Where any offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(ii) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

For the purposes of this section, —

(a) “Company” means anybody corporate and includes a firm or other association of individuals;

(b) “Director,” in relation to a firm, means a partner in the firm.

□ **Offences by Government Departments.** —Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

□ **Cognizance of offences.** —No court shall take cognizance of any offence under this Act except on a complaint made by—

(a) The Central Government or any authority or officer authorized in this behalf by that Government; or

(b) Any person who has given notice of not less than sixty days in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Central Government or the authority or officer authorized as aforesaid.

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□ **Power to delegate:** The Central Government may, by notification, delegate, subject to such conditions and limitations as may be specified in the notification, such of its powers and functions under this Act (except the power under section 23) as it may deem necessary or expedient to any person (including any officer, authority or other agency).

□ **Protection of action taken in good faith.** —No suit, prosecution or other legal proceeding shall lie against the Government or the person, officer, authority or other agency in respect of anything which is done or intended to be done in good faith in pursuance of this Act or the rules made or orders or directions issued thereunder.

□ **Advisory Committee:**

(1) The Central Government may, from time to time, constitute an Advisory Committee on the matters relating to the insurance policy under this Act.

(2) The Advisory Committee shall consist of—

(a) Three officers representing the Central Government;

(b) Two persons representing the insurers;

(c) Two persons representing the owners; and

(d) Two persons from amongst the experts of insurance or hazardous substances. to be appointed by the Central Government.

(3) The Chairman of the Advisory Committee shall be one of the members representing the Central Government, nominated in this behalf by that Government.

(4) Effect of other laws: The provisions of this Act and any rules made thereunder shall have effect notwithstanding anything inconsistent therewith contained in any other law.

□ **Power to make rules:**

(1) The Central Government may, by notification, make rules for carrying out the purposes of this Act.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely—

a. The maximum amount for which an insurance policy may be taken out by an owner under sub-section (2A) of section 4;

(i) The amount required to be paid by every owner for being credited to the Relief Fund under sub-section (2C) of section 4;

(ii) The manner in which and the period within which the amount received from the owner is required to be remitted by the insurer under sub-section (2D) of section 4];

(iii) Establishment and maintenance of fund under sub-section (3) of section 4;

- (3) The form of application and the particulars to be given therein and the documents to accompany such application under sub-section (2) of section 6;
- (4) The procedure for holding an inquiry under sub-section (4) of section 7;
- (5) The purposes for which the Collector shall have powers of a Civil Court under sub-section (5) of section 7;
- (6) The manner in which notice of the offence and of the intention to make a complaint to the Central Government shall be given under clause (b) of section 18;
- (7) Any other matter which is required to be, or may be, prescribed.

Every 3[rule or scheme] made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the 3[rule or scheme] or both Houses agree that the 3[rule or scheme] should not be made, the 3[rule or scheme] shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that 3[rule or scheme].

8.6 The National Environment Tribunal Act, 1995

The objective of the NGT Act is to provide effective and expeditious disposal of cases relating to the protection of the environment including the enforcement of any legal right relating to the environment. The Tribunal is a multi-disciplinary body, with judicial and non-judicial/expert members, which hears and decides cases before it. The need to set up special environmental courts, such as the National Green Tribunal, was highlighted by the Supreme Court of India in a series of cases, 1 and by the Law Commission of India in its 186th report in 2003. The Court was of the opinion that environmental cases raised issues which required technical knowledge and expertise, speedy disposal, and continuous monitoring, and therefore they should be adjudicated upon by dedicated courts with adequate expertise and technical assistance. The National Environmental Tribunal Act 1995 was passed by the Parliament but never implemented. Subsequently, the National Environment Appellate Authority Act 1997 was enacted under which the National Environment Appellate Authority was set up in 1997. There were several problems in the functioning of this Authority; including its limited mandate (only persons wishing to challenge environmental clearances could approach the Authority). When the National Green Tribunal was set up in 2010, it replaced the Authority. The Tribunal can be approached with cases pertaining to any of the following seven environmental laws: The Water (Prevention and Control of Pollution) Act, 1974 [Water Act], The Water (Prevention and Control of Pollution) Cess Act, 1977, The Forest (Conservation) Act, 1980, The Air (Prevention and Control of Pollution) Act, 1981 [Air Act], The Environment (Protection) Act, 1986, The Public Liability Insurance Act, 1991 and The Biological Diversity Act, 2002

According to the NGT Act, an aggrieved person can file a case before the Tribunal – could be an individual, a company, a firm, an association of person (like a NGO) - even if not registered or incorporated, a trustee, a local authority (like a municipal corporation), a government body (like the SPCB) etc. The person need not be directly affected by the project or development in question, but could be any person who is interested in protecting and preserving the environment.

8.7 The Mines and Minerals Act, 1957

The Mines and Minerals Development and Regulation Act, 1957, ('MMDR') and the Mines Act, 1952, organized with the rules and regulations framed under them, establish the basic laws governing mineral and mining sector in India. MMDR Act-1957 applied to all minerals except petroleum. The MMDR Act was revised on numerous occasions to deliver a fair concession regime to invite private sector investments into exploration and mining sector. Government control over mining was further expended by amending the MMDR Act in 1972. In 1986 more stringent amendments were made by increasing the First Schedule minerals from 27 to 38 and also making mining plan approval compulsory. MMDR Amendment Act, 2015, substituted the first-come-first served/discretionary process for grant of mineral resources by a transparent and competitive auction process. The most recent amendment in the MMDR Act was carried out by the Mineral Laws (Amendment) Act, 2020 to ease out business and opening commercial mining and allowing domestic as well as global investors to invest. Important mining regulations enacted by the Government of India as summarized in Table 1.

Table 1 List of important mining regulations in India

ACT	Mining Regulation	Basic Provision
	Mineral Concession Rules (MCR), 1960	Defines the process and timelines of the grant of mineral concessions as per the provisions of Section 13 of The MMDR Act, 1957.
Mineral and Mining (Regulation and Development) Act, 1957		Prescribes guidelines for the conservation and Mineral development of minerals as per the provisions of Section Conservation and Development Rules (MCDR), 2017 18 of the MMDR Act, 1957. The rules cover procedures for carrying out prospecting and mining operations. It covers requirement related to the preparation of mining and prospecting plans, filing of notices and returns, and guidelines for the protection of the environment.
	State Minor	Various State Governments have prescribed rules for

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	Mineral Concession Rules	the grant of mineral concessions with respect to minerals Classified as minor minerals under the MMDR Act, 1957.
Mines Act, 1952	Mines Rules, 1955 Indian Coal Mines Regulation, 1957 Indian Metalliferous	Prescribes the laws related to the regulation of health, sanitation safety and welfare for miners and their families. Regulations for carrying out mining operations, management and inspection of mines and procedure of reporting to be followed are part of this.
	Mines Regulation, 1957 Oil Mines Regulations, 1963	
Coal Mines (Conservation and Safety) Act, 1952	Coal Mines (Conservation & Safety) Rules, 1952	The main function is to look after the stowing needs of mines in the interest of conservation.
Atomic Energy Act, 1962		It provides wide powers to Central Government for the regulation of prospecting and mining of minerals used in the production of atomic energy.
Oil Field (Regulation and Development) Act, 1948	Petroleum Concession Rules 1949	It deals with the procedure and rules regarding grant of exploration license and mining lease.
Offshore Areas Mineral (Development and Regulation) Act, 2002	Offshore Areas Mineral Concession Rules, 2006	Provides for the development and regulation of mineral resources in the territorial sea, continental shelf, EEZ, and other maritime zones of India.
Mineral Laws (Amendment) Act, 2020		The amendment is carried out to take forward the agenda of ease of doing business & opening in the mining sector and allowing domestic as well as global investors to invest.

❖ Mineral Concession System

In the above section we have read about important mining regulations in India. Now, let us discuss the mineral concession system of India. In the national structure of India, the State

Governments are the owner of the minerals located within the boundaries of the State concerned. As per Article 297 of the Constitution of India, the Central Government is the owner of the minerals underlying the ocean within the territorial waters or the Exclusive Economic Zone of India. The State Governments grant the mineral concessions for all the minerals located within the boundary of the State under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR) and Mineral Concession Rules, 1960 (MCR). Prior approval of the Central Government however is required in some cases.

There are three kinds of mineral concessions:

- Reconnaissance Permit,
- Prospecting License, and
- Mining Lease.

(i) Reconnaissance Permit (RP): This permit is approved for preliminary prospecting of a mineral through regional, aerial, geochemical or geophysical surveys and geological mapping. The reconnaissance permit for any mineral or related minerals is granted for 3 years and a maximum area of 5,000 sq. km, to be abandoned progressively. After 2 years, the area should be reduced to 1,000 sq. km or 50% of the area granted, whichever is less. At the end of third year, the area held under a reconnaissance permit should be reduced to 25 sq km. A reconnaissance permit holder must have a preferential right to obtain PL(s) in the area concerned.

(ii) Prospecting License (PL): This permit is granted to undertake exploration operations to locate and to prove mineral deposits. A PL for any mineral or associated minerals is granted for a maximum period of 3 years. A PL can be renewed for the total period for which a PL is granted that does not exceed 5 years. In a State, a person can be granted a maximum area of 25 sq. km in one or more PL's. But if the Central Government believes that in the interest of the development of any mineral it is necessary to do so, the maximum area limit can be relaxed.

(iii) Mining Lease (ML): This lease is granted to undertake mineral winning operations of minerals. A ML for any mineral or associated minerals is granted for a minimum period of 20 years and a maximum period of 30 years. The ML can be renewed for a period not exceeding 20 years each. In a State, a person can be granted a maximum area of 10 sq. km in one or more MLs. But if the Central Government believes that in the interest of the development of any mineral it is necessary to do so, the maximum area limit can be relaxed.

The Mineral Concession Rules, 1960 outline the procedures and conditions to obtain a Prospecting License or Mining Lease. The Mineral Conservation and Development Rules, 2017 lays down guidelines to ensure mining on a scientific basis, whereas at the same time, conserving the environment. The provisions of MCR and MCDR, but are not applicable to coal, atomic minerals and minor minerals. The minor minerals that come under the purview of the State Governments are separately notified. In the next section, we will discuss in detail the Mineral Conservation and Development Rules.

❖ Mineral Conservation and Development Rules- 2017

The Mineral Conservation and Development Rules (MCDR) were enforced for the first time in 1955 to lay adequate emphasis on the systematic development of mines, leading to the conservation of mineral resources. These rules derive power from the MMRD Act 1948. Later with the adoption of MMRD Act 1957, the MCDR were also changed and modified to MCDR 1958. The MCDR apply to all minerals except for (i) petroleum and natural gas; (ii) coal, lignite and sand for stowing; and (iii) minor minerals. The MCDR-1958 was repealed in 1988 and was replaced by MCDR-1988. Further, in supersession of the Mineral Conservation and Development Rules, 1988, the Central Government replaced it with the Mineral Conservation and Development Rules, 2017 by exercising the powers conferred to section 18 of the MMRD Act, 1957. As discussed in previous sections, the Mineral Conservation and Development Rules (MCDR) provide guidelines to ensure mining operation including mine closer on a scientific basis. The rules also define sustainable mining. The MCDR-2017 defines various rules divided into 12 chapters. The rules, concerning with the Reconnaissance and Prospecting Operations having 6 rules regarding the scheme of Reconnaissance or Prospecting Operations, its inspection by the competent authority and reports to be submitted by PL holder.

❖ Rules for Mining Operations:

Rules for Mining Operations of MCDR-2017 comprises of 21 rules related to Mining plan, operations in Open Cast mines, Underground mining operations, stacking of different grade of ores/non-saleable minerals, beneficiation studies, maintenance of records for machinery and plants, opening and closure plans of mines, abandonment of mines, responsibilities of Mining Leaseholder etc. Type of plans and sections and their preparation details defined in the rules are also given in MCDR-2017. While conducting prospecting, mining, beneficiation or metallurgical operations in the area, every holder of a mining lease is bound to take all possible precautions to undertake sustainable mining. The other environmental aspects of mining and related operations are also covered under these rules.

Every RP/PL/ML holder is bound to the MCDR-2017 to appoint geologists and mining engineers (whole time/part-time depending on the type of lease and type of mines) for scientific operations.

For these rules, the mines are divided into two types as “Category – A” mines and “Category-B” mines.

- The category 'A' mines: These mines are fully mechanized. The work is being carried out for deep whole drilling, excavation, loading and transport. by deployment of heavy mining machinery.
- Category 'B' mines mean mines other than category 'A' mines.

Overall the Mines and Minerals (Regulation and Development) Act (1957) is an Act of the Parliament of India enacted to regulate the mining sector in India. It was amended in 2015 and 2016. This act forms the basic framework of mining regulation in India.

This act is applicable to all mineral except minor minerals and atomic minerals. It details the process and conditions for acquiring a mining or prospecting license in India. Mining minor minerals comes under the purview of state governments. River sand is considered a minor mineral. For mining and prospecting in forest land, prior permission is needed from the Ministry of Environment and Forests.

Rules regarding all other aspects of the mining operations such as submission of annual and monthly returns, examination of mineral deposits and sampling, preservation of cores, geological reports, revision, penalties and maintenance of mining regulation portal etc. are also defined in the Mineral Conservation and Development Rules – 2017.

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EPG Pathshala: Subject: Environmental Science, Paper No: 13 Environmental Law and Policies, Module: 26 National Green Tribunal.

UNIT 9

NATIONAL GREEN TRIBUNAL AND ENVIRONMENTAL JUSTICE

Structure

- 9.0 Objectives
- 9.1 Introduction
- 9.2 Background: The Need for an Environmental Tribunal in India
- 9.3 Establishment and Composition of the National Green Tribunal
- 9.4 Jurisdiction, Powers and Procedure of the NGT
- 9.5 Principles Applied by the NGT
- 9.6 Landmark Decisions of the National Green Tribunal
- 9.7 The Concept of Environmental Justice
- 9.8 Contribution of the NGT to Environmental Justice in India
- 9.9 Criticisms and Challenges
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- 9.12 References
- 9.13 Suggested Readings
- 9.14 Terminal Questions
- 9.15 Short Answer Questions
- 9.16 True or False Questions

9.0 Objectives

After studying this unit, you should be able to:

- Explain the historical background and reasons for the establishment of the National Green Tribunal in India.
- Describe the composition, jurisdiction, and powers of the National Green Tribunal under the National Green Tribunal Act, 2010.
- Identify the substantive principles applied by the Tribunal in adjudicating environmental disputes.

- Discuss landmark decisions of the Tribunal and their impact on environmental governance.
- Explain the concept of environmental justice and its various dimensions.
- Critically evaluate the contribution of the National Green Tribunal to environmental justice in India, along with the challenges it continues to face.

9.1 Introduction

For several decades after independence, environmental disputes in India were adjudicated by ordinary civil courts and by writ courts exercising jurisdiction under Articles 32 and 226 of the Constitution. While the Supreme Court and High Courts developed an impressive body of environmental jurisprudence through public interest litigation, the ordinary judicial process suffered from significant limitations when applied to environmental matters: proceedings were slow, judges often lacked scientific and technical expertise, and the general law of civil procedure was ill-suited to disputes that frequently required urgent interim relief and specialised assessment of ecological harm.

These limitations led to a sustained demand for a specialised forum, staffed by both judicial and technical members, empowered to decide environmental disputes speedily and effectively. This demand culminated in the enactment of the National Green Tribunal Act, 2010, establishing the National Green Tribunal (NGT) as India's dedicated environmental adjudicatory body. This unit examines the background, structure, jurisdiction, and functioning of the NGT, surveys some of its landmark decisions, and situates its work within the broader concept of environmental justice.

9.2 Background: The Need for an Environmental Tribunal in India

The idea of a specialised environmental court in India was not new. As early as 1986, the Law Commission of India, in its Report addressing the Bhopal gas tragedy, had recommended the creation of tribunals to handle claims arising from environmental hazards. The Supreme Court itself, in the course of hearing environmental writ petitions during the 1980s and 1990s, repeatedly observed that specialised environmental adjudication required scientific expertise that generalist courts lacked.

India's initial legislative response took the form of two enactments in the early 1990s: the National Environment Tribunal Act, 1995, intended to provide relief and compensation for accidents involving hazardous substances, and the National Environment Appellate Authority Act, 1997, intended to hear appeals against environmental clearances. Both statutes proved largely ineffective. The Tribunal contemplated under the 1995 Act was never actually constituted, and the National Environment Appellate Authority, though established, functioned with limited staff, infrequent sittings, and a narrow appellate mandate, rendering it unable to address the growing volume and complexity of environmental disputes.

India's obligations under international environmental law added further impetus for reform. The Rio Declaration of 1992 had called upon states to develop effective national legislation and to provide access to judicial and administrative proceedings in environmental matters. The Supreme Court, in a series of decisions during the 2000s, itself urged the Union Government to establish specialised environmental courts staffed with both legally trained members and experts drawn from the scientific community. These developments, together with recommendations of the Law Commission in its 186th Report, eventually led Parliament to enact the National Green Tribunal Act in 2010, repealing the earlier 1995 and 1997 statutes and consolidating environmental adjudication within a single, dedicated institution.

9.3 Establishment and Composition of the National Green Tribunal

The National Green Tribunal was established under the National Green Tribunal Act, 2010, and became operational in October 2010, with its principal bench located at New Delhi and additional zonal benches at Bhopal, Pune, Kolkata, and Chennai. India thereby became one of the first countries in the world, and the third among developing nations after Australia and New Zealand, to establish a specialised environmental tribunal with wide-ranging jurisdiction over civil environmental disputes.

9.3.1 Composition

The Tribunal is composed of a Chairperson, along with a specified number of full-time judicial members and expert members, appointed by the Central Government. Judicial members are drawn from persons who have held, or are qualified to hold, high judicial office, while expert members are required to possess specialised knowledge and professional experience in fields such as environmental science, pollution control, forestry, and related disciplines. This blended composition of judges and technical experts is the defining institutional feature of the Tribunal, enabling it to adjudicate disputes that raise both legal and scientific questions within a single proceeding, without the need to rely on external expert witnesses to the same extent as ordinary courts.

9.3.2 Objects of the Act

The stated objects of the National Green Tribunal Act are the effective and expeditious disposal of cases relating to environmental protection, conservation of forests, and other natural resources, including enforcement of legal rights relating to the environment, and the grant of relief and compensation for damage to persons and property arising out of violations of specified environmental legislation. The Act gives the Tribunal jurisdiction over civil cases involving substantial questions relating to the environment arising out of the implementation of enactments specified in a schedule to the Act.

9.4 Jurisdiction, Powers and Procedure of the NGT

9.4.1 Jurisdiction

The Tribunal exercises jurisdiction over all civil cases involving a substantial question relating to the environment, including questions concerning enforcement of any legal right relating to the environment, arising out of the implementation of the enactments listed in Schedule I to the Act. These scheduled enactments include the Water (Prevention and Control of Pollution) Act, 1974, the Water (Prevention and Control of Pollution) Cess Act, 1977, the Forest (Conservation) Act, 1980, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, and the Biological Diversity Act, 2002. The Tribunal is empowered to hear appeals against orders and decisions made by authorities under these enactments and to entertain applications for compensation and relief.

9.4.2 Powers

The Tribunal possesses the same powers as are vested in a civil court under the Code of Civil Procedure, 1908, including the power to summon and examine witnesses, require the discovery and production of documents, and receive evidence on affidavit. However, the Tribunal is not bound by the strict rules of evidence contained in the Indian Evidence Act, 1872, nor by the detailed procedural code contained in the Code of Civil Procedure, being instead guided by principles of natural justice. This procedural flexibility allows the Tribunal to function more speedily than an ordinary civil court, while its power to grant interim relief, including injunctions restraining ongoing environmentally harmful activity, has proved particularly significant in preventing irreversible ecological damage during the pendency of proceedings.

9.4.3 Appeals

An appeal against an order or decision of the Tribunal lies directly to the Supreme Court of India, on one or more grounds specified in Section 100 of the Code of Civil Procedure, within a prescribed limitation period. This structure, bypassing the High Courts, was intended to ensure that environmental disputes reach finality without unnecessary delay, although questions concerning the jurisdictional relationship between the Tribunal and the High Courts, particularly with respect to writ jurisdiction under Article 226, have generated considerable judicial debate.

9.5 Principles Applied by the NGT

Section 20 of the National Green Tribunal Act expressly directs the Tribunal, while passing any order, decision, or award, to apply the principles of sustainable development, the precautionary principle, and the polluter pays principle. This is a distinctive and significant feature of the Act, since it places international environmental law principles, most of which originated in instruments such as the Rio Declaration, on an explicit statutory footing for the first time in Indian legislation.

- **Sustainable Development:** The Tribunal is required to balance developmental needs against ecological considerations, ensuring that economic activity does not proceed at the

cost of irreversible environmental harm, and that the needs of present and future generations are both taken into account.

- **Precautionary Principle:** Where an activity poses a threat of serious or irreversible environmental damage, the Tribunal need not await complete scientific certainty before restraining or regulating that activity; the burden instead shifts to the person carrying on the activity to demonstrate that it is environmentally benign.
- **Polluter Pays Principle:** The Tribunal is empowered to direct that the costs of remedying environmental damage, including the costs of restoration and compensation to affected persons, be borne by the party responsible for causing the pollution.

In addition to these statutory principles, the Tribunal has, in the course of its jurisprudence, applied the public trust doctrine, under which natural resources such as air, water, forests, and rivers are held by the state in trust for the benefit of the public and cannot be permitted to pass into private ownership or exploitation to the detriment of the community, as well as the doctrine of intergenerational equity, which requires that the interests of future generations be safeguarded in present-day decision-making.

9.6 Landmark Decisions of the National Green Tribunal

Over the years since its establishment, the National Green Tribunal has delivered a substantial body of jurisprudence addressing a wide range of environmental concerns, including river pollution, air quality, waste management, mining, and construction activity in ecologically fragile areas. Some illustrative categories of its decisions are discussed below.

(a) River Pollution and Restoration

The Tribunal has passed extensive directions concerning the rejuvenation and pollution control of major rivers, including the Yamuna and the Ganga, directing pollution control boards, municipal authorities, and industries to take specific remedial measures, imposing environmental compensation on entities discharging untreated effluent, and monitoring compliance through periodic reports.

(b) Air Quality and Urban Pollution

The Tribunal has issued directions addressing air pollution in the National Capital Region and other urban centres, including regulation of construction activity, restrictions on the burning of waste and crop residue, and measures to control vehicular and industrial emissions, often invoking the precautionary principle to justify interim restrictions pending fuller scientific assessment.

(c) Mining and Illegal Construction

The Tribunal has intervened extensively in cases of illegal or unregulated mining activity, particularly sand mining along riverbeds, and has ordered the demolition or regularisation of construction undertaken in violation of environmental clearance requirements or coastal and

wetland regulations, applying the principle that ecological considerations must prevail over unauthorised commercial activity.

(d) Environmental Compensation and the 'Polluter Pays' Principle in Practice

The Tribunal has, in numerous cases, imposed substantial monetary compensation upon industries and municipal bodies found responsible for environmental damage, treating such compensation as a practical application of the polluter pays principle and as a means of funding restoration and remediation measures.

(e) Forests, Wildlife and Protected Areas

The Tribunal has passed significant orders concerning encroachment upon forest land, diversion of forest land for non-forest purposes without appropriate clearance, and protection of wildlife corridors and eco-sensitive zones surrounding protected areas, frequently applying the precautionary principle and the public trust doctrine in doing so.

Collectively, these decisions illustrate the Tribunal's role not merely as a passive adjudicator of disputes between parties, but as an active institution engaged in continuous monitoring and enforcement of environmental compliance, often on its own motion, in matters of significant public concern.

9.7 The Concept of Environmental Justice

Environmental justice is a broad concept concerned with the fair distribution of environmental benefits and burdens across society, and with ensuring meaningful participation of all persons, particularly marginalised and disadvantaged communities, in environmental decision-making that affects their lives. The concept emerged initially in the context of concerns that poorer communities and minority populations were disproportionately exposed to environmental hazards such as polluting industries, hazardous waste sites, and contaminated water sources, while enjoying comparatively little benefit from the economic activity generating that pollution.

Environmental justice is generally understood to encompass several interconnected dimensions.

- **Distributive justice:** concerned with the fair allocation of environmental benefits and burdens, so that no particular community or group bears a disproportionate share of environmental harm.
- **Procedural justice:** concerned with ensuring fair, transparent, and inclusive procedures for environmental decision-making, including access to information and meaningful opportunities for public participation.
- **Corrective or remedial justice:** concerned with providing effective remedies, compensation, and restoration to persons and communities who have suffered environmental harm.

- **Recognitional justice:** concerned with recognising and respecting the distinct knowledge, practices, and rights of indigenous and traditional communities in relation to their environment and natural resources.

In the Indian context, environmental justice has been closely linked with the constitutional guarantee of the right to life under Article 21, which the Supreme Court has interpreted to include the right to a clean and healthy environment, as well as with the broader constitutional commitment to social and economic justice reflected in the Preamble and the Directive Principles of State Policy. Access to an effective, affordable, and expert forum for the vindication of environmental rights is itself widely regarded as a core component of procedural environmental justice, which is precisely the gap that the National Green Tribunal was created to fill.

9.8 Contribution of the NGT to Environmental Justice in India

The National Green Tribunal has made a substantial contribution to advancing environmental justice in India, in several distinct respects.

- **Access to justice:** By providing a specialised, less formal, and comparatively faster forum than ordinary civil courts, the Tribunal has significantly improved access to justice for individuals and communities affected by environmental harm, including persons who might otherwise lack the resources to pursue prolonged civil litigation.
- **Technical competence:** The presence of expert members alongside judicial members allows the Tribunal to assess complex scientific and technical evidence directly, reducing dependence on court-appointed experts and enabling more informed and credible determinations of environmental harm and causation.
- **Suo motu and representative proceedings:** The Tribunal has, in appropriate cases, taken cognisance of environmental harm on its own motion or upon representations from affected communities and non-governmental organisations, thereby extending access to justice to persons and groups who may lack the resources or legal sophistication to institute formal proceedings themselves.
- **Compensation and restoration:** Through its power to award environmental compensation and to direct restorative measures, the Tribunal has given practical effect to corrective environmental justice, ensuring that affected communities receive redress and that degraded environments are, where possible, restored.
- **Continuous monitoring:** Unlike a court that typically disposes of a matter through a final judgment, the Tribunal has frequently retained seisin over matters through continuing mandamus, directing periodic compliance reports and monitoring implementation over extended periods, thereby ensuring more effective enforcement of its orders in practice.
- **Development of substantive doctrine:** The Tribunal's consistent application of the precautionary principle, the polluter pays principle, sustainable development, and the public trust doctrine has enriched Indian environmental jurisprudence and provided a body of persuasive precedent for use by other courts and authorities.

9.9 Criticisms and Challenges

Notwithstanding its considerable contribution, the functioning of the National Green Tribunal has been the subject of significant criticism and continues to face several institutional challenges.

- Vacancies in the posts of Chairperson, judicial members, and expert members have periodically left the Tribunal understaffed, undermining its capacity to dispose of cases within the time frames contemplated by the Act.
- The restriction of the Tribunal's jurisdiction to the enactments specifically listed in Schedule I to the Act has excluded certain important environmental statutes, most notably the Wildlife (Protection) Act, 1972, from its purview, giving rise to jurisdictional gaps and complexity.
- Questions have arisen regarding the territorial reach and enforcement capacity of the Tribunal, particularly given that its benches are located only in a limited number of cities, which can affect access for litigants in remote areas.
- The relationship between the Tribunal's jurisdiction and the writ jurisdiction of the High Courts under Article 226 has generated jurisdictional uncertainty, with courts required to clarify on several occasions the boundaries between the two forums.
- Concerns have been expressed, including by some constitutional courts, regarding the adequacy of enforcement mechanisms available to the Tribunal, and regarding compliance by state governments and industries with its orders, particularly in matters requiring sustained monitoring over long periods.
- Some critics argue that the Tribunal, notwithstanding its mandate of expeditious disposal, has itself experienced delays in some categories of cases, and that its case law on jurisdictional questions, particularly regarding limitation periods for appeals, has not always been consistent.

9.10 Summary

The National Green Tribunal, established under the National Green Tribunal Act, 2010, represents India's principal institutional response to the long-standing demand for a specialised forum for the adjudication of environmental disputes. Composed of both judicial and expert members, and vested with wide-ranging jurisdiction over civil environmental disputes arising under a schedule of specified enactments, the Tribunal is statutorily required to apply the principles of sustainable development, the precautionary principle, and the polluter pays principle in its decision-making. Since its establishment, it has delivered significant decisions on river pollution, air quality, illegal mining and construction, forest protection, and environmental compensation, while also developing doctrines such as the public trust doctrine and intergenerational equity through its jurisprudence.

Environmental justice, understood as encompassing distributive, procedural, corrective, and recognitional dimensions, provides an important lens through which to assess the work of the

Tribunal. By improving access to justice, bringing scientific expertise to bear on environmental adjudication, awarding compensation to affected communities, and maintaining continuous monitoring of compliance, the National Green Tribunal has made a meaningful contribution to advancing environmental justice in India. At the same time, persistent vacancies, jurisdictional gaps, and enforcement challenges indicate that the institution continues to face significant obstacles in fully realising its statutory mandate, and remains a subject of ongoing reform and judicial clarification.

9.11 Glossary

Continuing Mandamus	A judicial technique whereby a court or tribunal retains supervisory jurisdiction over a matter and directs periodic compliance reports to ensure effective implementation of its orders, rather than disposing of the case through a single final order.
Environmental Compensation	Monetary compensation directed to be paid by a person or entity responsible for causing environmental damage, intended to fund restoration measures and to compensate affected persons.
Environmental Justice	The fair distribution of environmental benefits and burdens across society, together with meaningful participation of affected communities, particularly marginalised groups, in environmental decision-making.
Expert Member	A member of the National Green Tribunal possessing specialised scientific, technical, or professional knowledge in fields relevant to environmental protection, appointed to sit alongside judicial members.
Intergenerational Equity	The principle that the interests and needs of future generations must be taken into account in present-day decisions concerning the use and protection of natural resources.
Judicial Member	A member of the National Green Tribunal who has held, or is qualified to hold, high judicial office, appointed to adjudicate legal questions arising in environmental disputes.
Precautionary Principle	The principle that a lack of full scientific certainty regarding environmental harm should not be used as a reason to postpone measures to prevent serious or irreversible damage.
Public Trust Doctrine	The doctrine that certain natural resources, such as air, water, and forests, are held by the state in trust for the benefit of the public and cannot be exploited for private or commercial gain to the detriment of the community.

Scheduled Enactments	The environmental statutes specifically listed in Schedule I to the National Green Tribunal Act, 2010, disputes under which fall within the Tribunal's jurisdiction.
Suo Motu	A Latin expression meaning 'on its own motion', referring to proceedings initiated by a court or tribunal without a formal application or petition by any party.

9.12 References

1. The National Green Tribunal Act, 2010 (Act No. 19 of 2010).
2. Law Commission of India, 186th Report on Proposal to Constitute Environment Courts, 2003.
3. Law Commission of India, Report on the Bhopal Gas Leak Disaster, 1986.
4. United Nations, Rio Declaration on Environment and Development, 1992, Principle 10.
5. Shyam Divan and Armin Rosencranz, Environmental Law and Policy in India, Oxford University Press.
6. P. Leelakrishnan, Environmental Law in India, LexisNexis.
7. National Green Tribunal, official records, judgments, and annual reports, available at greentribunal.gov.in.

9.13 Suggested Readings

1. Gitanjali Nain Gill, Environmental Justice in India: The National Green Tribunal, Routledge.
2. Shibani Ghosh (ed.), Indian Environmental Law: Key Concepts and Principles, Orient BlackSwan.
3. Shyam Divan and Armin Rosencranz, Environmental Law and Policy in India: Cases, Materials and Statutes, Oxford University Press.
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5. Law Commission of India, 186th Report on Proposal to Constitute Environment Courts, available on the Law Commission's website.

9.14 Terminal Questions

1. Trace the historical background leading to the enactment of the National Green Tribunal Act, 2010, and discuss the shortcomings of earlier legislative attempts to establish environmental tribunals in India.
2. Discuss the composition, jurisdiction, and powers of the National Green Tribunal under the National Green Tribunal Act, 2010.

Environment Justice and Human Rights

3. Examine the principles of sustainable development, the precautionary principle, and the polluter pays principle as applied by the National Green Tribunal, with reference to decided cases.
4. What is meant by environmental justice? Discuss its various dimensions and its relevance to the Indian constitutional framework.
5. Critically evaluate the contribution of the National Green Tribunal to environmental justice in India.

9.15 Short Answer Questions

1. Under which statute was the National Green Tribunal established, and when did it become operational?
2. Name the earlier legislative attempts, prior to 2010, aimed at establishing environmental adjudicatory bodies in India.
3. What is the composition of the National Green Tribunal in terms of judicial and expert members?
4. Where is the principal bench of the National Green Tribunal located, and name any two of its zonal benches?
5. List the three principles that the Tribunal is statutorily required to apply under Section 20 of the Act.

9.16 True or False Questions

- 1 The National Green Tribunal was established under the National Green Tribunal Act, 2010.
- 2 The National Green Tribunal became operational in 2010, with its principal bench at New Delhi.
- 3 India was the first country in the world to establish a specialised environmental tribunal.
- 4 The National Green Tribunal is composed exclusively of judicial members.

(Answer key: 1-True, 2-True, 3-False, 4-False,)

Unit 10: Judicial Remedies and Environmental Protection

10.0 Objectives

10.1 Introduction

10.2 The Constitution and Protection of the Environment

10.3 The National Green Tribunal

10.4 Jurisdiction

10.4.1 Original jurisdiction (section 14)

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10.4.3 Exclusive jurisdiction of the Tribunal

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10.5 Criminal Courts

10.6 Supreme Court of India and High Courts

10.6.1 Writ petitions

10.6.2 Public Interest Litigation

10.6.3 'Alternative and efficacious remedy' exception

10.7 Environmental Legislation

10.7.1 Wildlife Protection Act, 1972

10.7.2 Water (Prevention and Control of Pollution) Act, 1974

10.7.3 Air (Prevention and Control of Pollution) Act, 1981

10.7.4 Environment (Protection) Act, 1986

10.7.5 Public Liability Insurance Act, 1991

10.7.6 Biological Diversity Act, 2002

10.7.7 National Green Tribunal Act, 2010

10.8 Judicial Decisions

10.9 Summary

10.10 References

10.0 Objectives

This unit aims at the following outcomes:

- Understand the legal scenario in India on environment and its protection;
- Develop an understanding about the institutions for protecting the environment and their role; and
- Provide an insight into the role of judiciary in developing environmental jurisprudence in India
- Understand the mandate of the National Green Tribunal, a special tribunal constituted to hear environmental cases.
- A basic understanding of the role of criminal courts, the Supreme Court of India, and the High Courts in environmental cases.

10.1 Introduction

Protection of environment in India has its foundations in the obligations undertaken by India in international instruments, the Constitutional framework of the country, the legislation enacted, and the judicial decisions. Sources of environmental law, for that reason, can be located in these instruments. Apart from these formal sources, a number of informal mechanisms supplement the efforts to protect the environment in terms of conservation, management and regulation. Informal mechanisms may be traced to the efforts of communities, NGOs or the efforts of public-spirited individuals.

Environmental governance has direct (and indirect) implications on the rights and interests of persons, and the environment. Whether it is poor quality of air or water, a decision to clear forests, build an industry or a dam, mine land, dispose of waste in a particular manner, or inaction on the part of governmental agencies to stop environmental degradation – all these situations, among many others, have repercussions. These repercussions can take various forms such as: increased health impacts or increased mortality rates; reduced access to certain natural resources (e.g. clean ground water or forest produce); or economic loss (e.g. crop yields reduction, or an industry is not permitted to commence operation). Persons affected or aggrieved in these situations turn to law for appropriate remedies. While certain types of remedies may be sought directly from the concerned government agency (the executive) or special grievance redressal mechanism under specific environmental laws, often people turn to the judiciary for grievance redressal. Depending on the nature of the grievance, there are different types of judicial remedies available. The main forum for environmental cases that are civil in nature is the National Green Tribunal. Criminal environment cases, such as cases filed against persons causing air or water pollution, have to be filed before criminal courts (Magistrate's court). Cases may also be filed before the High Courts of different states and the Supreme Court of India, particularly if fundamental rights guaranteed under filed before the High Courts of different states and the Supreme Court of India, particularly if fundamental rights guaranteed under the Constitution have been violated, or to ensure the protection of such rights if they are likely to be under threat.

10.2 The Constitution and Protection of the Environment

The Constitution of India is the supreme law of the land. It is worth examining the scope of environmental protection envisaged under the Constitution.

To begin with, one may refer to the Constituent Assembly debates (see Divan & Rosencranz, 2001: 43- 44). There was no specific discussion about regulation of the environment by Parliament or the state legislatures. The discussion centered on the division of legislative powers on the environment under the Government of India Act, 1935 and the differences expressed by those who wanted a strong Centre and those who preferred more powers to the states. Items of economic importance like fisheries and forests over which control was asserted both by the Centre and the states became strongly contested. In the meeting of the Drafting Committee of the Constituent Assembly in July 1949, the Ministry of Agriculture wanted these items to be placed in the Concurrent List. It was argued by the Ministry that the country's agricultural prosperity was dependent on forests and therefore activities by the states shall not be prejudicial to that common interest. However, this proposal faced stiff resistance from the provinces and heads of states. Therefore, forests were classified as a state subject. Fisheries find mention in the State List (item no.21). However, legislative competence on fisheries and fishing beyond territorial waters find mention in the Union List (item no.57).

Post-independence, any discussion on constitutional protection for the environment becomes incomplete without a reference to the distribution of legislative and executive powers envisaged in the Constitution. Parliament and state legislatures, the nodal agencies for law-making, are vested with legislative powers on the basis of items distributed in the three lists, namely, Union List (List I), State List (List II) and the Concurrent List (List III) in the Seventh Schedule. There are articles (for example, Article 252) in the Constitution, which in exceptional situations vest the Union/Central Government with powers to legislate on an item described in the State List. This is apart from the principles of interpretation followed in the Constitution regarding conflict between central and state laws.

A perusal of the items in the Seventh Schedule shows how different subject matters in relation to the environment are distributed across the three lists. Residuary powers of law making in the Indian context are vested with the Union under Article 248. It may be true that the Constitution makers did not give priority to environmental protection in the sense in which it is understood today. However, the constitutional scheme includes many subject heads in the Lists, which are of crucial concern to protection of the environment today. Hurdles are posed due to the tension between the Centre and the states over who exactly could exercise the legislative power. For instance, there is tension about water regulation, which is an item in the State List. Except for inter-state river water disputes, regulation of water sector is within the state jurisdiction. It is suggested to bring the water related items in the Concurrent List.

The Stockholm Conference on Human Environment, 1972 is a landmark achievement in environmental protection internationally. After participation in the Conference, India made serious inroads into environmental protection by introducing the 42nd amendment to the

Constitution. Article 48-A was added to Part IV of the Constitution, which covers Directive Principles of State Policy. It reads as follows:

The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

During the Lok-Sabha debates there were suggestions to vest the state with the duty to conserve and develop water, soil and other natural resources. Some others suggested that state should assure that protection of the environment would not harm tribal forest dwellers. In the Rajya-Sabha while welcoming the new Article, some members suggested mineral wealth to be included and governments to undertake adequate and effective measures to check environment pollution (Divan & Rosencranz, 2001: 45).

In the newly added chapter on Fundamental Duties, Article 51A (g) imposed a responsibility on every citizen to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures.

Often constitutional provisions, particularly Article 21 (right to life) is referred to for adjudication of environmental disputes. Part 4 of this unit analyses some of the landmark decisions of the Supreme Court wherein the Court has referred to Article 21 as the basis for its decision.

Article 253 vests the power in Parliament to enact legislation to implement India's international obligations. Based on this legislative power, the Central Government has enacted a number of legislation to protect the environment. The next section will discuss the legislation.

10.3 The National Green Tribunal

The National Green Tribunal (Tribunal) has been set up under the National Green Tribunal Act, 2010 (NGT Act). The objective of the NGT Act is to provide effective and expeditious disposal of cases relating to the protection of the environment including the enforcement of any legal right relating to the environment. The Tribunal is a multi-disciplinary body, with judicial and non-judicial/expert members, which hears and decides cases before it.

The need to set up special environmental courts, such as the National Green Tribunal, was highlighted by the Supreme Court of India in a series of cases, and by the Law Commission of India in its 186th report in 2003. The Court was of the opinion that environmental cases raised issues which required technical knowledge and expertise, speedy disposal, and continuous monitoring, and therefore they should be adjudicated upon by dedicated courts with adequate expertise and technical assistance. The National Environmental Tribunal Act 1995 was passed by the Parliament but never implemented. Subsequently, the National Environment Appellate Authority Act 1997 was enacted under which the National Environment Appellate Authority was set up in 1997. There were several problems in the functioning of this Authority, including its limited mandate (only persons wishing to challenge environmental clearances could approach the Authority). When the National Green Tribunal

was set up in 2010, it replaced the Authority. The Tribunal can be approached with cases pertaining to any of the following seven environmental laws:

- The Water (Prevention and Control of Pollution) Act, 1974 [Water Act]
- The Water (Prevention and Control of Pollution) Cess Act, 1977
- The Forest (Conservation) Act, 1980
- The Air (Prevention and Control of Pollution) Act, 1981 [Air Act]
- The Environment (Protection) Act, 1986
- The Public Liability Insurance Act, 1991
- The Biological Diversity Act, 2002

10.4 Jurisdiction

The Tribunal has two kinds of jurisdiction – original and appellate jurisdiction. Original jurisdiction refers to the powers of the Tribunal to decide an issue for the first time, before any other authority with judicial powers has made any decision on it. Appellate jurisdiction refers to the power to sit in appeal – i.e. when an authority has issued an order or decision, and against such an order or decision a case has been filed.

10.4.1 Original jurisdiction (section 14)

The Tribunal has original jurisdiction over all civil cases raising a substantial question relating to environment and which arise out of the implementation of any of the aforementioned seven laws. This includes the enforcement of any legal right arising from these laws, or if there is a direct violation of a specific statutory environmental obligation by a person which affects the community at large (not just an individual); or causes substantial damage to the environment or property; or causes damage to public health that is broadly measurable. The environmental consequences could relate to a specific activity or a point source of pollution.

Examples of cases that the Tribunal can decide while exercising original jurisdiction are: cases of industrial pollution where the applicants are not challenging a specific approval or consent granted to the industry but are aggrieved by the impacts of the industry on, say, groundwater, or ambient air quality or noise levels; cases like the one challenging rampant illegal construction and development which contributed to the Uttarakhand floods and massive destruction in 2013; cases highlighting illegal activities with adverse impacts on the environment like unregulated sand mining, etc.

Such cases have to be brought before the Tribunal within a period of six months from the date on which the cause of action of the dispute first arose. After six months, a case may still be brought but within 60 days, and the case will only be heard if the Tribunal is convinced that the applicant was prevented by reasonable cause to file the case within stipulated time.

However, if it is an ongoing activity or continuing adverse impact on the environment, the six months' period is not applied very strictly, as any point of time could be selected as the point when the cause of action first arose.

Victims of environmental damage, including accidents occurring while handling hazardous wastes, can approach the Tribunal to seek relief and compensation (section 15). The Tribunal can order for restoration of damaged property and the environment. Any case for relief and compensation has to be brought to the Tribunal within five years from the date on which the cause for such relief and compensation first arose. After that a grace period of sixty days (as above) is given. A five-year time period has been allowed, because it is possible that the impact of environmental degradation (like industrial pollution) may not be apparent for a long time, but manifests itself only much later.

10.4.2 Appellate jurisdiction (section 16)

While exercising its appellate jurisdiction, the Tribunal hears and decides cases in which a regulatory approval or consent granted or rejected by the relevant government agency is being challenged. These approvals or consents relate to the seven aforementioned laws. The Tribunal has the power to cancel an approval or consent granted – if it is found to be illegally obtained. It can also issue a stop work notice or a stay order; or direct the constitution of committees of experts to carry out fact finding or monitor the implementation of its orders.

For example, persons who are aggrieved by the grant of an environmental clearance (which is granted in accordance with the EIA Notification 2006, issued under the Environment (Protection) Act, 1986) or a forest clearance (under the Forest (Conservation) Act, 1980) by the government to a thermal power plant near their village can approach the Tribunal in an appeal against such clearances. Similarly, if a company is denied an environmental clearance or a forest clearance, it can approach the Tribunal to challenge the decision of the government.

Another important set of cases which can be brought under the appellate jurisdiction of the Tribunal relate to the consents to establish and operate granted by the State Pollution Control Boards (SPCBs) under the Water Act and the Air Act to industrial plants. If a consent is granted or denied, the aggrieved party (could be person/s living near the industrial plant, or the industry) has to first approach the appellate authority set up under the Water Act and the Air Act. If either party before the appellate authority is dissatisfied with the decision of the appellate authority, it can approach the Tribunal.

An appeal has to be filed within 30 days from the date on which the order or decision that is being challenged was communicated. Beyond that, another 60 days may be granted by the Tribunal, if it is convinced that there was a sufficient cause for the delay in filing.

10.4.3 Exclusive jurisdiction of the Tribunal

Cases relating to compensation and relief for environmental damage, and those in which appeals are being filed against regulatory approvals, as discussed above, can only be brought before the Tribunal. No other court is supposed to entertain such a case, and if such a case is

filed, then the court is expected to ask the parties to approach the Tribunal for proper adjudication.

10.4.4 Who can approach the Tribunal?

According to the NGT Act, an aggrieved person can file a case before the Tribunal – could be an individual, a company, a firm, an association of person (like a NGO) - even if not registered or incorporated, a trustee, a local authority (like a municipal corporation), a government body (like the SPCB) etc. The person need not be directly affected by the project or development in question, but could be any person who is interested in protecting and preserving the environment.

The Principal Bench of the Tribunal is situated in New Delhi, with four Zonal Benches in Bhopal, Kolkata, Pune and Chennai. Cases arising in the states mentioned in Column 2 of the following table have to be filed in the Bench mentioned in Column 1:

Column 1	Column 2
Principal bench	Uttar Pradesh, Uttarakhand, Haryana, Himachal Pradesh, Jammu & Kashmir, Delhi and Chandigarh
Central (Bhopal) bench	Madhya Pradesh, Rajasthan and Chhattisgarh
Eastern (Kolkata bench	West Bengal, Odisha, Bihar, Jharkhand, Assam, Nagaland, Mizoram, Arunachal Pradesh, Manipur, Tripura, Meghalaya, Sikkim, and Andaman & Nicobar Islands
Western (Pune) bench	Maharashtra, Gujarat, Goa, Daman & Diu, Dadra & Nagar Haveli
Southern (Chennai) bench	Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Pondicherry, and Lakshadweep

10.4.5 The Tribunal's decision

The NGT Act requires the Tribunal to hear cases as expeditiously as possible and endeavour to decide the case within six months from the date on which the case is filed. Although an indicative time limit of six months has been set, often it takes longer as all parties have to be given a complete hearing, including presenting necessary evidence, and sometimes, the Tribunal initiates special investigations into facts, which may take up some time.

The Tribunal has the powers of a civil court, including the powers to summon any person, examine witnesses, receive evidence on affidavits, review its decisions, etc. It can regulate its own procedure, and is guided by the principles of natural justice. The NGT Act requires the Tribunal to consider the principle of sustainable development, the precautionary principle, and the polluter pays principle while deciding cases, and in a case involving an accident, the principle of no fault has to be applied while determining liability. Failure to

comply with the orders of the Tribunal could lead to a fine or imprisonment of the person responsible, or both – depending on the fact situation.

If any of the parties before the Tribunal is not happy with the decision of the Tribunal, it can file an appeal before the Supreme Court of India within 90 days from the date of the Tribunal's order, or later if sufficient cause for the delay is shown to the Supreme Court.

10.5 Criminal Courts

While the National Green Tribunal hears only civil cases, certain violations of environmental laws constitute criminal offences, and cases have to be filed in criminal courts by appropriate government authorities.

Under the Water Act and the Air Act, several illegal acts have been identified as criminal offences. For example, as has been mentioned earlier, industrial units are required to obtain prior consents to establish and operate from the SPCBs. If units commence operation without proper consents, it is a criminal offence. If an industry is issued consent, it has to ensure that it complies with all the standards and specifications for equipment and processes mentioned in the consent. If the emissions or sewage discharge from the plant exceed the standards laid down by the SPCB, it is a criminal offence. Complaints against offences under the Water Act and Air Act have to be filed in the Court of the Metropolitan Magistrate or a Judicial Magistrate First Class (and not any court inferior to that). The complaint has to be filed by the SPCB of the state in which the act has been committed. If any other person intends to file a complaint, he or she has to first give notice of at least sixty days to the concerned SPCB of the alleged offence, and his or her intention to file a case. The courts can order imprisonment of the person responsible for committing the offence, and direct the payment of a fine. In case a company commits an offence, the person or persons directly in-charge of conducting the business of the company can be held responsible.

Similarly, under the Wildlife (Protection) Act, 1972, several acts are considered to be criminal offences. Examples of criminal offences under this Act would include hunting or injuring protected animals, smuggling of animal skins, meat or body parts, and illegal trade in protected animal or plant species. These offences may be prosecuted in courts once a complaint is filed by one of the designated officials under the Act (e.g. the Chief Wildlife Warden, the officer-in-charge of a zoo, the Director of the concerned Tiger Reserve, etc.). Any other person can also file a complaint, but only after a notice of at least sixty days is given to the Central Government about the alleged offence, and the person's intention of filing a complaint in court. The punishment of offences under this Act could include imprisonment and/or fine. In some cases, the period imprisonment could be anything between three to seven years with fine of not less than ten thousand rupees.

10.6 Supreme Court of India and High Courts

10.6.1 Writ petitions

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As has been discussed in other units, the Supreme Court of India and High Courts of various states have held that the fundamental right under Article 21 of the Constitution of India – the right to life – includes the right to clean and healthy environment; pollution free environment; clean and hygienic environment, etc.² Over the last three decades, persons affected by environmental degradation have approached the Supreme Court and the High Courts on numerous occasions, requesting the courts to protect their fundamental right to life which was being violated due to environmental degradation.

Every person has a fundamental right under Article 32 of the Constitution to approach the Supreme Court in case his/her fundamental right has been violated. Therefore, any person who believes that his/her right to life under Article 21 is being violated by certain actions or inactions of the government or even a private party, can file a writ petition before the Supreme Court.

For example, in 1989 a writ petition was filed by Indian Council for Environmental Legal Action, an environmental organization, in the Supreme Court under Article 32 highlighting the plight of villagers in Rajasthan affected by chemical pollution due to certain industries. The pollution had poisoned the ground water, and the soil had become unfit for cultivation. The government agencies – the Central Government, the Rajasthan government and the Rajasthan State Pollution Control Board – had not been able to take adequate action against the industries. The Supreme Court held that the inability of the government agencies to perform their statutory duties and control pollution from industries was violating the fundamental right to life of the villagers under Article 21.

Persons can also file a writ petition in the High Court of their state under Article 226 of the Constitution in environmental matters. Unlike the jurisdiction of the Supreme Court under Article 32 of the Constitution, the High Courts may be approached not only for a violation of a fundamental right, but also for a violation of a statutory right. An appeal from a judgment of the High Court can be filed in the Supreme Court.

The Supreme Court and the High Courts have very wide powers under Articles 32 and 226. The courts can direct the concerned government agencies to comply with their legal duties and protect the rights of people and communities. They can also direct the suspension (temporary or permanent) of activities causing environmental problems, or cancel permits granted to future activities that could potentially cause environmental damage. Courts can award compensation for loss suffered due to environmental degradation, direct the restoration of the environment (for example a polluted pond) to a condition before the pollution, order assessment studies, inspection of sites by experts, installation of pollution control devices, etc.

10.6.2 Public Interest Litigation

Sometimes cases filed before the Supreme Court or the High Courts are in the form of Public Interest Litigations or PILs. In these cases, typically, the issues before the court relate to sustained inaction or illegal action by government agencies which violate fundamental or statutory rights of a section of the society. PILs do not deal with a dispute between two private

parties, nor do they raise issues that affect the rights and interests of a few individuals. While in traditional litigation, only the person whose rights and interests have been affected can bring a case to court, in case of PILs this rule of standing or locus standi is relaxed. PILs can be filed by public spirited individuals or organizations on behalf of affected communities, or to bring to light rampant illegalities, and the petitioner need not be directly affected. PILs have been encouraged by courts to ensure that even sections of the society that are disadvantaged economically, socially or politically, and are not in a position to access the courts and claim the protection of their rights, can still receive justice. PILs allow citizens to highlight instances of poor and inefficient governance in the country.

Another characteristic of PILs is that the courts do not apply rigid procedural rules to the case, but adopt innovative methods that can address the issues raised in the case more effectively. Unlike traditional litigation, wherein a case is not admitted if a lot of time has elapsed since the issue first arose, in PILs the courts generally overlook any delay in filing the case. The courts have also not insisted on a strict format for filing PILs, and even letters written to the Supreme Court, or articles in newspapers have triggered adjudication in the courts on the issues raised.

PILs very often involve a large number of parties including various government agencies, and the courts do away with the conventional adversarial or confrontational approach to adjudication. Instead they adopt a more collaborative approach in which all parties make efforts to achieve common goals. Another distinguishing aspect of PILs is that courts' orders in PILs are binding even on third parties – i.e. those who are not even party to the petition before the courts.

One of the most well-known PILs before the Supreme Court in the environmental context involved illegal limestone quarrying in the Doon Valley. 4 Rural Litigation and Entitlement Kendra, an organization based in Dehradun, sent a letter to the Supreme Court alleging unauthorized and illegal limestone quarrying in the Doon Valley that was leading to major environmental damage. The Court treated this letter and the accompanying affidavits as a PIL and in the following years issued several orders to regulate the quarrying activities in the area. The Court relied on various expert committee reports and inspection reports, and several parties were allowed to make representations before the Court.

10.6.3 'Alternative and efficacious remedy' exception

Although any person can approach the Supreme Court under Article 32 of the Constitution in environmental matters, the Supreme Court has often held that if there is an alternative and efficacious remedy, then the person must approach that forum first. So for instance, if a petition is filed before the Court on the issue of air pollution caused due to emissions from an industrial estate, the Court is likely to direct the petitioners to approach the National Green Tribunal, which is a specialized body constituted to deal with environmental matters, and which has jurisdiction over air pollution related cases. It is also expected to decide cases within a shorter time frame. However, if the case is of grave national importance or the issue involves activities in several states, the Supreme Court may take up the matter.

10.7 Environmental Legislation

Protection of the environment till the 1970s was piecemeal wherein provisions incidentally touched upon the environment (for example, the provisions of the Indian Penal Code and the Code of Criminal Procedure). This trend changed in the 1970s wherein laws were made to prevent water pollution and to protect wildlife. In the 1980s, forest conservation and air pollution laws were passed. The Bhopal gas leak in 1984 paved the way for umbrella legislation, namely, the Environment (Protection) Act in 1986 and amendments in the pollution laws and the laws dealing with hazardous activities.

Exercising the legislative power, the Centre and the states have adopted laws, rules and regulations in fields like the environment in general, and forests, pollution, wildlife, biodiversity, mines and minerals, coastal zones and public liability in particular. Institutions like the National Green Tribunal and state Pollution Control Boards have been set up through laws. Many a times the discussions focus on central laws. However, it may be pertinent to note that states too have initiated legislative efforts depending on their legislative power and local needs. Apart from the exercise of their legislative powers, the legislatures are influenced by judicial decisions. The subsequent section will show how the initiatives of the Supreme Court were instrumental in influencing executive and legislative actions. The key features of some of the legislation are mentioned below.

10.7.1 Wildlife Protection Act, 1972

The colonial rulers were drawn to wildlife for vested reasons. Some wild birds therefore enjoyed protection under the Wild Birds Protection Act, 1887. During the breeding season their possession or sale was prohibited. Later on, the Wild Birds and Animals (Protection) Act was passed in 1912 to prevent the excessive killing of birds and animals. After independence, Parliament enacted the Wildlife (Protection) Act in 1972 on the request of states under Article 252 of the Constitution. This Act allows the central and state governments to establish national parks and sanctuaries for the protection and propagation of wildlife. In the subsequent years the Act also expanded its focus to prohibition and regulation of internal and international trade. The Ministry of Environment and Forests prepared a Manual on Wildlife in 2007 in order to assist the enforcement personnel in the implementation of the Act stringently. The Act was amended in 1993, 2002 and 2006. A Bill for further amendment, namely, the Wildlife (Protection) Amendment Bill, 2013 has been introduced in the Rajya Sabha. Due to increase in wildlife crime, the Tiger Task Force recommended stringent provisions for tackling the crime. The Committee constituted for examining the recommendations of the Tiger Task Force favoured the recommendation and also suggested amendments in the Act to make it consistent with the provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES). A separate chapter namely, Chapter VB is proposed for incorporating the CITES obligations under the proposed Amendment Bill.

10.7.2 Water (Prevention and Control of Pollution) Act, 1974

The Water Act was enacted with the objective of prevention and control of water pollution in India. It aims at the maintaining or restoring of the wholesome nature of water.

The Act provides for constitution of State Pollution Control Boards (SPCB or the Board) with powers and functions, which include developing comprehensive plan for the prevention, control, or abatement of pollution, inspecting plants for the treatment of effluents and evolve economical and reliable methods for their treatment. The Board has the power to take samples of effluents, entry and inspection and the power to refuse or withdraw consent if the industry does not install treatment and disposal system. The Board is vested with powers to take emergency measures in the case of pollution of a stream or well and make application to the court for restraining apprehended pollution thereby. The Act envisages the Board to be bound by the directions given by the State Government or the Central Pollution Control Board (CPCB).

The Central Government shall be the final authority in decision making in cases where the direction given by the State Government is inconsistent with that of the CPCB. The State Government may supersede the SPCB in cases where the latter is in default in terms of performance of its duties or in the interests of public. Activities like the use of stream or well for disposal of polluting matter are treated as offences and the Board may impose penalties accordingly. Similarly, offences by companies and Government departments may also be subject to liability.

10.7.3 Air (Prevention and Control of Pollution) Act, 1981

The Air Act, 1981 is enacted as an outcome of the Stockholm Conference, 1972. It is implemented with the help of Rules.

Air pollutant: any solid, liquid or gaseous substance including noise present in the atmosphere in such concentrations as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The SPCBs constituted under the Act are envisaged to plan a comprehensive programme for prevention, control or abatement of air pollution and to secure its execution. The Board exercises power to grant consent to establish or operate some industrial plants. It also holds the power to make application to the court for restraining anyone from causing air pollution. The Board holds an advisory role vis-a-vis the State Government.

Provisions in relation to offences by the companies and Government departments are the same as those mentioned in the Water Act.

Under the Act, the State Government has the power to declare air pollution control areas. For instance, the entire area under the State of West Bengal is declared as an air pollution control area.

10.7.4 Environment (Protection) Act, 1986

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Parliament enacted the Environment (Protection) Act in 1986 to give effect to objectives of the Stockholm Conference, 1972. This legislation was enacted in the aftermath of the Bhopal disaster. It is an umbrella legislation followed by a set of rules, regulations and notifications, which include:

It is stipulated in the Act that rules or orders made therein shall have effect notwithstanding anything inconsistent therewith contained in any other enactment.

Environment: water, air, land and the inter-relationship, which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property

Environmental pollutant: any solid, liquid or gaseous substance present in such concentrations as may be or tend to be injurious to environment

Hazardous substance: any substance or preparation which by reason of its chemical or physical-chemical properties or handling is liable to cause harm to human beings, other living creatures, plant, micro-organism, property or the environment.

Under the Act, the Central Government has the power to take measures to protect and improve environment, to constitute authorities, to give directions, to enter and inspect, procure information from a State Government, etc. The scope for delegating powers and functions to any authority or State Government is envisaged. The Central Government has the power to make rules under the Act.

The Act characterizes certain activities like excess emission, handling hazardous substances in violation of procedural safeguards and obstruction of person empowered to enter and inspect as offences for which a penalty is imposed. The Act addresses offences committed by companies and Government departments separately. Cognizance of an offence can be taken on a complaint by the Central Government or any authority or person authorized in that behalf. The Act also provides that any person who has given notice of not less than sixty days of the alleged offence and his intention to make the complaint to the SPCB or any officer authorized in this behalf may also be considered. Section 22 of the Act bars the jurisdiction of civil courts with respect to any action taken by the duly competent authority under the Act.

10.7.5 Public Liability Insurance Act, 1991

The Public Liability Insurance Act, 1991 was enacted subsequent to the Bhopal tragedy. It provides for immediate relief to victims of an accident while handling any hazardous substance.

Accident: involves fortuitous, sudden or unintentional occurrence while handling any hazardous substance resulting in continuous, intermittent or repeated exposure to death or injury to any person or damage to any property. Excludes an accident by reason of war or radioactivity

The Act vests liability on the owner on a no-fault basis for compensation. The owner is liable to take insurance policies and renew the same on expiry before he starts handling the hazardous substances. He is also liable to contribute to a Relief Fund. State Governments are vested with the power to issue directions, which include the direction to prohibit or regulate the handling of any hazardous substance and the stoppage or regulation of the supply of electricity, water or any other service. SPCBs hold the power to make an application to the court to restrain an owner from handling hazardous wastes. Offences by companies and Government departments are the same as those mentioned in the Water Act, 1974.

10.7.6 Biological Diversity Act, 2002

In view of India's rich reserves of biological resources and the Convention on Biological Diversity (CBD)'s recognition of the sovereign rights of countries over their biological resources, India enacted the Biological Diversity Act in 2002 and the Rules in 2004. The Act aims to undertake and implement India's obligations in accordance with the provisions of the CBD. The Act classifies users of biological diversity into two categories based on the involvement of foreign partners or institutions in the utilization of resources of India. For the first category, the Act provides for prior approval of the National Biodiversity Authority (NBA) if their uses are for research, commercial utilization or bio-survey and bio-utilization. Persons in the second classification (any citizen of India, body corporate, undertaking or organization registered in India) shall give prior intimation to the State Biodiversity Board. The following categories who are citizens of India are exempted from this requirement:

- Local communities or people of the area
- Growers and cultivators of biodiversity
- Vaid and hakims practicing indigenous medicine

10.7.7 National Green Tribunal Act, 2010

The National Green Tribunal, which is set up under the Act of 2010, is the nodal authority to receive complaints from any one on an environmental dispute or for seeking compensation. The Tribunal has its principal place of sitting in Delhi with Bhopal, Pune, Kolkata and Chennai as the zonal places of sitting. A time limit is prescribed for bringing disputes or compensation claims before the Tribunal. A decision from the Tribunal is appealable to the Supreme Court. The Tribunal consists of judicial members and experts from the field of the environment. The Tribunal is guided by the principles of natural justice.

Legislation like the Indian Forest Act, 1927, the Forest Conservation Act, 1980, the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 and mining laws are also significant in the discussion on environmental protection. The EIA and CRZ Notifications, Noise Pollution Regulations, Hazardous Substances (Handling) Rules and many other similar measures strengthen the legislative initiative.

10.8 Judicial Decisions

The initial period of judicial remedies centered on tortuous and public nuisance claims (for instance, *Municipal Council, Ratlam v. Sri Vardhichand*, AIR 1980 SC 1622). Gradually writ petitions and Public Interest Litigations (PIL) were used to access the Supreme Court and High Courts to seek justice in environmental matters. This section analyses some of the decisions laid down by the Supreme Court of India.

In *M.C. Mehta v. Union of India*, (1987) 1 SCC 395, the Court was addressing the issue of closure and relocation of some units of Sriram Foods on the ground that such hazardous industries cannot be operating from populated areas. While this petition was pending, two instances of oleum gas leakage occurred from one of the units and the workmen and the public suffered. A PIL was filed for compensation to the victims. The Court for the first time laid down the rule of absolute liability by stating that an enterprise engaged in hazardous activity is a potential threat to the people working in the factory and those living in the nearby areas. Therefore, the enterprise owes an absolute duty to the community. In the event of an accident, such enterprise is strictly and absolutely liable to compensate all the victims. This liability is not subject to any exception.

In *Rural Litigation and Entitlement Kendra v. State of UP*, (1986) Supp SCC 517, a PIL was filed under Article 32 for a direction banning all illegal mining operations in the Mussoorie Hills and surrounding areas due to adverse impact on the ecology of the area. In this case the Court held that it is for the government to decide in each case to what extent can the exploitation of mineral deposits be allowed at the cost of ecology based on appropriate advice. The Court reiterated that the task on environmental protection is not only the task of the government but also of every citizen under Article 51A (g) of the Constitution.

In a PIL under Article 32 of the Constitution concerning the discharge of effluents into the river Ganga by the tanneries of Kanpur, the Supreme Court observed that even though there are provisions under the Water Act, 1974 and the Environment (Protection) Act, 1986, no preventive measures have been taken and therefore the Court may issue appropriate directions for the removal of such public nuisance.

Therefore, in *M.C. Mehta v. Union of India*, (1987) 4 SCC 463, the Court held that tanneries cannot function without fulfilling the minimum requirement of a primary treatment plant. Just like an industry which cannot pay minimum wages cannot be permitted to continue functioning, a tannery which cannot set up a primary treatment plant cannot be allowed to function as the adverse effects on the public outweigh the loss to the management and labour on its closure. In a further case, namely, *M.C. Mehta v. Union of India*, (1987) 4 SCC 471, the Court while dealing with water pollution of the river Ganga issued directions to the Nagar Mahapalikas which have jurisdiction over the areas through which the Ganga flows to submit to the SPCBs the plan regarding the disposal of waste, sewerage and treatment of trade effluents discharged into the river. The Court also held that it is the duty of the Central Government under Article 48A of the Constitution to introduce compulsory lessons on environmental protection in schools. In *M.C. Mehta v. Union of India*, (1992) 1 SCC 358, the Court gave directions in order to spread awareness on environment protection through mass media, information films and educational courses.

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In *Dahanu Taluk Environment Protection Group and Another v. BSES Co. Ltd.*, (1991) 2 SCC 539, a Special Leave Petition under Article 136 of the Constitution was filed seeking directions for setting up of a thermal power plant in an ecologically sensitive area. The Court held that it is primarily for the government concerned to consider the importance of public projects for the betterment of the conditions of living of the people and the necessity for the preservation of ecological balance, avoidance of deforestation, etc. that may be brought to its notice by various bodies of laymen and experts and strike a just balance between these conflicting interests. The Court's role is limited to examine whether the government has taken all relevant aspects into account and not been influenced by extraneous or immaterial considerations while arriving at the final decision. In this case, the Court held that the government had taken the decision after due consideration of material considerations and providing for sufficient safeguards under the Environment (Protection) Rules, 1986. However the Court noted that if there is a request for relaxation of any condition, the petitioners must be given an opportunity to be heard.

In *Tarun Bharat Sangh v. Union of India*, (1993) 3 SCR 21, Tarun Bharat Sangh, a voluntary organization, brought to the notice of the Court the widespread illegal mining carried on in the area declared as a Tiger Reserve in Alwar district of Rajasthan. The petitioner contended that this area is declared as a Tiger Reserve under the Rajasthan Wild Animals and Birds Protection Act, 1951 as a sanctuary and a National Park under the Wildlife (Protection) Act, 1972 and as a protected forest under the Rajasthan Forest Act, 1953. The petitioner contended that in spite of its protected status, the State Government granted licenses for mining in the area in violation of the law. The Court held that the case involves allegations about the failure of the executive to do its duty by law and by the people when faced with the might of money. The Court held that once an area is declared as a protected forest, it falls within the purview of the Forest (Conservation) Act, 1980. No non-forest activity can be carried out even by the State Government except with the prior approval of the Central Government. Mining is a non-forest activity and granting of mining leases/licences and renewal of the same by the State Government without prior approval by the Central Government in the protected forest area after 1 January 1975 is contrary to law.

In *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647, a PIL was filed under Article 32 of the Constitution about the discharge of untreated effluents by tanneries into agricultural lands and waterways in Tamil Nadu. The Court held that the state must adopt the principle of sustainable development keeping in view the Constitutional obligations under Articles 21, 47, 48-A and 51A (g). In addition, the Court considered the precautionary principle and the polluter pays principle as the essential components of the principle of sustainable development and as part of the environmental law of the country. The Court held that these principles are part of customary international law and since not inconsistent with the municipal law shall be deemed to have been incorporated into national law.

In *S. Jagannath v. Union of India*, (1997) 2 SCC 87, a writ petition was filed under Article 32 of the Constitution with respect to the enforcement of the CRZ Notification, 1991. The petition was about intensive and semi-intensive type of prawn farming in the ecologically

fragile coastal areas. The Court observed that traditional and improved traditional shrimp farming technologies are benign and pollution-free. However, the Court referred to the constitutional provisions and laws like the Environment (Protection) Act, 1986 and its Rules, the Water Act, 1974, the Fisheries Act, 1897, the Wildlife Protection Act, 1972 and the Forest (Conservation) Act, 1980 to suggest that intensive and semi-intensive technologies cannot be permitted in prawn farming. The CRZ Notification was held to have overriding effect over other legislation since it is issued under the Environment (Protection) Act, 1986. The Court directed commercial shrimp industry in an ecologically fragile area to be scrutinized by a High Powered Authority under the Act and the need to conduct an environmental and social impact assessment. The Court held that this industry is neither directly related to waterfront nor directly needing foreshore facility. As far as the workmen were concerned, the Court directed the matter to be considered under the Industrial Disputes Act, 1947.

In *M.C. Mehta v. Union of India (Taj Tapezium case)*, (1997) 2 SCC 353, the Court held that industries in the Taj Trapezium Zone using coke or coal are polluting industries therefore these industries have to convert to natural gas or must stop functioning and relocate themselves. In *M.C. Mehta v. Union of India*, (1997) 11 SCC 312, taking note of the falling groundwater level, the Court directed the Central Government to appoint the Central Groundwater Board as an authority under the Environment (Protection) Act, 1986. This Board would be empowered to regulate groundwater management and address the issue of indiscriminate boring and withdrawal of groundwater.

In *M.C. Mehta v. Kamal Nath*, (1997) 1 SCC 388, the petitioner contested the grant of a lease of riparian land to a private company for commercial purposes on the banks of the river Beas. The Court held that the lease amounted to a violation of the public trust doctrine, which means that State is the trustee of all natural resources to be used for the enjoyment of the general public. In this case the Court found that the construction was interfering with the natural flow of the river.

In *A.P. Pollution Control Board v. Prof. M.V. Naydu*, (2001) 2 SCC 62, the Court held that the establishment of industries within the 10 kilometre radius of two major reservoirs of Andhra Pradesh, namely Osman Sagar and Himayat Sagar, falls within clear prohibition and the State Government cannot grant exemption.

In *M.C. Mehta v. Union of India*, (2001) 3 SCC 756, the Court directed the phasing out of non-CNG buses and fixed the time limit for the switch over to CNG. In *M.C. Mehta v. Union of India*, (2004) 12 SCC 118, the question which came up for consideration was whether mining activity up to 5 kilometres from the Delhi-Haryana Border on the Haryana side of the ridge and in the Aravalli Hills causes environmental degradation and if so what directions need to be issued. After a perusal of the background of the case and its previous orders, the Court held that the Aravalli Hill range needs to be protected at any cost. Therefore mining activity can be permitted only on the basis of sustainable development and on compliance of stringent conditions.

In *Noise Pollution* case, AIR 2005 SC 3136, the Supreme Court examined the implications of noise pollution vis-à-vis Article 21 of the Constitution. The Court dealt with the noise pollution caused by firecrackers, loud speakers and vehicles in the light of the Noise Pollution (Regulation and Control) Rules, 2000 and its own previous decisions. Accordingly, the Court issued direction to the states to make provisions for seizure and confiscation of loud speakers, amplifiers and other devices causing noise pollution beyond the permissible levels. As per Rule 3, ambient air quality standards are to be prescribed for different areas and a categorization of the areas accordingly for implementation. The Court directed the Central and State Governments to implement these rules wherever it is not done. The Court stated the need to create public awareness about the hazardous effects of noise pollution.

In *G. Sundarrajan v. Union of India*, (2013) 6 SCC 620, the appeals from the Madras High Court were concerned with setting up of a nuclear power plant in Kudankulam in the State of Tamil Nadu. The Court noted that the Government of India set up a 15 member expert group to study the matter and allay the fears of the general public. The State Government also appointed an Expert Committee. Both Committees were satisfied with the safety and security of the plant and environmental safeguards. Accordingly, the Court held that KKNPP has been set up and made functional based on the principle of sustainable development and its impact on ecology has been taken care of keeping in view national and international environmental principles.

The close relationship between protection of the environment and management of natural resources is well explained by the Court in *Reliance Natural Resources Ltd v. Reliance Industries Ltd*, (2010) 7 SCC

1. The Court stated that inter-generational equity is part of the constitutional jurisprudence on equality and sustainable development and protection of the environment are pre-conditions for the use of nature. The Court reminded the

Government of India to frame a comprehensive legislation on energy security and supply of natural gas under production sharing contracts.

A PIL was filed under Article 32 of the Constitution on behalf of the people living in and around the Nilgiri forests on the Western Ghats. The petitioner challenged the validity of the actions by the state authorities which amount to destruction of the tropical rain forests of the region which he alleged were a clear violation of the Indian Forest Act, 1927, the Forest (Conservation) Act, 1980, the Tamil Nadu Hill Stations Preservation of Trees Act, 1955 and the Environment (Protection) Act, 1986. Reiterating the public trust doctrine, the Court held that common properties like rivers, seashore, forest and the air are held by the Government in trust for the free and unimpeded use of the general public. It criticized the way afforestation fund is utilized by the state governments (In *T.N. Godavarman Thirumulpad v. Union of India* (2014), <http://judis.nic.in/supremecourt/imgs1/aspx?filename=41309>)

10.9 Summary

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In this unit, we discussed various judicial remedies available in response to environmental problems. We studied the National Green Tribunal constituted under the National Green Tribunal Act, 2010, its powers and functions, and the types of cases it can hear and decide. The National Green Tribunal can only hear civil cases. Criminal cases such as those concerning air and water pollution, or cases relating to wildlife protection can be filed in the lower courts (Court of the Metropolitan Magistrate or Judicial Magistrate First Class). The Supreme Court of India and the High Courts also play a very crucial role in environmental conservation, and they can issue a variety of orders and directions to ensure that the rights and interests of persons and the environment are protected effectively.

The national environmental law of India has its formal sources in the Constitution, legislation, rules, regulations and judicial decisions. The right to life guaranteed under Article 21, the duty of the State under Article 48-A and the fundamental duty under Article 51A(g) of the Constitution of India are important in the discussion on environment protection. Constitutional provisions on legislative powers empower the Central and State Legislatures to enact laws aimed at environment protection. Article 253 of the Constitution vests power in the Centre to make laws to implement India's international obligations.

India has enacted a number of legislation since 1970. The colonial legislation on protection of birds, wildlife and forests are either amended or supplemented with legislation in post-independent India. Now there are laws in general on environmental protection, wildlife, forest conservation, biodiversity, water and air pollution, mining, liability and hazardous substances. The Central Government has also made Environment Impact Assessment (EIA) mandatory for developmental activities. The CRZ Notification addresses the issue of usage of coastal areas, which in turn would highlight the importance of eco-tourism apart from pollution. The National Green Tribunal Act, 2010 has brought in a new adjudicatory mechanism to resolve disputes and determine compensation issues. The Tribunal's decisions are subject to appeal to the Supreme Court.

The Supreme Court of India many a times has shown an active interest in environmental protection and adjudicated inter alia on the legitimacy of developmental activities having an impact on environment. The Court has extensively used Article 21 of the Constitution to provide relief to the parties and thereby link environment with human rights. The Court at times criticized the lack of execution of laws by the concerned authorities. The Court introduced doctrines like the public trust doctrine to highlight the significance of common properties. Principles of international environmental law like sustainable development, the precautionary principle, the polluter pays principle and intergenerational equity was applied to adjudicate the matter. However, the Court restrained itself in some of the cases where it took the position that if the government has duly followed the procedures and laws, the Court shall not perform the role assigned to the executive.

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Environment Justice and Human Rights

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Unit-11 Sustainable Development

- 11.0 Learning objectives**
- 11.1 Introduction**
- 11.2 Sustainable Development Strategies (World)**
- 11.3 Sustainable Development: Roots in Indian Philosophy**
- 11.4 Millennium Development Goals (MDGs) in India**
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- 11.10 Suggested Readings**

11.0 Learning objectives

This unit will help you to learn about the following-

- Traditional concepts and the environment.
- Role of science streams for the environment.
- Root causes of environmental issues.
- Difference between environment and sustainability.
- Policies for sustainable future.
- Strategies followed by India for a sustainable future.

11.1 Introduction

As civilisation grew with time, the environment unintentionally and increasingly came to be treated as a field of unlimited space with ample resources for those with the power and mental skills to manipulate these natural resources. Without the knowledge of the natural

resources' distribution, the exploitation of resources was intensified in a manner which further unbalanced the ecosystem system and the time to recover natural resources itself was enough.

The course of human history has been one of increasing capacities to modify and manipulate the environment. To manipulate its resources and to move into new farming lands at the expense of weaker sections when resources became insufficient to satisfy appetites, personal and social competence emerged as main objectives of education in for this progress.

The explosive growth of human populations and the impacts of modern technology have been such that limits to growth and the penalties of wasteful- management have become familiar issues at a global level. Science availed the photographs of our planet captured from space and gave the public in the 1960s and 1970s a powerful visual image of finite resources. From here, the environmental education emerged as an essential part of the response to these dangerous perceptions.

11.2 Sustainable Development Strategies (World)

There are numerous pieces of evidence across the world that our ancestors or primitive peoples have exceeded the carrying capacity of the lands like- slash and burn agriculture pattern sounds less harmful for the ecology but proved penetrated highly the atmosphere if analysed in terms of shifting cultivation pattern of certain regions.

Sustainable development strategies are a continuing process that combines aspects of formal planning and incremental learning with emphasise on institutional policymaking. Sustainable decision-making involves political decisions at the national, regional and local levels, which aim at a balanced development of socio-environmental systems in their particular jurisdiction. A tough question in sustainable decision-making is that of defining and measuring sustainable development.

After the publication of the Brundtland report (1987), the concept of sustainability has gained rapid attention among researchers, policy-makers and scientists. The Brundtland report described that 'Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs'.

Among the results of the Earth Summit (held in Rio de Janeiro, Brazil in 1992), Agenda-21 is a comprehensive list of progressive actions needed to achieve sustainable development at the global level.

150 states committed themselves to start the actions which will render future development sustainably but without the scientific tools to guide policy- making towards sustainable directions.

Decisions leading to sustainable development expected to be based on scientific data and adequate information which were later addressed as the indicators of sustainability. Many researchers recognize that sustainable development is a function of two major components-

- Ecological and

Environment Justice and Human Rights

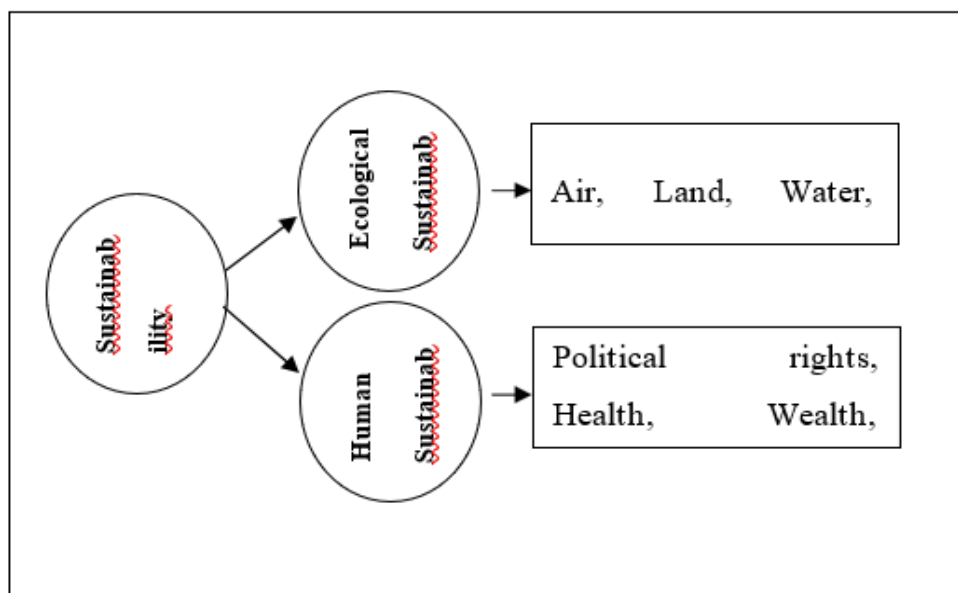
- Human.

Above components derives that sustainable decision-making should have two simultaneous goals-

- protection and improvement of the environment as a dynamic practice
- human development index to secure high standards of living

Now it is clear that sustainable development ought to have environmental, economic, political, social, and cultural dimensions simultaneously. Ecological sustainability with water, land, air and biodiversity, and human sustainability with political-rights, health, wealth and education, is referred to as the primary components of sustainability.

The following graph illustrates this relationship-



Graph: 9.1:

Components of Sustainability/ Source: Self elaboration

There are many evidences that the development process is currently unsustainable. Ozone depletion, global warming, climate change, species extinction, the collapse of water bodies, soil erosion and air pollution are among the obvious signs of ecological distress. Climate change has now become a hot topic of conversation all over the world.

Indigenous peoples were and are inevitably closer to the land and its ecology for their survival. They are more likely to learn from their ecological misbehaves than modern people as there are many modes of transportations are now available across the world.

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Environmental issues such as climate change and global warming have come to the foremost attention of the public as well as of business. Throughout the world, everyone is noticing these climatic changes and accepting that global warming is causing such change.

The argument that the corporate excesses have gone beyond the limits are starting to become disclosed and due to effects on large numbers of people, and awareness raised on the social behaviours of corporations. This is one reason why the issue of Corporate Social Responsibility (CSR) has become a much more prominent feature of the corporate landscape.

There are many contemporary works of literature available that deal with sustainability focuses on human population and the effects of the growth rate on the environment and global sustainability.

The decreased attention of the scientific debate on the possible consequences of population growth on the Earth's ecological equilibrium has led to progressive indifference. There is an attitude of extreme caution by political authorities and institutions in dealing with the issue of demography and its consequences for global dynamics. Hence, more and more attention is paid by governments and institutions to the partnerships and international agreements to reduce greenhouse gas emissions and to combat climate change to achieve the goals toward sustainability and development.

Many demographic studies suggest that the growth forecasts for 2100 and beyond will be well within the capacity of our production system.

The World Conservation Strategy was based on the following three requirements-

- The maintenance of life-support systems,
- The preservation of genetic diversity (extending to species and habitat diversity) and
- The sustainable use of natural resources.

In a contribution to The Observer Magazine (1975), Higgins encompassed seven enemies of the mankind- among six were the- population explosion, food shortages, other resource scarcities, environmental degradation, misuse of nuclear capacities and uncontrolled technology. The seventh and more hazardous enemy was the nature of humankind itself. There were various instances in the world that proved this right.

If we try to treat the environment holistically, then we must go along with education. The holistic approach will not be complete until education has its place in the whole system of environmental protection. It is necessary to remind people constantly that our environment is the totality of what we live in, visible or invisible.

Study Questions: 1

Answer the following questions as True/ False –

1. Our ancestors never damaged ecology.

2. Slash and bum is a cultivation method.
3. The 'Brundtland report' was published in the year 1987.
4. Sustainable development considers the need for the present generation only.
5. Agenda-21 paves the way for economic development.
6. The health sector is a part of ecological sustainability.
7. Corporate Social Responsibility (CSR) is a set of strategy for sustainability.
8. According to Higgins, the most dangerous enemies of mankind is human itself.

11.3 Sustainable Development: Roots in Indian Philosophy

Respect to everyone is the core part of the Indian philosophy, be it for nature or for knowledge. This respect, is in fact, the incense of the modern-day sustainability and eco-conservation debate. The Indian culture incorporates respects, rituals and celebrations each day around cycles and forces of nature.

Now, the world strongly believes that unless people's moral and spiritual qualities are nurtured and developed in a harmonious way, the best of sustainability efforts will not become fruitful.

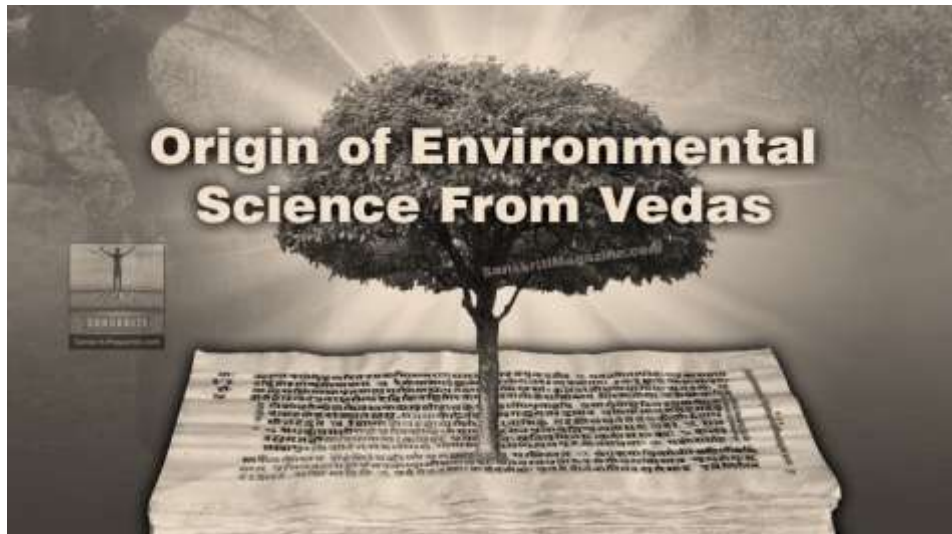
Most of the people in India, live in the way to achieve sustainable and harmonious living in all spheres of life through living with morality and spirituality at the individual level. The journey for world transformation starts indeed at the individual level and targets the world community in wide.

Sages in ancient India have even composed prayers and songs in praise of almighty human-life force and said that it is the essence of all creatures and creations. Undoubtedly, all of us acknowledge and recognise the uniqueness of ourselves and the cohabitants of our world. Despite this fact, we seem to be strangely neglectful of the natural resources that nurture us.

The Vedic philosophy of India has always emphasized for a harmonious and corresponding human connection with nature. Vedas have originated from 'Aranyakas' (forest-books) which were written by sages who lived in the forest and survived on natural produces. Even the ancient works of literature like- Mahabharata, Ramayana, Vedas, Upanishads, Bhagavad-Gita, Puranas and Smriti, contain some of the earliest and important ethical messages on ecological balance and the need for people's ethical approach for nature.

In a short period of our human history as a species people have transformed their habitats and surroundings in many irreversible ways.

Modern-day unformed sustainability agendas revolve around environmental, social and economic prosperity which is well reflected in Indian type of livings and can be traced well across our beliefs, rituals and practices.



Graph: 9.3: Origin of environment from Vedas/ Source: Pinterest

The concept of nature has become the foundation of a relatively new discipline of philosophy called environmental philosophy. The scope of environmental philosophy is to gather knowledge of the relationship between living beings and their environment from different perspectives. This discipline also tries to find out the answer about the belief and knowledge that communities hold about nature and their moral interest towards nature.

Study Questions: 2

Fill in the blanks to complete the following sentences –

1. Respect is the core part of the philosophy.
2. Sustainability efforts will result only when qualities are nurtured.
3. Vedas have originated from
4. ‘Aranyakas’ was written by
5. Modern-day sustainability agendas are well reflected in the Indian type of livings, beliefs, rituals and.....
6. Environmental philosophy focuses on the concept of.....

11.4 Millennium Development Goals (MDGs) in India

The words nature and environment are used interchangeably by scholars in common parlance. The term environment is associated with the functional definition according to which our surrounding provides us with conditions for growth and development and is also a source

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of danger and destruction. In ecological sciences environment is described by scholars 'consistency of both biotic and abiotic components available on our planet'.

As a discipline environmental ethics is relatively new but human concern for the environment and nature in the form of worships and practices has always existed from the past.

The idea that nature has its intrinsic value apart from the utilitarian values it has for human beings is a significant idea that forms the basis for what is called "bio-centric" vision of nature. These philosophers believe that human beings thought that they are separate from nature and use nature for our own survival is nothing but camouflage. So one must care for the environment because ultimately the human welfare depends on the environment in all aspects.

Millennium Development Goals (MDGs): An extreme measure to eradicate poverty and other evils from all over the world, the Millennium Development Goals (MDGs) were adopted by world leaders to combat eight social and economic concerns within their political boundaries. These goals were decided with a global vision and individual responsibility.

MDGs evaluation mandated a positive response among all stakeholder countries and their internal contributors too. Most of the indicators grabbed positive values, as a result, newer and comprehensive goals were adopted to meet holistic socio-economic reforms.

United Nations Development Programme (UNDP) supports a range of capacity building initiatives that address implementation challenges. UNDP works directly with central ministries and several states by strengthening capacities of representatives and officials at each level of governance. UNDP also participates in strategic programmes and schemes which are geared towards the achievement of MDGs and other National Development Goals.

India is a signatory to the Millennium Declaration adopted in September 2000. The targets of the MDGs eight development goals converge with India's own commitment towards the development goals to reduce poverty and other areas of deprivation.

India has witnessed significant progress towards the MDGs, as some targets achieved before the 2015 deadline.

For example- India has achieved the target for reducing poverty by half, but falling short of achieving the target for reducing hunger. Again, the country has achieved gender parity in primary school enrolment but was lagged behind on targets for primary school enrolment and completion. Overall, India has made progress in providing clean drinking water however; access to sanitation facilities remains inadequate.

Eight MDGs/ Source: MoSPI



MDGs brought critical development challenges to the forefront and also embraced countries with a strong target-oriented agenda. India steps towards the right direction in some areas but the progress yet looking for some major reforms.

Goal 1: Eradicate Extreme Hunger and Poverty

In order to meet the MDGs, the Poverty Head Count Ratio (PHCR) level has to be 23.9%. In 2011-12, the PHCR was 21.9 per cent. Indicating that India has achieved the poverty reduction target but the progress is uneven. The credit for this achievement is on both-economic growth (including the agriculture sector) as well as increased social spending on interventions such as MGNREGA and the National Rural Health Mission (NRHM).

India represents one-quarter of the world's undernourished population. It comprises over a third of the world's underweight children and nearly a third of the world's food-insecure people. Till 2015, malnourishment in all ages declined to 40 per cent but it is still below the target of reduction up to 26 per cent.

Section 1.01 Goal 2: Achieve Universal Primary Education

Universalizing primary education in India was a herculean task, but due to moderate efforts, India is on-track to achieve this Millennium Development Goal. Enrolment and completion rates of girls in primary school have increased drastically and are catching up with those of boys. This effort also lowered the gender biases. At the national level, the male and female youth literacy rate is likely to be at 94.81 per cent and 92.47 per cent.

In 2009, India introduced the Right of Children to Free and Compulsory Education Act (RTE) to improve the quality of education, especially at primary level.

Section 1.02 Goal 3: Promote Gender Equality and Empower Women

As of August 2015, the Indian parliament has only 65 women representatives out of 542 members in Lok Sabha, while there are 31 female representatives in the 242 member Rajya Sabha. These data present that the proportion of seats in the National Parliament held by women is only 12.24 per cent against the target of 50 per cent.

Section 1.03 Goal 4: Reduce Child Mortality

This MDG aims to reduce mortality among children under five years. India's Under Five Mortality Rate (U5MR) declined from 125 per 1,000 live births in 1990 to 49 per 1,000 live births in 2013. Considering the MDG target is of 42 per 1000, these data suggest that India is on the right track, largely due to the sharp decline in recent years.

The large scale of the under-nutritional condition in mothers and children poses a critical development challenge for India. To overcome this situation many programmes such as- National Policy on Children (2013), National Policy on Early Childhood Care and Education (ECCE) and Integrated Child Development Services (ICDS) are designed for focusing on real-time monitoring of child development.

Section 1.04 Goal 5: Improve Maternal Health

India is required to reduce Maternal Mortality Rate (MMR) to 139 per 100,000 live births by 2015 to meet the MDG. There has been some improvement in the Maternal Mortality Rate (MMR) between 1990 to 2006 (declined to 167 per 100,000 live births in 2009). However, despite these signs of progress, India's progress on this goal has been found slower.

Delivery in institutional facilities has risen from 26 per cent (1992-93) to 72 per cent (2008-09). Consequently, deliveries by trained personnel have also increased at the same pace. Main reason contributing to this factor has been the introduction of a conditional-cash-transfer scheme 'Janani Suraksha Yojana' which improved the deliveries in hospitals and nursing homes up to 72 per cent in 2009.

Section 1.05 Goal 6: Combat HIV/AIDS, Malaria and Other Diseases

India is on track to achieving this goal, since HIV, malaria and tuberculosis prevalence has been declining continuously.

India has made significant strides in reducing the prevalence of HIV/AIDS and transmissions of HIV/AIDS in India has brought down from 0.45 per cent (2002) to 0.36 per cent (2009). Malaria has consistently come down from 2.12 per thousand (2001) to 0.72 per thousand (2013).

India alone accounts for one-fifth of the global share of tuberculosis (TB), tuberculosis prevalence per lakh population has reduced from 465 (1990) to 211 (2013).

Section 1.06 Goal 7: Ensure Environmental Sustainability

India has made some progress and is on track towards achieving this MDG. The forest cover or green assets has increased to 21.23 per cent, an increase of 5871 square km and

protected areas cover to about 4.83 per cent of the country's total land area, this has reduced the energy intensity of GDP growth through higher energy efficiency.

Section 1.07 Goal 8: Develop a Global Partnership for Development

The Indian telecom network is the second-largest network (according to 2014 data) in the world after China. The total number of Internet users has increased from 198.39 million (2013) to 259.14 million (2014), which reflects an annual growth of 60%.

Due to the globalization's effect, India has emerged as one of the key development partners for fostering economic and intellectual assistance to various developed and developing countries through the world. India's development assistance in terms of funds is significantly complementing to the conventional assistances inflows from developed countries.

Study Questions: 3

Answer the following questions as True/ False –

1. Nature has its intrinsic value apart from the utilitarian.
2. MDGs has eight development goals.
3. India has achieved the MDGs target for reducing hunger.
4. Right of Children to Free and Compulsory Education Act (RTE) was introduced in 2012.
5. 'Janani Suraksha Yojana' is a Direct Benefit Transfer (DBT) scheme.
6. The forest cover of a country is also referred to as green assets.

11.5 Efforts for Sustainability in India

Cooperation and coordination both are inherent to India's ancient civilisation, aligning this philosophy Prime Minister of India pressed for the International Solar Alliance at the UN Climate Change Conference in Paris in 2015. This alliance has played an important role in shaping the Sustainable Development Goals (SDGs), further mirrored in the country's national development goals also.

India is fully dedicated to achieving the SDGs even before they were fully crystallized. The National Institution for Transforming India (NITI) has carried out a detailed mapping of the 17 Goals and 169 targets and other supporting major government initiatives.

This report about the focuses on the progress made towards achieving SDGs- 1, 2, 3, 5, 9, 14 and 17. These Goals have been considered as focus areas for evaluation. As NITI Aayog parts the oversight responsibility. It has led the process of Voluntary National Reviews (VNR) preparation. A multi- disciplinary VNR Task Force was constituted to coordinate the reviews for the fulfilment of the exercise.

While targeting economic, infrastructure and industrialisation developments, the nation's war against poverty elimination, social inclusion and empowerment of the marginalised sections have never compromised.

Goal 1: End Poverty in All its Forms Everywhere

There are many enthusiastic evidences that the rapid economic growth of India which was achieved following the economic reforms initiated in 1991, has led to a reduction in poverty. Numbers of people below the poverty line has fallen across all economic, social and religious groups nationally and in all states.

The Mahatma Gandhi National Rural Employment Guarantee Act alone has generated over 2 billion employment days during 2016-17, largely for the deprived sections of society. In an effort to achieve the goal of 'housing for all' by 2022, direct-transfer financial assistance is being extended to poor homeless people. Pradhan Mantri Jan-Dhan Yojana (PMJDY), launched in 2014 for ensuring access to the entire gamut of financial services like- banking, credit, insurance, pension and other conditional transfers.

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Significant progress has been made in improving food and nutrition security through various plans. As a result, stunting among children under 5 years' age has declined from 48% to 38.4% in the decade of 2005-15. The absolute numbers of stunted and underweight children, still remain high. To address this concern, more than 800 million people are covered by providing the food grains at affordable prices through the Public Distribution System (PDS). The Mid-Day-Meal (MDM) Programme is providing nutritious cooked meals to 100 million children in primary schools across the entire country.

India is one of the largest producers of milk, pulses and other grains in the world. The National Mission on Sustainable Agriculture (NMSA) is functioning under the National Action Plan on Climate Change (NAPCC). This plan is working towards mitigating the impact of climate change on agricultural productivity. Due to Soil Health Card scheme, land under organic farming has increased by over 17- fold over the last 10 years.

Crop insurance support schemes also helped in minimizing the losses incurred to farmers and provide single-window comprehensive risk coverage for various crops and horticulture produces.

Goal 3: Ensure healthy lives and promote wellbeing for all at all ages

India made significant gains in various health indicators by improvement in vaccination coverage for children between 12-23 months of age. The country's strategy in health is focused on providing essential medical services to the entire population with a special emphasis on the poor and marginalised.

The National Health Policy (2017) is targeted for- universal primary health care, to achieve further reductions in infant and U-5 mortality, to reduce premature deaths due to non-

communicable diseases as well as to increase governmental expenditure on health. Nowadays, a composite index is being used to monitor and evaluate the improvements in health services delivery in the country. ANMOL (Auxiliary Nurse Midwives Online) is an application launched by the Ministry of Health & Family Welfare for enabling Auxiliary Nurse Midwives (ANMs) to electronically enter and update data for beneficiaries.

National Vector Borne Disease Control Programme focuses on prevention and control of six diseases including- Malaria, Japanese Encephalitis, Dengue, Chikungunya, Kala-Azar and Lymphatic Filariasis.

Goal 5: Achieve gender equality and empower all women and girls

While much more progress still remains, a number of indicators showing the status of women in India have moved to the right direction over these years. For instance- around 68.4 per cent of women were literate in 2015-16 compared to 55.1% in 2005-06. Around 53 per cent of women were using bank services in 2015-16 compared to 15.1 per cent in 2005-06.

The ‘Beti Bachao Beti Pado’ (BBBP) initiative focuses on a comprehensive package of interventions for the girl child including education, health-care and protection.

‘One Stop Crisis Centres’ are being established across the country for providing integrated and instant support to women affected by violence, whether in private or public spaces. Further, the Women Helpline initiative has also strengthened these Centres.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

All types of connectivity including road connectivity and electricity are being brought to all villages across India. The Bharat Broadband Network Limited (BBNL) initiative is aiming to provide high-speed broadband connectivity to all villages in the country. Over the last decade, there has been a consistent growth in installed electricity generation capacity and also the proportion of non-fossil-fuel sectors has grown by 51.3 per cent. 8,000 km of pavements and cycle tracks are proposed for 106 cities over the course of the next 5 years to promote non-motorized transport and reduce the carbon footprint.

Goal 14: Conserve and sustainably use the oceans, seas and marine resources

A clear agenda has been formulated for promoting ocean ecology with the name ‘Blue Revolution’. For tracking the marine pollution along the coastline and Exclusive Economic Zones (EEZs), the country has developed the Coastal Ocean Monitoring and Prediction System. An oil spill management system is also placed for responding to emergencies arising out of oil spills by crude oil movements.

A new era of port-led development was accepted and as a result, the ‘Sagarmala’ project was commissioned for improving- port connectivity, port- linked industrialization, coastal community development and reducing waiting time for cargos.

Goal 17: Revitalize the global partnership for sustainable development

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While working with the global partnership for the achievement of the SDGs, India expressed its solidarity for the principle of ‘common but differentiated responsibilities’. India is trying to gather sufficient revenues from domestic resource mobilisation and from foreign aids, for achieving the SDGs, especially for global public goods such as climate change mitigation and control of pandemics.

A next-generation tax reforms agenda is implied in the country to optimise domestic resource mobilization, including direct tax reforms as well as the indirect tax reforms (such as Goods and Services Tax also known as a uniform and simplified form of indirect taxation). For certain purposes, another form of a monetary instrument like- Swachh Bharat Cess (Clean India Cess) has also been introduced for the hassle-free funding of Clean India Mission.

The Ministry of Statistics & Programme Implementation (MoSPI) is on fast-track to evolve national indicators in light of the global SDG indicators with respect to regional characteristics. The NITI Aayog recently released a Three-Year Action Agenda covering the years 2017-18 to 2019-20. This Agenda addresses the specific challenges facing the country in real-time and the details of measures to fast track the national development agenda.

Most of the states have matched strategic insights from the national development and 2030 agendas, keeping in mind their own specific contexts and priorities.

Study Questions: 4

Match the following sentences –

- | Institute/ Organization | Year |
|---------------------------------------|--|
| 1. Total numbers of SDGs are | A- 2022 |
| 2. SDG: 1 | B- End poverty in all forms |
| 3. ‘Housing for all’ is proposed for | C- 17 |
| 4. ‘ANMOL’ provides support for | D- Internet connectivity to all villages |
| 5. ‘One Stop Crisis centre’ | E- To achieve gender equality (SDG: 5) |
| 6. ‘Bharat Broadband Network Limited’ | F- SDG: 3 |
| 7. ‘Blue Revolution’ is for | G- Indirect tax |
| 8. SDGs indicators in India | H- MoSPI |
| 9. GST is an | I- Ocean ecology |
| 10. ‘Sagarmala’ project aims for | J- Port-led development |

11.6 The GAIA Hypothesis

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This hypothesis is named after the Greek earth goddess and was coined by James Lovelock in 1979. In this hypothesis, a different model of the Mother Earth is established that the ecosphere and all creatures surviving on it were inter-dependent and thus form a complete system.

According to this, the complete system and all components of the system were interdependent and weighing equally for maintaining the Earth as a planet and making itself capable of providing sustaining life.

It is necessary to recognise and allocate the actions in which one organism affects other organisms and also inevitably affects itself. There could be many possibilities which did not necessarily have direct reflections into its actions. In other words, all actions may well have many unintended consequences.

11.7 Summary

Now it is very well established that there is no unique sustainable path and accordingly, policymakers should choose different criteria and strategies to make efficient sustainable decisions for each region (likewise- country or state).

Economic progress is visible in most of the places. For instances- cities are growing, transport systems are booming, and so on, as a result, the middle class is growing rapidly in all aspects of life.

India stepped in to pursue the implementation of the SDG agenda through close collaboration between the national and sub-national governments. For this, India is following a holistic approach towards SDGs (targeted to achieve until 2030) by starting various initiatives. As a result of these efforts, India's SDG Index Score ranges between 42 and 69 for States and between 57 and 68 for UTs.

Implementations of India's Nationally Determined Contributions (INDCs) seek investments of scale and size which is unprecedented for a developing nation. This essentially indicates that along with domestic finances, international public and private sector finances would influence others in a skilful manner. Intensified: Boosted

There are quite a few challenges for the achievements of SDGs, a very visible one is air pollution, mainly due to high dependency on coal and therefore emits a lot of CO₂. So India needs to increase energy coal-based efficiency and move to harness more renewable energy sources. Many parts of India face drastic resource scarcities especially natural resources such as- water pollution (sometimes toxic) and shortages.

11.8 Glossary

Ancestors: An early version of humankind

Indigenous: Local people

Irreversible: Unable to undo

Embraced: Ready to accept enthusiastically

Intrinsic: Essential

Eradicate: Fully erased

Pavement: Smooth way for people have to be mobilized for filling the gaps.

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11.10 Suggestive Readings

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UNIT 12

CLIMATE CHANGE AND HUMAN RIGHTS

Structure

- 12.0 Objectives
- 12.1 Introduction
- 12.2 The Conceptual Linkage between Climate Change and Human Rights
- 12.3 Key Human Rights Affected by Climate Change
- 12.4 International Recognition of the Climate-Human Rights Nexus
- 12.5 The Concept of Climate Justice
- 12.6 Judicial Responses: International and Comparative Perspectives
- 12.7 The Indian Approach
- 12.8 Challenges and Criticisms
- 12.9 Summary
- 12.10 Glossary
- 12.11 References
- 12.12 Suggested Readings
- 12.13 Terminal Questions
- 12.14 Short Answer Questions
- 12.15 True or False Questions

12.0 Objectives

After studying this unit, you should be able to:

- Explain the conceptual linkage between climate change and the enjoyment of human rights.
- Identify the specific human rights most directly threatened by climate change.
- Describe how international human rights bodies and climate change instruments have recognised this linkage.
- Explain the concept of climate justice and its various dimensions.
- Discuss significant judicial decisions, both international and comparative, addressing climate change as a human rights issue.
- Analyse the Indian judiciary's approach to climate change as an aspect of the fundamental right to life.

- Critically evaluate the challenges involved in framing climate change as a human rights problem.

12.1 Introduction

Climate change was, for a long period, understood primarily as an environmental and scientific problem, to be addressed through instruments regulating greenhouse gas emissions, technology transfer, and international financing. Over the past two decades, however, a distinct and increasingly influential perspective has emerged, one that regards climate change not merely as an ecological or economic challenge, but as a matter that directly threatens the enjoyment of fundamental human rights, including the rights to life, health, food, water, adequate housing, and self-determination.

This shift in perspective, often described as the 'human rights turn' in climate change law and policy, has significant practical consequences. Framing climate change as a human rights issue subjects state and corporate conduct contributing to climate change to established human rights standards of accountability, allows individuals and communities to invoke existing human rights mechanisms and courts to seek relief, and draws particular attention to the disproportionate impact of climate change on vulnerable groups, including the poor, indigenous peoples, women, children, and residents of low-lying and climate-vulnerable states. This unit examines the conceptual foundation of this linkage, surveys its recognition in international instruments and jurisprudence, and considers the response of Indian courts to this emerging area of law.

12.2 The Conceptual Linkage between Climate Change and Human Rights

The linkage between climate change and human rights rests on the straightforward proposition that the physical impacts of climate change, including rising temperatures, sea-level rise, extreme weather events, and disruption of agricultural and water systems, have direct and measurable consequences for the ability of individuals to enjoy rights that are already recognised under international and domestic law. Unlike many traditional human rights violations, which arise from a discrete act attributable to an identifiable state or actor, the harms caused by climate change arise cumulatively from the aggregate greenhouse gas emissions of states, industries, and individuals across the globe over an extended period of time, creating what has been described as a problem of diffuse causation and diffuse responsibility.

Notwithstanding this complexity, international human rights bodies have increasingly accepted those difficulties do not exempt states from human rights obligations relevant to climate change. States are understood to bear both negative obligations, requiring them to refrain from conduct that causes or exacerbates climate-related harm, and positive obligations, requiring them to take reasonable and effective measures to mitigate greenhouse gas emissions, adapt to unavoidable climate impacts, and protect individuals within their jurisdiction from foreseeable climate-related harm. This framework mirrors the well-established human rights doctrine that

states owe a positive duty to protect individuals from serious risks to life and health arising from environmental hazards, extended now to the specific context of climate change.

12.3 Key Human Rights Affected by Climate Change

A wide range of internationally recognised human rights are implicated by climate change, several of which are discussed below.

(a) The Right to Life

Rising sea levels, intensifying cyclones, heatwaves, floods, and droughts pose direct threats to human life. Displacement from low-lying coastal areas and small island states, together with the increased frequency of climate-related disasters, raises serious concerns regarding the right to life, understood not merely as a prohibition on arbitrary deprivation of life, but as encompassing a positive duty upon states to take preventive measures against foreseeable threats to life.

(b) The Right to Health

Climate change contributes to the spread of vector-borne and water-borne diseases, exacerbates air pollution and respiratory illness, increases the incidence of heat-related mortality, and places growing strain on food security and nutrition, all of which bear directly upon the right to the highest attainable standard of physical and mental health.

(c) The Right to Adequate Food and Water

Changing rainfall patterns, prolonged droughts, and the increased salinity of coastal groundwater sources threaten agricultural productivity and access to safe drinking water, particularly for subsistence farming communities and populations in already water-stressed regions, thereby endangering the rights to adequate food and water.

(d) The Right to Adequate Housing and Freedom from Displacement

Sea-level rise, coastal erosion, and the increasing frequency of extreme weather events are already causing displacement of populations from their homes, giving rise to concerns regarding the right to adequate housing and generating the phenomenon of so-called climate migrants or climate-displaced persons, a category not yet clearly recognised or protected under existing international refugee law.

(e) The Rights of Indigenous Peoples and Self-Determination

Indigenous communities, whose ways of life, culture, and livelihoods are frequently closely tied to specific ecosystems and natural resources, are amongst the groups most severely affected by climate change, raising particular concerns regarding their rights to self-determination, culture, and traditional livelihood, as recognised under instruments concerning indigenous peoples' rights.

(f) Rights of Children, Women, and Future Generations

Children are recognised as being disproportionately vulnerable to the physical and psychological impacts of climate change, and are also understood to bear a disproportionate share of the long-term consequences of present-day emissions, raising the doctrine of intergenerational equity discussed elsewhere in this course. Women, particularly in agrarian and subsistence economies, often bear a disproportionate burden of climate impacts owing to existing social and economic inequalities, raising specific concerns regarding gender and climate justice.

12.4 International Recognition of the Climate-Human Rights Nexus

The linkage between climate change and human rights has received growing recognition across various international forums and instruments.

(a) United Nations Human Rights Council

The Human Rights Council has, since 2008, adopted a series of resolutions recognising that climate change poses an immediate and far-reaching threat to people and communities around the world and has implications for the full and effective enjoyment of human rights. In 2021, the Council recognised the right to a clean, healthy, and sustainable environment as a distinct human right, a recognition subsequently endorsed by the United Nations General Assembly in 2022, providing an important normative foundation linking environmental protection, including climate action, directly to human rights law.

(b) The Paris Agreement, 2015

The preamble to the Paris Agreement expressly acknowledges that parties should, when taking action to address climate change, respect, promote, and consider their respective obligations on human rights, including the rights of indigenous peoples, local communities, migrants, children, persons with disabilities, and people in vulnerable situations, as well as the right to development and gender equality. While this reference appears only in the preamble and does not create binding substantive obligations, it is widely regarded as a significant textual acknowledgment of the human rights dimension of climate action within a major binding climate treaty.

(c) Office of the United Nations High Commissioner for Human Rights

The Office of the High Commissioner for Human Rights has published detailed analytical studies and reports examining the relationship between climate change and the enjoyment of human rights, and has actively supported the integration of human rights approaches into the negotiation and implementation of climate policy at the national and international levels.

(d) Special Procedures and Treaty Bodies

The Human Rights Council has appointed a Special Rapporteur on human rights and the environment, whose mandate includes the examination of climate change impacts on human rights. Various treaty bodies, including the Committee on the Rights of the Child and the

Human Rights Committee, have also issued authoritative guidance recognising the relevance of environmental and climate harm to the rights guaranteed under their respective treaties.

12.5 The Concept of Climate Justice

Climate justice applies the broader concept of environmental justice specifically to the causes and consequences of climate change. It rests on the recognition that the states and populations that have contributed least to historical greenhouse gas emissions are frequently those most severely affected by the physical impacts of climate change, while wealthier, industrialised states, whose emissions have contributed disproportionately to the problem, generally possess greater resources to adapt to and mitigate its effects.

Climate justice is generally understood to encompass the following dimensions.

- **Distributive justice:** concerned with the fair allocation of the burdens of mitigation and the benefits of adaptation finance and technology, reflected in the principle of common but differentiated responsibilities and respective capabilities.
- **Procedural justice:** concerned with ensuring meaningful participation of affected and vulnerable communities, including indigenous peoples and small island states, in international climate negotiations and domestic climate policymaking.
- **Corrective justice:** concerned with providing redress, compensation, and support for loss and damage already suffered as a result of climate change, an issue that led to the establishment of a dedicated Loss and Damage Fund under the climate change regime.
- **Intergenerational justice:** concerned with ensuring that the interests of future generations, who will bear the consequences of present-day emissions, are adequately protected in current decision-making.

The concept of climate justice has informed both international negotiating positions, particularly those advanced by developing countries and small island developing states, and an increasing volume of domestic and international climate litigation seeking to hold governments and corporations accountable for inadequate climate action.

12.6 Judicial Responses: International and Comparative Perspectives

Climate litigation grounded in human rights arguments has grown substantially across jurisdictions over the past decade, with courts in several countries recognising a connection between state climate obligations and constitutional or human rights guarantees.

(a) The Urgenda Case, Netherlands

In a case brought by an environmental foundation against the Dutch government, the Netherlands Supreme Court held that the government's existing emissions reduction target was inadequate having regard to the state's obligations under the European Convention on Human Rights to protect the right to life and the right to respect for private and family life, and ordered the government to achieve a more ambitious reduction target. This decision is widely regarded as a landmark in linking human rights obligations directly to state climate mitigation targets.

(b) The Neubauer Case, Germany

The German Federal Constitutional Court held that the state's climate legislation, by deferring the bulk of emissions reductions to periods beyond 2030, placed an undue burden on the fundamental freedoms of younger generations who would be required to bear disproportionately severe reduction burdens in later years, thereby recognising an intertemporal dimension to constitutional rights in the context of climate policy.

(c) The KlimaSeniorinnen Case, European Court of Human Rights

The European Court of Human Rights held that the right to respect for private and family life under the European Convention on Human Rights encompasses a right to effective protection from the serious adverse effects of climate change on life, health, well-being, and quality of life, and found that the respondent state had failed to comply with its positive obligations in this respect. This decision represents the first ruling of an international human rights court expressly grounding state climate obligations in a binding human rights treaty.

(d) Advisory Opinions of International Courts

In recent years, international courts and tribunals, including the International Tribunal for the Law of the Sea, the Inter-American Court of Human Rights, and the International Court of Justice, have been requested to render advisory opinions clarifying the human rights and international law obligations of states in respect of climate change, reflecting the growing convergence of climate law and human rights law at the international level.

12.7 The Indian Approach

Indian courts have long recognised, through an expansive interpretation of Article 21 of the Constitution, that the right to life includes the right to a clean and healthy environment. Building upon this foundation, the Supreme Court of India has, in recent years, taken an important step towards explicitly recognising climate change as a distinct constitutional concern.

In a significant decision concerning the conservation of the Great Indian Bustard, an endangered bird species threatened partly by renewable energy infrastructure, the Supreme Court recognised that the right against the adverse effects of climate change is part of the right to life under Article 21 and the right to equality under Article 14 of the Constitution, holding that these rights must be balanced against, rather than automatically subordinated to, other developmental and conservation objectives, including renewable energy expansion. This decision is widely regarded as the first explicit recognition by the Supreme Court of a distinct constitutional right relating to climate change.

India's response to climate change more broadly has also been shaped by its National Action Plan on Climate Change, its updated Nationally Determined Contributions submitted under the Paris Agreement, and a growing body of policy measures addressing renewable energy, energy efficiency, and climate adaptation. Indian courts and tribunals, including the National Green Tribunal, have on various occasions considered the implications of climate change for

decisions relating to environmental clearances, forest diversion, and infrastructure projects, gradually integrating climate considerations into the broader framework of environmental adjudication in India.

12.8 Challenges and Criticisms

Notwithstanding its growing acceptance, the human rights framing of climate change faces several significant conceptual and practical challenges.

- The problem of diffuse causation makes it difficult to attribute specific climate harms to the conduct of any single state or actor, complicating traditional human rights doctrines that typically require a demonstrable causal link between state conduct and the alleged violation.
- Human rights obligations are generally understood to bind states in respect of persons within their jurisdiction, raising difficult questions regarding the extraterritorial application of human rights law to the transboundary and global impacts of climate change.
- Human rights remedies are typically framed as individual entitlements, whereas climate change is a collective, structural problem, raising questions regarding the practical adequacy of individual rights-based remedies in addressing a phenomenon of this scale.
- Courts adjudicating climate-related human rights claims are frequently called upon to make findings regarding complex scientific evidence and to specify particular policy outcomes, such as emissions reduction targets, raising separation of powers concerns regarding the appropriate role of the judiciary relative to the legislature and executive.
- Critics also caution that an excessive reliance on litigation as a tool for climate action, however successful in individual cases, cannot substitute for the coordinated international cooperation and domestic policy measures required to achieve meaningful and lasting emissions reductions at the scale necessary to address the problem.

12.9 Summary

Climate change is increasingly recognised, at both the international and domestic levels, not merely as an environmental and economic challenge but as a matter that directly threatens the enjoyment of fundamental human rights, including the rights to life, health, food, water, adequate housing, and self-determination, with particularly severe consequences for vulnerable groups such as indigenous peoples, women, children, and residents of climate-vulnerable states. This linkage has been progressively acknowledged through resolutions of the United Nations Human Rights Council, the preambular recognition contained in the Paris Agreement, and the work of the Office of the High Commissioner for Human Rights and various treaty bodies.

The concept of climate justice, encompassing distributive, procedural, corrective, and intergenerational dimensions, provides an important framework for understanding the disproportionate burdens that climate change places on those least responsible for causing it.

Environment Justice and Human Rights

Judicial developments such as the Urgenda, Neubauer, and KlimaSeniorinnen decisions illustrate a growing international trend towards grounding state climate obligations in binding human rights guarantees, a trend echoed in India through the Supreme Court's recognition of a right against the adverse effects of climate change as part of the fundamental right to life and equality. At the same time, the human rights framing of climate change continues to face significant conceptual challenges relating to causation, jurisdiction, the individualised structure of rights remedies, and the appropriate institutional role of courts, ensuring that this remains an evolving and actively contested area of law.

12.10 Glossary

Climate Justice	The application of principles of fairness and equity to the distribution of the causes, burdens, and consequences of climate change, and to participation in climate decision-making.
Climate Litigation	Legal proceedings brought before courts or tribunals seeking to compel states, corporations, or other actors to take more adequate action to mitigate or adapt to climate change, or to obtain redress for climate-related harm.
Diffuse Causation	A situation in which harm results from the cumulative, aggregated conduct of numerous actors over an extended period, making it difficult to attribute the harm to any single actor.
Human Rights Turn	A shift in the framing of climate change from a purely environmental or economic problem to one understood as directly implicating the enjoyment of established human rights.
Intergenerational Equity	The principle that the interests and needs of future generations must be taken into account in present-day decisions concerning the use and protection of natural resources and the environment.
Loss and Damage	Adverse impacts of climate change that cannot be avoided through mitigation or adaptation, for which affected states and communities seek compensation or support under the international climate regime.
Nationally Determined Contribution	A national climate action plan submitted by a state party to the Paris Agreement, setting out its emissions reduction targets and adaptation measures.
Positive Obligation	A duty upon the state to take affirmative action to protect individuals from harm, as distinguished from a negative obligation merely requiring the state to refrain from causing harm itself.
Right to a Healthy Environment	A human right, increasingly recognised at the international level, to live in a clean, healthy, and sustainable environment.

Vulnerable Groups	Populations, such as indigenous peoples, children, women, and residents of low-lying or climate-exposed regions, who are disproportionately exposed to, or disproportionately affected by, the impacts of climate change.
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12.11 References

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2. United Nations Human Rights Council, Resolution 48/13 on the Human Right to a Clean, Healthy and Sustainable Environment, 2021.
3. Office of the United Nations High Commissioner for Human Rights, Analytical Study on the Relationship between Climate Change and Human Rights.
4. Netherlands Supreme Court, *State of the Netherlands v. Urgenda Foundation* (2019).
5. German Federal Constitutional Court, *Neubauer and Others v. Germany* (2021).
6. European Court of Human Rights, *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland* (2024).
7. *M.K. Ranjitsinh and Others v. Union of India*, Supreme Court of India (2024), on the right against adverse effects of climate change.
8. Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India*, Oxford University Press.

12.12 Suggested Readings

- Report of the Office of the United Nations High Commissioner for Human Rights on climate change and human rights, available on [ohchr.org](https://www.ohchr.org).
- Jacqueline Peel and Hari M. Osofsky, *Climate Change Litigation: Regulatory Pathways to Cleaner Energy*, Cambridge University Press.
- Sumudu Atapattu, *Human Rights Approaches to Climate Change*, Routledge.
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12.13 Terminal Questions

1. Examine the conceptual linkage between climate change and human rights. What specific difficulties arise in applying traditional human rights doctrines to the problem of climate change?

Environment Justice and Human Rights

2. Discuss the human rights most directly threatened by climate change, with particular reference to vulnerable groups such as indigenous peoples, women, and children.
3. Explain how the international human rights framework, including resolutions of the United Nations Human Rights Council and the Paris Agreement, has recognised the relationship between climate change and human rights.
4. What is meant by climate justice? Discuss its various dimensions with suitable illustrations.
5. Discuss the approach of the Supreme Court of India to climate change as a constitutional issue, with particular reference to the recognition of a right against the adverse effects of climate change.

12.14 Short Answer Questions

1. Explain briefly the conceptual linkage between climate change and human rights.
2. Name any three human rights directly threatened by the impacts of climate change.
3. What did the United Nations Human Rights Council recognise through its 2021 resolution on the right to a healthy environment?
4. What does the preamble to the Paris Agreement state regarding human rights?
5. Define climate justice in your own words.

12.15 True or False Questions

- 1 Climate change is understood only as an environmental and economic problem, with no bearing on human rights.
- 2 The United Nations Human Rights Council recognised the right to a clean, healthy, and sustainable environment in 2021.
- 3 The preamble to the Paris Agreement makes reference to human rights obligations of parties.
- 4 Indigenous peoples are generally considered to be among the groups least affected by climate change.
- 5 Climate justice is concerned solely with the distribution of financial resources between states.

(Answer key: 1-False, 2-True, 3-True, 4-False, 5-False)

Unit: 13 Contemporary Environmental Challenges

13.1 Learning Objectives

13.2 Introduction

13.3 Climate Change

13.4 Overview

13.5 Pollution: Air, Water, and Soil

13.6 Environmental Justice

13.7 Summary

13.8 Glossary

13.9 References

13.10 Self-Assessment Questions (SAQs)

13.1 Learning Objectives

By the end of this unit, learners should be able to:

1. Identify and explain the major environmental challenges facing the world today.
2. Analyze the human and natural drivers behind these challenges.
3. Evaluate the ecological, social, and economic impacts of environmental degradation.
4. Discuss policy, technological, and community-based responses to these challenges.

13.2 Introduction

The twenty-first century has brought unprecedented pressure on the Earth's natural systems. Rapid population growth, industrialization, urbanization, and unsustainable consumption patterns have combined to produce a set of interconnected environmental problems that threaten the stability of ecosystems and human well-being alike. Unlike environmental issues of the past, which were often local or regional in scope, contemporary environmental challenges are largely global in nature climate change, biodiversity loss, and plastic pollution do not respect national borders. This unit examines the most pressing of these challenges, their underlying causes, their far-reaching consequences, and the strategies being pursued to address them.

Understanding these challenges requires a systems-thinking approach: environmental problems rarely exist in isolation. Deforestation contributes to climate change, which in turn accelerates biodiversity loss, which weakens ecosystem services that communities depend on for food and water security. Recognizing these linkages is essential for designing effective and lasting solutions.

13.3 Climate Change

Overview

Climate change refers to long-term shifts in temperature and weather patterns, primarily driven by human activities since the industrial era, especially the burning of fossil fuels (coal, oil, and natural gas). These activities release greenhouse gases (GHGs) — chiefly carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) — into the atmosphere, trapping heat and warming the planet.

Causes

- **Fossil fuel combustion** for energy, transportation, and industry
- **Deforestation and land-use change**, which reduces the planet's capacity to absorb CO₂
- **Industrial processes**, including cement production and chemical manufacturing
- **Agriculture**, particularly livestock farming (methane emissions) and rice paddies

Environment Justice and Human Rights

- **Waste decomposition** in landfills, which produces methane

Impacts

- Rising global average temperatures, with the last decade recorded as the warmest on record
- Melting polar ice caps and glaciers, contributing to sea-level rise
- More frequent and intense extreme weather events: heatwaves, droughts, hurricanes, and floods
- Shifts in agricultural productivity and growing seasons
- Displacement of human populations due to uninhabitable conditions ("climate refugees")
- Threats to coastal cities and small island nations from rising seas

Responses

International cooperation has produced frameworks such as the Paris Agreement, which aims to limit global warming to well below 2°C above pre-industrial levels, with efforts to limit it to 1.5°C. National strategies include transitioning to renewable energy (solar, wind, hydro), improving energy efficiency, carbon pricing mechanisms, and reforestation programs. However, implementation gaps between pledges and actual emissions reductions remain a major challenge.

Biodiversity Loss

13.4 Overview

Biodiversity the variety of life on Earth at genetic, species, and ecosystem levels — is declining at an alarming rate. Scientists suggest the planet is undergoing a sixth mass extinction event, this time driven by human activity rather than natural causes.

Causes

- **Habitat destruction** through deforestation, urban expansion, and agriculture
- **Overexploitation** of species through hunting, poaching, and overfishing
- **Pollution**, including chemical runoff and plastic waste
- **Invasive species** that outcompete or prey upon native species
- **Climate change**, which alters habitats faster than many species can adapt

Impacts

- Loss of ecosystem services such as pollination, water purification, and soil fertility
- Reduced resilience of ecosystems to environmental shocks

Environment Justice and Human Rights

- Economic losses in sectors dependent on biodiversity, such as agriculture, fisheries, and tourism
- Cultural and aesthetic losses, particularly for indigenous communities whose identities are tied to local ecosystems

Responses

Conservation strategies include the establishment of protected areas and wildlife reserves, restoration of degraded habitats, sustainable fisheries management, and international agreements such as the Convention on Biological Diversity. Community-based conservation, which involves local populations in stewardship efforts, has proven particularly effective in balancing human needs with ecological protection.

13.5 Pollution: Air, Water, and Soil

Air Pollution

Air pollution arises from vehicle emissions, industrial discharges, agricultural burning, and household use of solid fuels. It is linked to respiratory and cardiovascular diseases and is estimated to contribute to millions of premature deaths annually worldwide. Urban centers in rapidly industrializing regions are particularly affected by smog and particulate matter (PM_{2.5}).

Water Pollution

Water bodies are contaminated by industrial effluents, agricultural runoff (fertilizers and pesticides), untreated sewage, and plastic debris. This degrades drinking water quality, harms aquatic ecosystems, and contributes to the spread of waterborne diseases. Eutrophication — excessive nutrient enrichment causing algal blooms and oxygen depletion — is a growing concern in lakes, rivers, and coastal waters.

Soil Pollution

Soil contamination results from improper disposal of industrial waste, excessive use of agrochemicals, and mining activities. Contaminated soil reduces agricultural productivity, enters the food chain, and can persist for decades, making remediation costly and slow.

Responses

Regulatory measures such as emissions standards, wastewater treatment requirements, and bans on hazardous substances have helped in many regions. Cleaner production technologies, organic farming practices, and improved waste management systems are also central to reducing pollution loads.

Deforestation and Land Degradation

Forests cover roughly a third of the Earth's land area and are vital carbon sinks, biodiversity reservoirs, and sources of livelihood for millions of people. Deforestation — primarily for agricultural expansion (notably cattle ranching and palm oil plantations), logging, and infrastructure development — continues at a significant pace in tropical regions such as the Amazon, Congo Basin, and Southeast Asia.

Land degradation, including desertification, results from unsustainable agricultural practices, overgrazing, and climate stress. It reduces arable land available for food production, threatening food security in already vulnerable regions such as the Sahel.

Responses include reforestation and afforestation initiatives, sustainable forestry certification schemes, stronger land-use governance, and programs like REDD+ (Reducing Emissions from Deforestation and Forest Degradation), which provide financial incentives for forest conservation.

Water Scarcity

Freshwater resources are under increasing strain due to population growth, agricultural demand, industrial use, and climate-induced changes in precipitation patterns. Regions such as the Middle East, North Africa, and parts of South Asia already face acute water stress, and the situation is projected to worsen.

Causes include over-extraction of groundwater, inefficient irrigation practices, pollution of freshwater sources, and the effects of climate change on rainfall and glacial melt patterns that feed major rivers.

Consequences include reduced agricultural output, increased competition and potential conflict over shared water resources, and heightened vulnerability of communities lacking reliable access to clean water and sanitation.

Solutions involve improved water-use efficiency in agriculture (such as drip irrigation), wastewater recycling, desalination technologies, transboundary water-sharing agreements, and demand-management policies that price water to reflect its scarcity.

Plastic Pollution and Waste Management

The proliferation of single-use plastics has created a global waste crisis. Millions of tonnes of plastic enter the oceans annually, forming large accumulation zones such as the Great Pacific Garbage Patch and breaking down into microplastics that infiltrate marine food chains and, ultimately, human diets.

Environment Justice and Human Rights

Beyond plastics, the broader challenge of solid waste management is acute in rapidly urbanizing regions, where infrastructure has not kept pace with the volume of waste generated. Poor waste management leads to soil and water contamination, greenhouse gas emissions from landfills, and public health hazards.

Responses include bans and levies on single-use plastics, investment in recycling and circular economy infrastructure, extended producer responsibility (EPR) schemes that make manufacturers accountable for product lifecycle waste, and public awareness campaigns promoting reduction and reuse.

Ocean Acidification and Marine Degradation

The oceans absorb roughly a quarter of anthropogenic CO₂ emissions, which lowers the pH of seawater a process known as ocean acidification. This impairs the ability of marine organisms such as corals, shellfish, and plankton to build calcium carbonate structures, threatening entire marine food webs.

Coral reefs, often called the "rainforests of the sea," are particularly vulnerable, with rising sea temperatures also causing widespread coral bleaching events. Overfishing further compounds marine degradation, depleting fish stocks faster than they can naturally replenish.

Mitigation efforts include marine protected areas, sustainable fisheries quotas, international agreements to reduce CO₂ emissions, and restoration projects for coral reefs and mangrove ecosystems, which also serve as natural coastal buffers against storms.

13.6 Environmental Justice

Environmental burdens are not evenly distributed. Marginalized and low-income communities often bear disproportionate exposure to pollution, resource scarcity, and climate impacts, despite contributing least to the problems. Environmental justice frameworks call for equitable distribution of both environmental risks and the benefits of environmental policy.

The Role of Technology

Technological innovation from renewable energy systems to precision agriculture and satellite-based environmental monitoring offers powerful tools for addressing environmental challenges. However, technology alone cannot substitute for behavioral change, sound governance, and international cooperation.

Sustainable Development

The United Nations' Sustainable Development Goals (SDGs) provide an integrated framework linking environmental sustainability with social and economic development, recognizing that poverty eradication, health, and environmental protection are deeply interconnected.

13.7 Summary

Contemporary environmental challenges are complex, interconnected, and global in scope. Climate change, driven largely by fossil fuel use and land-use change, is reshaping weather patterns and threatening ecosystems and human settlements worldwide. Biodiversity loss undermines the ecosystem services upon which life depends, while air, water, and soil pollution directly threaten human health and environmental quality. Deforestation and land degradation reduce the planet's natural carbon-absorbing capacity and threaten food security, while water scarcity is intensifying in many regions due to overuse and climatic shifts. Plastic pollution and inadequate waste management systems create long-lasting environmental and health hazards, and ocean acidification and marine degradation threaten one of the planet's most vital ecosystems.

Addressing these challenges requires coordinated action across multiple levels — international agreements, national policy, technological innovation, and community-based initiatives. Environmental justice must remain central to these efforts, ensuring that solutions do not disproportionately burden the most vulnerable populations. Ultimately, the transition toward sustainability will depend on integrating environmental considerations into all aspects of economic and social planning, guided by frameworks such as the UN Sustainable Development Goals.

13.8 Glossary

- **Biodiversity** – The variety of life forms within a given ecosystem, region, or the planet as a whole, including genetic, species, and ecosystem diversity.
- **Carbon sink** – A natural or artificial reservoir that absorbs and stores more carbon than it releases, such as forests or oceans.
- **Circular economy** – An economic model focused on minimizing waste through the continual reuse, recycling, and regeneration of materials and products.
- **Desertification** – The process by which fertile land becomes desert, typically as a result of drought, deforestation, or inappropriate agriculture.
- **Ecosystem services** – Benefits that humans derive from natural ecosystems, such as pollination, water purification, and climate regulation.
- **Eutrophication** – Excessive nutrient enrichment of water bodies, often causing algal blooms and oxygen depletion harmful to aquatic life.
- **Greenhouse gases (GHGs)** – Atmospheric gases, such as carbon dioxide and methane, that trap heat and contribute to global warming.
- **Ocean acidification** – The ongoing decrease in the pH of the Earth's oceans, caused by increased absorption of atmospheric CO₂.
- **Renewable energy** – Energy derived from naturally replenishing sources, such as solar, wind, and hydro power.

Environment Justice and Human Rights

- **Sustainable Development Goals (SDGs)** – A set of 17 global goals adopted by the United Nations in 2015, addressing social, economic, and environmental challenges.
- **REDD+** – A UN framework ("Reducing Emissions from Deforestation and Forest Degradation") providing financial incentives for forest conservation in developing countries.
- **Environmental justice** – The fair distribution of environmental benefits and burdens across all communities, regardless of income or ethnicity.
- **Micro plastics** – Small plastic particles, typically less than 5mm, resulting from the breakdown of larger plastic debris.
- **Water stress** – A condition in which the demand for water exceeds the available supply, or when poor water quality restricts its use.

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13.10 Self-Assessment Questions (SAQs)

Short-Answer Questions

Environment Justice and Human Rights

1. Define climate change and identify three major human activities that contribute to it.
2. Explain the difference between biodiversity loss and habitat destruction, and describe how the two are related.
3. What is eutrophication, and what human activities commonly cause it?
4. Describe two consequences of deforestation for global climate regulation.
5. Explain why small island nations are especially vulnerable to the impacts of climate change.

Terminal Questions

1. "Environmental challenges cannot be solved in isolation from one another." Discuss this statement with reference to at least three interconnected environmental issues covered in this unit.
2. Evaluate the effectiveness of international frameworks (such as the Paris Agreement or the Convention on Biological Diversity) in addressing global environmental challenges. What are their strengths and limitations?
3. Discuss the role of technology in mitigating environmental degradation. Can technological solutions alone address the environmental crisis? Justify your answer.
4. Analyze how environmental degradation can disproportionately affect marginalized communities. Suggest policy measures that could promote environmental justice.
5. Using examples from this unit, propose an integrated strategy that a national government could adopt to address at least three environmental challenges simultaneously.

True/False Questions

1. Methane is a more potent greenhouse gas than carbon dioxide per unit mass. (True/False)
2. Ocean acidification primarily affects terrestrial ecosystems. (True/False)
3. REDD+ is a framework aimed at reducing deforestation through financial incentives. (True/False)
4. Environmental justice concerns are unrelated to economic inequality. (True/False)
5. Desertification can result from unsustainable agricultural practices combined with climate stress. (True/False)