ISBN: 978-93-90847-57-0

9. International Conventions and Protocols in Mitigating Environmental Challenges: A Conspectus

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"The Earth will not continue to offer its harvest, except with faithful stewardship. We cannot say we love the land and then take steps to destroy it for use by future generations."
John Paul II

9.1 Introduction:

The conceptualization of the term environment can be said to be as ancient as the evolution of human beings, though its existence is more ancient than the latter. Interpreting environment has varied connotation. To a nonprofessional it confines to as the mere surroundings, a student in school reading an NCERT or a State Board textbook refers to it as the space for both living and non- living creatures, to take it further to an environmentalist it means the atmosphere of ecology and biodiversity. The environment is an interlocking system and operates in a state of dynamic equilibrium. Material and energy flow perpetually, regenerate and maintain an environment suitable for life. The most common definition of environment is the sum total of the conditions, elements and factors in the surroundings which may have an impact on an organism or group of organisms on its survival, action and development. This definition can be viewed from a general human's perspective; however, this same human is also a bank of knowledge. This knowledge system has been gradually passed on leading to different changes and demands in living styles.

If on one hand the change and demand has witnessed a positive impact on the environment, on the other hand it has also laid its hands on negative influences. In sum, when human tends to overuse environment's ability to fulfil any single function, the environment fails to keep its strength retained in the same ability leading to unnatural changes, which often dumps into disasters and tragedies. For this reason, it becomes imperative to look into the matter of challenges faced by the environment with urgency. It becomes an important facet, which will answer our question, if the challenges not met on time will be the cause of our collective survival or collective suicide. Environment is the umbrella unit that includes biosphere, habitats of organisms and different ecosystems. In the recent decades, the concept has taken a global stand. It has not only remained a matter of local or national concern but has awaken insights internationally. This can be seen in the instance of our very own Padma Shri awardee Jadav Payeng who has been invited by Mexico government to undertake a mission to make Mexico greener by replenishing its forests.

'The Forest Man of India' has signed an agreement with an NGO Fundacion Azteca, to collaborate on environmental projects in Mexico, which aims to plant 7 million trees in the North American country. We can witness how important conservation of forests have become and how from local to global everyone is taking such initiatives for a well-maintained environment. The counting of organizations at international and national levels would touch up to more than 30-40 such organizations who are initiating projects or small endeavors trying to tackle threatening environmental situations. However, certain question arises such as- what challenges are being faced by the environment resulting in its degradation? How can these challenges be dealt with on a universal stand? What major measures or initiatives have been taken worldwide? The answers may be rendered in the form of types of environmental challenges and international conventions and initiatives forwarded to combat the situation.

On a recent serious note, the UN Secretary General warned that humans have waged a "suicidal war" on the Planet Earth, and led it towards its brokenness. He informed the earth is facing every conceivable environmental challenge at global and local levels, creating serious health hazards on humans and deterioration of the natural environment. There is no denying to the fact that our environment is constantly changing and it is a call of the hour to identify and become increasingly aware of the challenges faced. With a massive influx of different types of natural disasters, weather patterns, warming and cooling periods and much more, it becomes an urgency to be aware of the environmental challenges our planet is facing. Mere making one aware of the challenges will not bring a solution and it is in this context that the conventions and initiatives play an important role. We are at a planetary emergency whereby witnessing piling up of environmental challenges around us. To provide a solution to such problems the conventions and initiatives have been framed thereby enabling pursuits to endure a healthy environment.

Across the globe, people are threatened with a wealth of new environmental challenges every day. Some are small and only affect a few ecosystems, but others are drastically changing the landscape. An overview of such challenges will help to understand the direful situation.

A. **Pollution And Generating Unsustainable Waste:** There are seven key types of pollution – air, water, soil, noise, radioactive, light and thermal and these are primary causes that affect our environment in many ways. All these types of pollution are interlinked and influence each other. Along with the pollutants of these various sources, is the huge production of waste due to our hyperactive consumption, which poses a threat to the environment. As per a study, the average person produces 4.3 pounds of waste per day resulting in non-biodegradable trash in the form of plastic packaging, toxic e-waste, and harmful chemicals that leach into our waterways. These wastes ending up in landfills, generates enormous amounts of methane, which ranks as one of the worst greenhouse gases because of its high potential for global warming. It creates severe explosion hazards.
B. **Global Warming/Climate Change:** Global warming is attributed directly or indirectly to human activity that alters the composition of the global atmosphere. It leads to climate change, which is usually a major shift in temperature, rainfall, sea levels, snow and wind patterns lasting decade's more.

Humans are creating this change by altering the composition of greenhouse gases in the atmosphere by burning large amounts of fossil fuels emitting carbon dioxide and other greenhouse gases and deforestation. The anthropogenic alteration in the greenhouse gas composition is claiming climate change posing a threat to the natural environment.

C. **Loss of Biodiversity:** The IUCN Red List (2004) documents the extinction of 784 species in the last 500 years. Ecologists warn that if the present trend continues, nearly half of all the species on earth might be wiped out within the next 100 years. Loss of biodiversity in a region may generally lead to decline in plant production, lowered resistance to environmental perturbations such as droughts and increased variability in certain ecosystem processes.

   The loss in the biodiversity is the cause in the growth of human population and encroachment into forestlands, transformation in the use of lands for industrialization, stochastic events like fire, floods etc. Some other causes are over exploitation of certain species by humans such as Steller's sea cow, passenger pigeon, alien invasive species (when alien species are introduced unintentionally or deliberately for whatever purpose, some of them turn invasive and cause decline or extinction of indigenous species; e.g., the Nile perch) or even due to natural extinction.

D. **Ozone Layer Depletion:** The ozone layer is an invisible layer of protection around the planet that protects us from the sun's harmful rays. The depletion of the crucial Ozone layer of the atmosphere is attributed to a pollution, which is caused by Chlorine, and Bromide found in Chloro fluoro carbons (CFCs). Once these toxic gases reach the upper atmosphere, they create a hole in the ozone layer. CFCs are banned in many industries and consumer products. The ozone layer is valuable because it prevents harmful UV radiation from reaching the earth. This is one of the most important current environmental challenge.

E. **Natural Resource Depletion:** Another crucial environmental challenge is the depletion of Natural resources. As humans, we use many natural resources that it would need almost 1.5 Earths to cover all our needs. This would not stop here and will further increase in the future due to massive industrialization in Asian countries like India and China. Over time, natural resource depletion will lead to energy crisis. The chemicals emitted from many natural resources, fossil fuel consumption resulting in the emission of greenhouse gases is primarily responsible for global warming and climate change. Exhaustive use of natural resources will ultimately lead to an environment deteriorating in nature. Globally, people are making efforts to shift to renewable sources of energy like solar, wind, biogas and geothermal energy. As such, the cost of installing the infrastructure and maintaining these sources has plummeted in recent years.

F. **Public Health Issues**: The current environmental challenges pose a lot of risk to the health of humans and animals. Dirty water is the biggest health risk in the world and poses a threat to the quality of life and public health. Run-off to rivers carries with it toxins, chemicals and disease-carrying organisms. Pollutants cause respiratory diseases like Asthma and cardiac-vascular problems. High temperatures encourage the spread of infectious diseases like dengue.

G. **Deforestation:** Deforestation simply indicates the clearing of the green cover and making the land available for residential, industrial or commercial purposes. Forests are natural sinks of carbon dioxide and produce fresh oxygen, as well as helps in regulating temperature and rainfall. At present, forests cover 30% of the land, but every year tree cover is lost, amounting to the growing population's demand for more food, shelter and

cloth. The imbalance caused due to this demand and shedding of the forests pose a big threat to the environment.

H. **Soil Degradation:** Food security on a global basis is dependent on the factor whether soils are in good condition to produce crops. According to UN estimates, about 12 million hectares of farmland a year are seriously degraded. Soil is damaged due to many reasons, which include erosion, overgrazing, overexposure to pollutants, monoculture planting, soil compaction, land-use conversion and many more. Nowadays, a wide range of techniques of soil conservation and restoration exist, from no-till agriculture to crop rotation to water-retention through terrace building.

I. **Overpopulation:** If the population of human continues to increase at this rate in the future, there will be no future left for the humans. The population of the planet is reaching unsustainable levels as it faces a shortage of resources like water, fuel and food. Population explosion in less developed and developing countries is straining the already scarce resources. Intensive agricultural practice to produce food damages the environment with chemical fertilizer, pesticides and insecticides.

J. **Urban Sprawl:** Urban sprawl refers to the migration of population from high-density urban areas to low-density rural areas, which results in the spreading of the city over more and more rural land. Urban sprawl results in land degradation, increased traffic, environmental issues and health issues. The ever-growing demand for land displaces the natural environment consisting of flora and fauna, instead of being replaced. This stands as a major threat to environmental degradation.

There is an urgent need for change in our daily lives so that the present day's activities will not affect the future generations. Although it is a fact that it is not possible on our part to physically stop the ozone layer depletion from thinning, there are still ways by which we can try to put a dent in what has been already known.

It is high time to join hands globally to fight back all the anomalies that are both fabricated and natural to seize the further degradation of the environment.

Environmental ethics as a discipline becomes essential here to make the humans have a shift in their thought process and act as benign stewards of the earth.

It calls for thinking globally and acting locally. In purview of the declining condition of the healthy environment, it gets impulsive to assure that steps are taken to maintain the prosperity of the environment.

In this context, mention may be made of the various conventions and protocols undertaken for the conservation of the environment. A brief categorization of the conventions and protocols for mitigating the environmental challenges can be made which can be given as-

a. Nature conservation
b. Land conservation
c. Atmosphere

Let us look into the conventions and protocols for mitigation under each head:

a. Nature Conservation:

- **Ramsar Convention on Wetlands, 1971:**

Ramsar Convention on Wetlands is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. The convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. Since then, almost 90% of UN member states from the entire world's geographic regions have acceded to become "Contracting parties". It was signed on second of February 1971.

The number of parties to the convention is 171. Montreux Record under Ramsar Convention is a register of wetland sites on the List of Wetlands of International Importance. Currently, two wetlands of India are in Montreux Record: Keoladeo National Park (Rajasthan) and Lohtak Lake (Manipur). As of now, 27 sites of India are listed as Ramsar sites.

- **Stockholm Convention, 1972:**

The Stockholm Convention was held in Sweden from June 5-16, 1972. The object behind the convention was to 'create a basis for comprehensive consideration within the United Nations of the problems of the human environment' and to focus the attention of Governments and public opinion in various countries on the importance of the problem'.

The convention paved the way for other international conventions on the preservation of the environment such as Conventional on International Trade in Endangered Species of Wild Fauna and Flora, 1973. In the same line, the Parliament of India passed the AIR (Prevention and Control of Pollution) Act, 1981, the Water (Prevention and Control Act, 1974 and the Forest Conservation Act, 1980 to give effect to the Stockholm Convention.

- **Convention On International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973:**

CITES is an international treaty to prevent species from becoming endangered or extinct because of international trade. Under this treaty, countries work together to regulate the international trade of animal and plant species and ensure that this trade is not detrimental to the survival of wild populations. It was in 1963 that the International Union for Conservation of Natural Resources (IUCN) called for an international convention on the trade in animal species and their products.

A first draft of the convention was produced in 1964, and in 1973 CITES was signed by 21 nations in Washington DC. It is also known as Washington Convention. The United Nations Environment Programme (UNEP) administers it. India is a CITES party since 1976. Out of 34 global biodiversity hotspots in the world, India has four of them: Western Ghats, Sundaland, Himalayas and Indo- Burma region. As an active CITES party, India prohibits the international trade of endangered wild species.

- **Convention on Migratory Species, 1979:**

CMS is also known as the Bonn Convention. It is the only convention that deals with taking or harvesting of species from the wild.

It currently protects 173 migratory species from across the globe. The convention came into force on November 1, 1983. Migratory species threatened with extinction are listed in appendix I of the convention. CMS parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them.

Migratory species that need pr would significantly benefit from international cooperation are listed in appendix II of the convention. For this reason, the convention encourages the Range States to conclude global or regional agreements. India has been a party to the convention since 1983.

India has signed a non- legally binding Memorandum of Understanding with CMS on conservation and management of Siberian cranes (1998), turtles (2007), dugongs (2008) and raptors (2016).

- **Convention on Biological Diversity (CBD), 1993:**

CBD is a step towards conserving biological diversity or biodiversity with the involvement of the entire world. It was opened for signature at the Earth Summit in Rio de Janeiro in 1992 and entered into effect in 1993. The convention has three main goals-

1. Conservation of biological diversity
2. Sustainable use of its components
3. Fair and equitable sharing of benefits arising from genetic resources.

It is often seen as the key document to sustainable development. The convention is legally binding; countries that joined are obliged to implement its provisions. 195 UN states and the European Union are parties to the convention.

b. Land Conservation:

- **United Nations Convention to combat Desertification (UNCCD), 1994:**

The convention stemmed from a direct recommendation of the Rio Conference's Agenda 21 in 1994. UNCCD is a convention to combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements.

The convention is based on the principles of participation, partnership and decentralization- the backbone of good governance and sustainable development. It has 197 parties, making it near universal reach.

c. Atmosphere:

- **Montreal Protocol, 1987:**

The Montreal Protocol on Substance is a global agreement to protect the ozone layer by phasing out the production of various substances that are responsible for ozone reduction. The main objective of the protocol was to protect the ozone layer by taking different steps to manage the production and consumption of depleting substances (0DS) and to remove it completely. The parties to the protocol mees once a year to make decisions aimed at ensuring the successful implementation of the agreement. These include adjusting or amending the protocol, when has been done six times since its creation. The most recent amendment, the Kigali amendment, called for the phase-down of hydrofluorocarbons (HFCs) in 2016.

These HFCs were used as replacements for a batch of ozone- depleting substances eliminated by the original Montreal protocol. Although they do not deplete the ozone layer, they are known to be powerful greenhouse gases and thus contributors to climate change. The protocol continues to provide an inspiring example of what international cooperation at its best can achieve.

- **Vienna Convention for Protection of the Ozone Layer:**

It is a multilateral environmental agreement agreed upon at the 1985 Vienna Conference and entered into force in 1988. It acts as a framework for international efforts to protect the ozone layer. These are laid out in the accompanying Montreal Protocol. It does not include legally binding reduction goals for the use of CFCs, the main chemical agents causing ozone depletion.

- **United Nations Framework Convention on Climate Change (UNFCCC), 1992:**

UNFCCC was negotiated at the Earth Summit 1992 and signed in the same year in New York City. It is an international environmental treaty that came into existence under the aegis of UN. Today it has near universal membership, as of 2019 it has 197 parties. UNFCCC provides a framework for negotiating specific international treaties that aim to set binding limits on greenhouse gases. Its main objective is to stabilize the greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous consequences. The treaty is legally nonbinding and sets no binding limits on greenhouse gas emission for individual countries.

- **Kyoto Protocol, 1997:**

This protocol was signed on 11th of December 1997 and waw effective from 16 February 2005 in Kyoto. Over 192 countries participated in the protocol. Its goal is to fight global warming by reducing greenhouse gas concentrations in the atmosphere to a level that would prevent dangerous anthropogenic interference with the climate system.

The protocol aimed to cut emissions of greenhouse gases across the developed world by about 5 percent by 2012 compared with 1990 levels. Kyoto protocol is the only global treaty with binding limits on greenhouse gas emissions and is based on the principle of common but differentiated responsibilities.

It is applied to six greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride. Classification of parties and their commitments- Kyoto Protocol.

Table 9.1: Kyoto Protocol

Annex I	Legally binding commitments to reduce emissions of greenhouse gases Developed countries [US, UK, Russia etc.] + Economies in transition (EIT) [Ukraine, Turkey, some Eastern European countries etc.]
Annex II	Developed countries (Annex Il is a subset of Annex I) Required to provide financial and technical support to the EITs and developing countries to assist them in reducing greenhouse gas emissions.
Annex B	Annex l Parties with first or second round Kyoto Protocol greenhouse gas emission targets. The first- round targets apply over the years 2008-2012 and the second-round target applies from 2013- 2020. Compulsory binding targets to reduce GHG emissions
Non - Annex I	Parties to the UNFCCC Not listed in Annex l of the convention (mostly low-income developing countries). No binding targets to reduce GHG emissions.
LDCs	Least Developed Countries. No binding targets to reduce GHG emissions.

Some other Conventions and initiatives of significance:

a. 1972, United Nations Conference on the Human Environment:

The United Nations Conference on Human Environment was first held in Stockholm, Sweden, in 1972. It marked the emergence of international environmental law. It is also known as The Declaration on the Human Environment. It set out principles for various international environmental issues, natural resource management, pollution prevention and the relationship between the environment and development.

b. 1972, World Heritage Convention:

The General Conference of UNESCO adopted the convention concerning the protection of World Cultural and Natural Heritage on 16 November. 1972. It links in a single document the concept of nature conservation and preservation of cultural properties. It identified the ways by which people interact with nature and the fundamental need to preserve the balance between the two. The convention defines the kind of natural and cultural sites, which can be considered as World Heritage Sites. It provides an explanation to how the World Heritage Fund is to be used and managed and under what conditions international financial assistance may be provided.

c. 1976, The Wild Life Trade Monitoring Network (TRAFFIC):

The TRAFFIC is a leading non-governmental organization, which works on the wildlife trade in the context of both biodiversity conservation and sustainable development. Established in 1976, it is a joint program of World Wildlife Fund (WWF) and the International Union for Conservation of Nature (IUCN).

The goal of the organization is to ensure that trade in wild plants and animals is not a threat to the conservation of nature. It has helped in the evolution of international wildlife trade treaties. It focusses on leveraging resources, expertise and awareness of the latest globally urgent species trade issue such as tiger parts, elephant ivory and rhino horn.

d. 1982, World Charter of Nature:

It was adopted by United Nations member nation-states on October 28, 1982. It proclaims 5 principles of conservation by which all human conduct affecting nature is to be guided and judged. Nature shall be secured against degradation caused by warfare or other hostile activities. It will ensure protection to representative samples of all the different types of ecosystems and the habitats of rare or endangered species.

e. 1989, Basel Convention:

The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as "hazardous wastes" based on their origin and/or composition and their characteristics, as well as two types of wastes defined as "other wastes" - household waste and incinerator ash.

The Conference of Plenipotentiaries in Basel, Switzerland adopted the convention on the Control of Trans boundary Movements of Hazardous Wastes and their Disposal on 22 March 1989.

The provisions of the Convention center around the following principal aims:

- the reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal;
- the restriction of trans boundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management; and
- a regulatory system applying to cases where trans boundary movements are permissible.

f. 1998, Rotterdam Convention:

The Rotterdam Convention on the Prior Informed Consent Procedure Hazardous Chemicals and Pesticides in International Trade was adopted in 1998 and entered into force in 2004. As of April 2016, it has 155 parties and thus its coverage is global.

The main objective of the Convention is to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use. The Rotterdam Convention serves as a first line of protection for Parties against the unwanted import of potentially harmful hazardous pesticides and industrial chemicals. The Convention covers 47 pesticides and industrial chemicals that have been banned or severely restricted for health or Parties have notified environmental reasons by Parties and which for inclusion in the Prior Informed Consent procedure.

g. 2015, International Solar Alliance:

In International Solar Alliance, over 122 countries participated and the same was initiated by India and founded in the year 2015. The main objective of this alliance is to increase the use of solar energy among the international Solar Alliance member countries in a convenient, safe, affordable and sustainable manner. Its vision and mission are to provide a dedicated platform for cooperation among solar resource- rich countries where the global community, including bilateral and multilateral organizations, corporate, industry and other stakeholders can make a positive contribution to assist and help achieve the common goals of increasing the use of solar energy in meeting energy needs of prospective ISA member countries in an equitable and sustainable manner. Its major objective includes global deployment of over 1000GW pf solar generation capacity and mobilization of investment of over US $1000 billion into solar energy by 2030.

h. 2015, Paris Agreement:

It is an international agreement to fight against climate change. The main objective of this agreement was to stop global warming and the threat of dangerous climatic changes. Over 195 countries participated in the agreement from 30 November to 11 December 2015. Its aim is to hold the increase in the global average temperature to well below 2℃ above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5℃ above pre-industrial levels.

Our planet is poised on the brink of a severe environmental crisis. The current environmental challenges make us vulnerable to disasters and tragedies, now and in the future to come. The need for a prudent and serious address to the challenges is necessary or else the entire species of human beings with other living creatures is not far away from its doom for disaster. The need of the hour is not merely to look for the solution to the environmental challenges but also sustain a healthy environment for the future generations. That brings into the scene the significance of the Sustainable Development Goals (SDGs). It has spoken of the goals that need to be met for a sustained living pertaining to a well-balanced environment giving priority to good health and living, clean water and sanitation, affordable and clean energy, responsible consumption and production patterns, climate action, life below water and life on land. Many research studies have been carried out and are in the process to look for ways to minimize the causes leading to the threats to the environment. In relation to climate change, new discoveries are made on a regular basis. There are instances, which are overlooked or considered less significant but still poses threat to the environment. In a recent study by scientists at Leipzig University, Imperial College

London and the Institute Pierre-Simon Laplace in Paris shows that high levels of aviation drive global warming, not only through greenhouse gas emissions, but also through additional clouds. They studied how Cirrus clouds, known for their high, wispy strands, contribute to warming the climate. “In order to mitigate or even avoid the warming effect on the climate, flight routes could be adapted in the future to avoid cirrus cloud formation, for example by separating flight corridors," said Professor Quass of Theoretical Meteorology at Leipzig University. The situation has become such that every corner of the planet has to be kept on a proper check. It is to be done because of the interrelation of the environmental challenges of one to the other.

It is high time to declare a permanent ceasefire and reconcile with nature if we want to secure a sustainable and safe future for us and the earth. For this, the emphasis on the challenges merely would not be beneficial enough but joining hands globally to mitigate through strict adherence to the previously mentioned conventions, protocols and initiatives appears must. Change and challenges of the environment are taking place at a pace of the fastest horses in the racecourse, so the initiatives to tackle the situation must also catch its pace. Mere living is not the scenario at present anymore, living and sustaining life on the planet has to be the trend now.

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