

BLOCK 4
GLOBAL ENVIRONMENTAL LAWS

BLOCK 4 GLOBAL ENVIRONMENTAL LAWS

Block 4 “Global Environmental Laws” discusses the outcome of the International Environmental Conventions, the Ramsar Convention, the CITES, MARPOL, UNCLOS and the Convention for the Conservation of Antarctic Seals and the Antarctic Treaty. The block also deals with the climate change policy and conventions dealing with biosafety.

Unit 13 “International Environmental Negotiations” deals with the outcome of the Stockholm Conference, the United Nations Conference on Environment and Development, 1992 and the World Summit on Sustainable Development, 2002.

Unit 14 “Habitat and Trade” deals with the key features of the Ramsar Convention, the CITES, MARPOL, UNCLOS and the Convention for the Conservation of Antarctic Seals and the Antarctic Treaty.

Unit 15 “Climate Change Policy” discuss with you the history of the climate change debate, the significance of the Kyoto Protocol and Paris Agreement on Climate Change, the Copenhagen summit 2009, the National Action Plan on Climate Change and the efforts of state governments in India to address climate change-related issues.

Unit 16 “Biosafety” deals with the Basel Convention, 1989, the Basel Ban Amendment and the Basel Action Network (BAN). Further, we will discuss the Cartagena Protocol on Biosafety (2003), the Stockholm Convention on Persistent Organics Pollutants (2004) and the Rotterdam Convention (2004).

Objectives

After studying this block, you should be able to:

- recognize the outcome of the Stockholm Conference and Principles of Stockholm Declaration;
- recognize the outcome of the United Nations Conference on Environment and Development, 1992;
- recognize the outcome of the World Summit on Sustainable Development, 2002;
- explain the important provisions of the Antarctic Treaty;
- explain the key features of the Ramsar Convention;
- explain the salient features of the CITES, MARPOL, UNCLOS and the Convention for the Conservation of Antarctic Seals.
- explain the significance of the Kyoto Protocol and Paris Agreement on Climate Change;
- discuss the National Action Plan on Climate Change;
- examine the efforts of state governments in India to address climate change-related issues;
- explain the features of the Basel Convention, 1989;
- explain the Cartagena Protocol on Biosafety, 2003;
- explain the features of the Stockholm Convention on Persistent Organic Pollutants, 2004; and
- explain the features of the Rotterdam Convention, 2004.

We hope that after studying this block, you will acquire an understanding of global environmental laws.

Wishing you success in this endeavour!

UNIT 13 INTERNATIONAL ENVIRONMENTAL NEGOTIATIONS

Environmental Policy
in Pre-independent
India

Structure

- 13.1 Introduction
- 13.2 Objectives
- 13.3 United Nations Conference on Human Environment, 1972
- 13.4 United Nations Conference on Environment and Development, 1992
- 13.5 Convention on Biodiversity, 1992
- 13.6 The World Summit on Sustainable Development, 2002
- 13.7 Let Us Sum Up
- 13.8 Key Words
- 13.9 Suggested Further Reading/References
- 13.10 Answers to Check Your Progress

13.1 INTRODUCTION

Over the years, many laws have been enacted to protect the environment to have synergies between environment and development. In the last fifty years, international environmental laws have evolved rapidly but at the same time the environmental risks have also become more apparent and their assessment and management more complex. The following conferences are the basis for the evolution of international laws and treaties.

The basic framework development, maturation and linkage of the environment with other areas were demarcated by two international conferences i.e., the 1972 Stockholm Conference, and the 1992 Rio Conference on Environment and Development. These agreements have been early pillars of international environmental law. One of the outcomes of the Stockholm conference was the establishment of the United Nations Environment Program (UNEP). Further progress was made by the Johannesburg declaration on Sustainable Development. It can be said that international environmental law has a significant impact in helping to shape countries' actions in addressing environmental problems and promoting sustainable development. In the light of these international conferences, various environmental policies in India have been developed that are not only focusing on the control of pollution but also in the positive directions that have been directed at the improvement of quality of life that depends on the health and viability of environment. In this unit, we will be discussing the outcome of the Stockholm Conference, the United Nations Conference on Environment and Development, 1992 and the World Summit on Sustainable Development, 2002.

13.2 OBJECTIVES

After studying this unit, you should be able to:

- recognize the outcome of the Stockholm Conference and Principles of Stockholm Declaration;
- recognize the outcome of the United Nations Conference on Environment and Development, 1992; and
- recognize the outcome of the World Summit on Sustainable Development, 2002.

13.3 UNITED NATIONS CONFERENCE ON HUMAN ENVIRONMENT, 1972

United Nations Conference on Human Environment, 1972 (Stockholm Conference) was the first world conference to make the environment a major issue. The participants adopted a series of principles for sound management of the environment including the Stockholm Declaration and Action Plan for the Human Environment and several resolutions. The Stockholm Declaration, which contained 26 principles, placed environmental issues at the forefront of international concerns and marked the start of a dialogue between industrialized and developing countries on the link between economic growth, the pollution of the air, water, and oceans and the well-being of people around the world. The Action Plan contained three main categories: 1) Global Environmental Assessment Programme; 2) Environmental management activities, and 3) International measures to support assessment and management activities carried out at the national and international levels.

Highlights

In announcing the 1972 UN Conference on the Human Environment in Stockholm (the “Stockholm Conference”), the UN General Assembly stated that the “main purpose” of the conference was to serve as a practical means to encourage and provide guidelines for action by Governments and international organizations designed to protect and improve the human environment. The UN General Assembly stated that the conference should endeavour to promote and advance guidelines for action by Governments and international organizations to remedy and prevent impairment of the environment, through international cooperation, while taking into consideration the particular importance of enabling developing countries to forestall the occurrence of such problems.

- The Stockholm Declaration provided the first global set of principles for future international cooperation on environmental issues.
- The Conference led to the establishment of the United Nations Environment Programme (UNEP).
- The Conference was the first UN event that supported civil society

participation.

- The Stockholm Conference began a new era of global cooperation to search for solutions to reconcile economic development and environmental management and paved the way for the concept of sustainable development.

Stockholm Declaration

The Stockholm Conference agreed upon a Declaration containing 26 principles concerning the environment and development; an Action Plan with 109 recommendations, and a Resolution.

- “Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. Through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale.
- The protection and improvement of the human environment is a major issue which affects the well-being of people and economic development throughout the world, it is the urgent desire of the people of the whole world and the duty of all Governments.
- In our time man can transform his surroundings, and the wise use of resources can bring to all people the benefits of development and the opportunity to enhance the quality of life.
- We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies, harmful to the physical, mental and social degradation of man, in the man-made environment.
- In developing countries, most of the environmental problems are caused by under-development. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment.
- Industrialized countries should make efforts to reduce the gap between themselves and the developing countries. In industrialized countries, environmental problems are generally related to industrialization and technological development.
- The natural growth of the population continuously presents problems for the preservation of the environment, and adequate policies and measures should be adopted.

- Along with social progress and the advance in production, science and technology, the capability of man to improve the environment should be increased. There are broad prospects for the enhancement of environmental quality and the creation of good life.
- To defend and improve the human environment for present and future generations has become an imperative goal for mankind - a goal to be pursued together with and in harmony with, the established and fundamental goals of peace and worldwide economic and social development.
- To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future.
- Local and national governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International co-operation is also needed to raise resources to support the developing countries in carrying out their responsibilities in this field.
- A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive co-operation among nations and action by international organizations in the common interest.
- The Conference calls upon Governments and people to exert efforts for the preservation and improvement of the human environment, for the benefit of all the people and their posterity”.

Principles of the Stockholm Declaration

- Human rights must be asserted, apartheid and colonialism condemned
- Natural resources must be safeguarded
- The Earth's capacity to produce renewable resources must be maintained
- Wildlife must be safeguarded
- Non-renewable resources must be shared and not exhausted
- Pollution must not exceed the environment's capacity to clean itself
- Damaging oceanic pollution must be prevented
- Development is needed to improve the environment
- Developing countries need assistance
- Developing countries need reasonable prices for exports to carry out environmental management
- Environment policy must not hamper development
- Developing countries need money to develop environmental safeguards

- Integrated development planning is needed
- Rational planning should resolve conflicts between the environment and development
- Human settlements must be planned to eliminate environmental problems
- Governments should plan their appropriate population policies
- National institutions must plan the development of states' natural resources
- Science and technology must be used to improve the environment
- Environmental education is essential
- Environmental research must be promoted, particularly in developing countries
- States may exploit their resources as they wish but must not endanger others
- Each nation must establish its standards
- There must be cooperation on international issues
- International organizations should help to improve the environment
- Weapons of mass destruction must be eliminated

The Stockholm Conference motivated countries around the world to monitor environmental conditions as well as to create environmental ministries and agencies. Despite these institutional accomplishments, including the establishment of UNEP, the failure to implement most of its action programmes has prompted the UN to have follow-up conferences.

Check Your Progress 1

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What are the highlights of the United Nations Conference on Human Environment?

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2. Write a short note on the principles of the Stockholm Declaration.

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13.4 UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT, 1992

The United Nations Conference on Environment and Development (UNCED), also known as the "Earth Summit", was held in Rio de Janeiro, Brazil, from 3-14 June 1992. This global conference held on the occasion of the 20th anniversary of the first Human Environment Conference in Stockholm, Sweden, in 1972, brought together political leaders, diplomats, scientists, representatives of the media and non-governmental organizations (NGOs) from 179 countries for a massive effort to focus on the impact of human socio-economic activities on the environment. A 'Global Forum' of NGOs was also held in Rio de Janeiro at the same time, bringing together an unprecedented number of NGO representatives, who presented their vision of the world's future in relation to the environment and socio-economic development.

The Rio de Janeiro conference highlighted how different social, economic and environmental factors are interdependent and evolve together, and how success in one sector requires action in other sectors to be sustained over time. The primary objective of the Rio Earth Summit was to produce a broad agenda and a new blueprint for international action on environmental and development issues that would help guide international cooperation and development policy in the twenty-first century.

The 'Earth Summit' concluded that the concept of sustainable development was an attainable goal for all the people of the world, regardless of whether they were at the local, national, regional or international levels. It also recognized that integrating and balancing economic, social and environmental concerns in meeting our needs is vital for sustaining human life on the planet and that such an integrated approach is possible. The conference also recognized that integrating and balancing economic, social and environmental dimensions required new perceptions of the way we produce and consume, the way we live and work, and the way we make decisions. This concept was revolutionary for its time, and it sparked a lively debate within governments and between governments and their citizens on how to ensure sustainability for development.

One of the major results of the UNCED Conference was Agenda 21, a program of action calling for new strategies to invest in the future to achieve overall sustainable development in the 21st century. Its recommendations ranged from new methods of education to new ways of preserving natural resources and new ways of participating in a sustainable economy.

The Earth Summit had many great achievements: the Rio Declaration and its 27 universal principles, the United Nations Framework Convention on

Climate Change (UNFCCC), the Convention on Biological Diversity; and the Declaration on the principles of forest management. It also led to the creation of the Commission on Sustainable Development, the holding of the first world conference on the sustainable development of small island developing states in 1994, and negotiations for the establishment of the agreement on straddling stocks and highly migratory fish stocks. Through treaties and other documents signed at the conference, most of the world's nations nominally committed themselves to the pursuit of economic development in ways that would protect the Earth's environment and non-renewable resources.

The Convention on Biological Diversity is a binding treaty requiring nations to take inventories of their plants and wild animals and protect their endangered species. The United Nations Framework Convention on Climate Change (UNFCCC), or Global Warming Convention, is a binding treaty that requires nations to reduce their emission of carbon dioxide, methane, and other “greenhouse” gases thought to be responsible for global warming; the treaty stopped short of setting binding targets for emission reductions, however. Such targets were eventually established in an amendment to the UNFCCC, the Kyoto Protocol (1997), which was superseded by the Paris Agreement on climate change (2015).

The Declaration on Environment and Development, or Rio Declaration, laid down 27 broad, non-binding principles for environmentally sound development. Agenda 21 outlined global strategies for cleaning up the environment and encouraging environmentally sound development.

Principles of Rio Conference

The Rio Conference has set forth the following principles with the “goal of establishing a new and equitable global partnership through the creation of new levels of cooperation among States, key sectors of societies and people, and working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system” (<https://www.cbd.int/doc/ref/rio-declaration.shtml>).

- “Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.
- States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their resources according to their own environmental and developmental policies, and 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 the limits of national jurisdiction.
- The right to development must be fulfilled to equitably meet the developmental and environmental needs of present and future generations.

- To achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.
- All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.
- The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.
- States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. Given the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.
- To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.
- States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.
- Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.
- States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of

unwarranted economic and social cost to other countries, in particular developing countries.

- States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.
- States shall develop national laws regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control of areas beyond their jurisdiction.
- States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.
- To protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
- National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.
- Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.
- States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help the States so afflicted.
- States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a

significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

- Women have a vital role in environmental management and development. Their full participation is therefore essential to achieving sustainable development.
- The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership to achieve sustainable development and ensure a better future for all.
- Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.
- The environment and natural resources of people under oppression, domination and occupation shall be protected.
- Warfare is inherently destructive of sustainable development. States shall therefore respect international law to provide protection for the environment in times of armed conflict and cooperate in its further development, as necessary.
- Peace, development and environmental protection are interdependent and indivisible.
- States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.
- States and people shall cooperate in good faith and a spirit of partnership in the fulfilment of the principles embodied in this Declaration and the further development of international law in the field of sustainable development”.

Indeed, there should be a holistic approach to the problems of environment, ecology, poverty and population, and of socially indefensible excess of consumption. The bio-future in the wider sense is in peril if we don't heed these urgent needs.

13.5 CONVENTION ON BIODIVERSITY, 1992

The Convention on Biological Diversity (CBD), also called the Biodiversity Treaty, is an international treaty designed to promote the conservation of biodiversity and to ensure the sustainable use and equitable sharing of genetic resources. Work on the treaty concluded in Nairobi in May 1992 with the adoption of the Nairobi Final Act by the Nairobi Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity. The convention was opened for signatures at the United Nations Conference on Environment and Development, or Earth

Summit, in June 1992 and entered into force in December of that year. The parties to the convention include some 190 countries (though not the United States) and the European Union.

The convention calls for the conservation of genetic resources by preserving sensitive ecosystems, rehabilitating degraded ecosystems, and enacting legislation that protects endangered plant and animal species. Additionally, the treaty requests financial assistance for developing countries so that they can afford programs designed to conserve their biological resources. The Conference of Parties, the governing body of the convention, has established thematic programs that set goals and strategies for conserving genetic resources in each of several major types of ecosystems: marine and coastal areas, inland waterways, forests, mountain areas, agricultural areas, and dry and sub-humid lands.

The main aim of CBD is to conserve and sustainably use the biological wealth, including the diversity of natural ecosystems, wild animals, plant species, genes and habitats. Further, CBD encourages actions, which will lead to a sustainable future. There is a provision for developed countries to help developing countries conserve their wildlife and plants initially through GEF (Global Environment Facility), which is an institutional structure to operate the financial mechanism of the Convention.

The Convention on Biological Diversity covers biodiversity at all levels: ecosystems, species and genetic resources. It also covers biotechnology. It covers all possible domains that are directly or indirectly related to biodiversity and its role in development, ranging from science, politics and education to agriculture, business, culture and much more.

The CBD's governing body is the Conference of the Parties (COP). This ultimate authority of all governments (or Parties) that have ratified the treaty meets every two years to review progress, set priorities and commit to work plans.

The Secretariat of the Convention on Biological Diversity (SCBD) is based in Montreal, Canada. Its main function is to assist governments in the implementation of the CBD and its programmes of work, organize meetings, draft documents, coordinate with other international organizations and collect and spread information. The Executive Secretary is the head of the Secretariat.

Objectives of CBD

- Conservation of biological diversity.
- Substantial use of components of biological diversity.
- Fair and equitable sharing of the benefits arising out of the use of genetic resources.

The CBD is the key international instrument for sustainable development in ecosystems, species and genetic resources should be used for the benefit of

humans, but in a way that does not lead to the decline of biodiversity. Substantial investments are required to conserve biodiversity, but they will bring significant environmental, economic and social benefits in return. The Ecosystem Approach, an integrated strategy for the management of resources, is the framework for action under the Convention. The precautionary principle states that where there is a threat of significant reduction or loss of biodiversity, a lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

To address the linkage between biodiversity conservation and its sustainable use, the Convention on Biological Diversity (CBD) introduced as one of its three objectives the fair and equitable sharing of the benefits arising out of the utilization of genetic resources with those providing such resources. The inclusion of access and benefit sharing (ABS) as an objective of the CBD was based on the premise that biodiversity has been used by public institutions and private entities to produce new knowledge and products that brought various benefits to its new users, but not necessarily for its original owners or custodians.

It is the ABS aspect that entails the greatest interface between Intellectual Property Rights (IPR) and biodiversity issues. Clear, fair and equitable rules on ABS are critical to prevent the misappropriation of genetic resources and associated traditional knowledge (TK), a situation also sometimes referred to as 'biopiracy'.

13.6 THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT, 2002

The World Summit on Sustainable Development (WSSD) was organized by the United Nations (UN) in Johannesburg in 2002. It was held 10 years after the Earth Summit in Rio de Janeiro which focused world governments on environmental issues for the first time. So, the Johannesburg World Summit on Sustainable Development marked a continuation of the earlier efforts of Agenda 21. It was meant to reaffirm Agenda 21 as well as broaden the sustainable development debate to encourage partnerships between government, business, and civil society.

It is an international agreement on the environment and sustainable development. The Johannesburg Declaration reiterates most of the proposals from the Rio Declaration on Environment and Development and Agenda 21. This summit in Johannesburg also included a huge number of delegates representing nations, business interests and non-profit environmental and development/citizen/social justice groups. It was the largest UN conference to date when over 100 heads of state and 40,000 delegated participated and came forward to set up the goals to halt poverty around the world whilst saving the environment at the same time. It covered everything from measures to cut poverty, improve sanitation, improve ecosystems, reduce

pollution, and improve energy supply for poor people.

Highlights of the Johannesburg Declaration

The United Nations highlighted several of the Summit's achievements (<https://thelawmatics.in/earth-summit-2002-johannesburg-declaration-on-sustainable-development/>)

Water and Sanitation

- Commitment to reduce by half the proportion of people without access to sanitation by 2015.

Energy

- Commitment to increase access to modern energy services, energy efficiency, and the use of renewable energy.

Health

- A commitment that by 2020, chemicals should be used and produced in ways that do not harm human health and the environment.
- To enhance cooperation to reduce air pollution.
- To improve developing countries' access to environmentally sound alternatives to ozone-depleting chemicals by 2010.

Agriculture

- The Global Environmental Facility (GEF) will consider the Convention to Combat Desertification as a focal area for funding.

Biodiversity and Ecosystem Management

- Commitment to reduce biodiversity loss by 2010.
- Reverse the current trend in natural resource degradation.
- Restore fisheries to their maximum sustainable yields by 2015.
- Establish a representative network of marine protected areas by 2012.
- Improve developing countries' access to environmentally sound alternatives to ozone-depleting chemicals by 2010.
- Undertake initiatives by 2004 to implement the Global Program of Action for the Protection of the Marine Environment from Land-Based Sources of Pollution.

Other Issues

- Recognition that opening access to markets is a key to development for many countries.
- Support the phase-out of all forms of export subsidies.

- Commitment to establishing a 10-year framework of programs on sustainable consumption and production.
- Commitment to actively promote corporate responsibility and accountability.
- Commitments to develop and strengthen a range of activities to improve preparedness and response for natural disasters.

Check Your Progress 2

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What is the outcome of the United Nations Conference on Environment and Development?

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2. Explain the principles of the Rio Conference.

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3. Write a short note on the Convention on Biodiversity, 1992.

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4. Explain the outcome of the World Summit on Sustainable Development, 2002.

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13.7 LET US SUM UP

The increasingly unequal and resource-intensive development model is degrading the Earth's finite capacity to sustain human well-being. Therefore, today there is a need for an extraordinary effort by both rich and poor countries to solve environmental problems. Rich countries would need to reflect on their excessive consumption patterns. The poor nations, with some financial assistance, should improve their energy efficiency levels and reach sustainable levels of development. Society must restore this capacity and adapt to it. The interconnected environmental emergencies of climate change, loss of biodiversity and pollution need to be addressed together by implementing various environmental laws. In this unit, we have discussed the outcome of the United Nations Conference on Human Environment, 1972, the United Nations Conference on Environment and Development, 1992 and the World Summit on Sustainable Development, 2002.

13.8 KEY WORDS

Sustainable Development: Our Common Future defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Convention on Biological Diversity (CBD): The Convention on Biological Diversity (CBD) is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources", that has been ratified by 196 nations.

Ecosystem: Ecosystem means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Sustainable Use of Biodiversity: Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

13.9 SUGGESTED FURTHER READING/REFERENCES

Aggarwal, V.K. (2005). Environmental Laws in India: Challenges for Enforcement. Bulletin of the National Institute of Ecology. Vol.15: 227-238.

Web Links

<https://www.un.org/en/conferences/environment/stockholm1972>

<https://worldservice.org/stockholm.html>

https://en.wikipedia.org/wiki/United_Nations_Conference_on_the_Human_Environment#cite_note-11

<https://www.un.org/en/conferences/environment/rio1992>

<https://www.cbd.int/doc/ref/rio-declaration.shtml>

<https://thelawmatics.in/earth-summit-2002-johannesburg-declaration-on-sustainable-development/>

13.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. Please refer to section 13.3
2. Please refer to section 13.3

Check Your Progress 2

1. Please refer to section 13.4
2. Please refer to section 13.4
3. Please refer to section 13.5
4. Please refer to section 13.6



Structure

- 14.1 Introduction
- 14.2 Objectives
- 14.3 The Antarctic Treaty, 1959
 - 14.3.1 Important Provisions of the Treaty
- 14.4 The Ramsar Convention, 1971
- 14.5 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- 14.6 The International Convention for the Prevention of Pollution from Ships (MARPOL)
- 14.7 The Convention for the Conservation of Antarctic Seals
- 14.8 The United Nations Convention on the Law of the Sea (UNCLOS), 1982
- 14.9 Let Us Sum Up
- 14.10 Key Words
- 14.11 Suggested Further Reading/References
- 14.12 Answers to Check Your Progress

14.1 INTRODUCTION

International trade has a direct impact on the habitat of biodiversity, and imported invasive species and pathogens, are some examples of the impact of international trade. Trade also impacts global water, land, and deforestation. Economic theory shows that trade with countries that fail to protect a renewable resource can be detrimental for all.

The illegal wildlife trade has many negative consequences for human well-being and species conservation. The trade in endangered species weakens entire ecosystems and also threatens essential links of the world's biological diversity. Biodiversity loss is one of the greatest global threats in our time, and it also means a narrower genetic pool and therefore less resilience to resist diseases of any kind.

Criminal wildlife trafficking networks also undermine the country's abilities to tackle the balance between biodiversity conservation and development, they force governments to divert human and financial resources that could be allotted to other needs. Therefore, the CITES, Ramsar Convention and other multilateral environmental agreements provide a global, legally-binding framework to conserve wildlife and biodiversity, while frequently contributing to building bridges between governments, the private sector and civil society, so that everyone can contribute to this common and essential

mission of sustainable development. In this unit, we will be discussing the key features of the Ramsar Convention, the CITES, MARPOL, UNCLOS and the Convention for the Conservation of Antarctic Seals. Further, we will be discussing the important provisions of the Antarctic Treaty.

14.2 OBJECTIVES

After studying this unit, you should be able to:

- explain the important provisions of the Antarctic Treaty;
- explain the key features of the Ramsar Convention; and
- explain the salient features of the CITES, MARPOL, UNCLOS and the Convention for the Conservation of Antarctic Seals.

14.3 THE ANTARCTIC TREATY, 1959

The Antarctic Treaty, 1959 encouraged the freedom of scientific investigation and the exchange of scientific information and personnel in Antarctica. This treaty was signed in Washington on 1 December 1959 by the twelve countries whose scientists had been active in and around Antarctica during the International Geophysical Year (IGY) of 1957-58. It entered into force in 1961. India is also a member of the Antarctic Treaty. The total number of parties to the treaty is now 54.

14.3.1 Important Provisions of the Treaty

Article I — Peaceful Purposes

1. Antarctica shall be used for peaceful purposes only. The treaty outlaws any measure of a military nature, such as the establishment of military bases and fortifications, the carrying out of military manoeuvres, as well as the testing of any type of weapon.
2. The treaty shall not prevent the use of military personnel or equipment for scientific research or any other peaceful purpose.

Article II — Freedom of Scientific Investigation

Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the treaty.

Article III — International Scientific Cooperation

1. To promote international cooperation in scientific investigation in Antarctica, as provided for in Article II of the treaty, the parties agree that to the greatest extent feasible and practicable:
 - a. information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;

- b. scientific personnel shall be exchanged in Antarctica between expeditions and stations;
 - c. scientific observations and results from Antarctica shall be exchanged and made freely available.
2. In implementing this Article, every encouragement shall be given to the establishment of cooperative working relations with those Specialized Agencies of the United Nations and other international organizations having scientific or technical interest in Antarctica.

Article IV — Territorial Sovereignty

Nothing in the treaty will be interpreted as a renunciation of any party's claim to sovereignty, as a renunciation or diminution of any party's basis of the claim, or as prejudicing the position of any party regarding recognition or non-recognition of another party's claim or basis of claim. The article also specifies, that while the treaty is in force no acts or activities will constitute a basis for asserting, supporting or denying a claim or creating any rights of sovereignty in Antarctica. This Article, in effect, minimizes the disputes over claims to sovereignty in Antarctica.

Article V — Nuclear Activity

Any nuclear explosions in Antarctica and the disposal there of radioactive waste material shall be prohibited.

Article VI — Geographical Coverage

The provisions of the treaty shall apply to the area south of 60° South Latitude, including all ice shelves, but nothing in the treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

Article VII — Inspections

1. To promote the objectives and ensure the observance of the provisions of the treaty, the signatory parties and acceding parties (qualified to attend the consultative meetings) could send observers anywhere in Antarctica at any time.
2. The observers are permitted to inspect stations, installations, and equipment as well as ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica.
3. Aerial observation by any country has the right to send observers is also permitted.

Article VIII — Jurisdiction

1. Each party has exclusive jurisdiction over its nationals who are observers designated under the treaty for inspection purposes or scientific personnel exchanged between expeditions or stations in Antarctica, in

respect of all acts or omissions, occurring while such persons are in Antarctica to exercise their functions.

Article IX — Treaty Meetings

1. Representatives of the contracting parties named in the preamble to the treaty shall meet from time to time regarding:
 - use of Antarctica for peaceful purposes only;
 - facilitation of scientific research in Antarctica;
 - facilitation of international scientific cooperation in Antarctica;
 - facilitation of the exercise of the rights of inspection provided for in Article VII of the Treaty;
 - questions relating to the exercise of jurisdiction in Antarctica;
 - Preservation and conservation of living resources in Antarctica.

Article X — Activities contrary to Treaty

Each of the contracting parties undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the treaty.

Article XI — Disputes between Parties

1. If any dispute arises between two or more of the contracting parties concerning the interpretation or application of the treaty, those contracting parties shall consult among themselves to have the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.
2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement.

Article XII — Modification and Duration

The Antarctic Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX. Any such modification or amendment shall enter into force when the depository Government has received notice from all such contracting parties that they have ratified it.

Article XIII — Ratification and entry into force

1. The Antarctic Treaty shall be subject to ratification by the signatory states. It shall be open for accession by any state which is a Member of the United Nations, or by any other state which may be invited to accede to the treaty with the consent of all the contracting parties whose representatives are entitled to participate in the meetings provided for

under Article IX of the treaty.

2. Ratification of or accession to the treaty shall be effected by each state in accordance with its constitutional processes.
3. Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.
4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, the date of entry into force of the treaty and any modification or amendment thereto.
5. Upon the deposit of instruments of ratification by all the signatory states, the treaty shall enter into force for those states and for states which have deposited instruments of accession. Thereafter, the treaty shall enter into force for any acceding State upon the deposit of its instruments of accession.
6. The treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

Article XIV — Deposition

The Antarctic Treaty, done in the English, French, Russian and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transmit duly certified copies thereof to the Governments of the signatory and acceding states.

Source:

https://documents.ats.aq/keydocs/vol_1/vol1_2_AT_Antarctic_Treaty_e.pdf;

<https://www.gc.noaa.gov/documents/1959-Antarctic-treaty.pdf>

14.4 THE RAMSAR CONVENTION, 1971

A wetland is a distinct ecosystem where the land is covered by water, either salt or fresh or somewhere in between. It exists all around the world from polar to tropical regions and from high altitudes to dry regions. Wetlands are the ecotones or transitional zones between permanently aquatic and dry terrestrial ecosystems. Ramsar Convention has defined wetlands as “areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters”. A wide variety of wetlands like marshes, swamps, open water bodies, mangroves and tidal flats and salt marshes etc. exist in our country.

Under the Ramsar Convention, a wide variety of natural and human-made habitat types ranging from rivers to coral reefs can be [classified as wetlands](#).

Wetlands include swamps, marshes, billabongs, lakes, salt marshes, mudflats, mangroves, coral reefs, fens, peat bogs, or bodies of water - whether natural or artificial, permanent or temporary, water within these areas can be static or flowing; fresh, brackish or saline; and can include inland rivers and coastal or marine water to a depth of six metres at low tide.

The wetlands show several characteristic features that are determined by the combination of salinity of the water, soil types and flora and fauna in that habitat. The wetlands are categorized into different types

- Marine (coastal wetlands including coastal lagoons, rocky shores, and coral reefs)
- Estuarine (including deltas, tidal marshes, and mangrove swamps)
- Lacustrine (wetlands associated with lakes)
- Riverine (wetlands along rivers and streams) and
- Palustrine (meaning “marshy” – marshes, swamps and bogs)
- Human-made wetlands such as reservoirs, [fish ponds](#), flooded mineral workings, saltpans, [sewage farms](#), and canals.

Ecosystem Services Provided by Wetlands

Depending partly on the wetland's geographic and topographic location, the functions it performs can support multiple ecosystem services, values, and benefits. Wetlands provide ecosystem services like

- Water storage (flood control)
- Groundwater replenishment
- Shoreline stabilization and storm protection (erosion control)
- Water purification
- Reservoirs of biodiversity
- Pollination
- Wetland products
- Cultural values
- Recreation and tourism
- Climate change mitigation and adaptation

Need for Conserving Wetlands

The economic worth of the ecosystem services provided to society by intact, naturally functioning wetlands is frequently much greater than the perceived benefits of converting them to ‘more valuable’ intensive land use. To replace these wetland ecosystem services, enormous amounts of money would need to be spent on water purification plants, dams, levees, and other hard infrastructure, and many of the services are impossible to replace. Wetlands are dynamic and complex and are under the influence of an array of biotic and abiotic factors. The most significant factor that determines the nature of a

wetland is its hydrologic regime. Even for minor changes in the hydrological regime of wetlands, biota may respond at times markedly in terms of species composition, richness, trophic relations and ecosystem productivity.

The Ramsar Convention

It is to conserve and use wisely all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world. It is also known as the **Convention on Wetlands**. It is named after the city of Ramsar in Iran, where the convention was signed in 1971.

The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. This requires international cooperation, policy-making, capacity building and technology transfer. The convention works on three principles that define the purpose of the Ramsar Convention:

1. **Wise Use** – To work towards the wise use of all wetlands.
2. **List of Wetlands of International Importance** – Designate suitable wetlands under the Ramsar List to effectively manage those. The list of wetlands of international importance included 2,331 Ramsar sites in May 2018 covering over 2.1 million square kilometres (810,000 square miles).
3. **International Co-operation** – To bring cooperation internationally over the transboundary wetlands, shared wetland systems and shared species.

The Convention provides a framework for international cooperation and was established following concern in the 1960s about the serious decline in populations of waterfowl (mainly ducks). A list of sites was made where changes in ecological character have occurred, are occurring or are likely to occur, the consequent study of threats to the wetland.

The Ramsar Convention is thus vitally important in the conservation of the world's wetlands. It encourages the designation of sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity. Once designated, these sites are added to the Convention's List of Wetlands of International Importance and are then called Ramsar sites. In designating a wetland as a Ramsar site, countries agree to establish and oversee a management framework aimed at conserving the wetland and ensuring its wise use. Wise use under the Convention is broadly defined as maintaining the ecological character of a wetland. Wetlands can be included on the List of Wetlands of International Importance because of their ecological, botanical, zoological, limnological or hydrological importance.

Wetlands are areas where water is the primary factor controlling the environment and the associated plant and animal life. Wetlands are integral to a healthy environment. They help to retain water during dry periods, thus

keeping the water table high and relatively stable. At the time of the flood, they act to reduce flood levels and trap suspended solids and nutrients in the lakes. Compared to tropical rain forests and coral reefs, wetlands are remarkable in their biological productivity. Concerning species richness and species diversity, these ecosystems stand higher than most other ecosystems. Wetlands are diverse and unique in structure, characteristics and functions, probably much more than other ecosystems.

India and Wetland Conservation

Ramsar Convention entered into force in India on 1st February 1981. India currently has 49 sites designated as Wetlands of International Importance (Ramsar Sites), with a surface area of 1,093,636 hectares. Four new sites have been added to the list of Ramsar Sites in India in August 2021. These are:

- Sultanpur National Park – Gurugram, Haryana.
- Bhindawas Wildlife Sanctuary – Jhajjar, Haryana.
- Thol Lake Wildlife Sanctuary – Near Ahmedabad, Gujarat.
- Wadhvana Wetland – Vadodara, Gujarat.

Two new Ramsar sites were announced by Minister for Environment, Forest and Climate Change, Shri Bhupender Yadav on World Wetlands Day 2nd Feb 2022. The two new Ramsar sites are Khijadia Wildlife Sanctuary in Gujarat and Bakhira Wildlife Sanctuary in Uttar Pradesh. Thus, increasing the total number of Ramsar sites to 49.

Table 14.1: Location of Ramsar Site in India

Sl. No.	Name of Site	State Location	Date of Declaration	Area (in Sq. km.)
1	Kolleru Lake	Andhra Pradesh	19.8.2002	901
2	Deepor Beel	Assam	19.8.2002	40
3	Kabartal Wetland	Bihar	21.07.2020	26.20
4	Khijadia Wildlife Sanctuary	Gujarat	13.04.2021	5.12
5	Nalsarovar Bird Sanctuary	Gujarat	24.09.2012	120
6	Thol Lake Wildlife Sanctuary	Gujarat	05.04.2021	6.99
7	Wadhvana Wetland	Gujarat	05.04.2021	6.30
8	Bhindawas Wildlife	Haryana	25.05.2021	4.12

	Sanctuary			
9	Sultanpur National Park	Haryana	25.05.2021	1.425
10	Chandertal Wetland	Himachal Pradesh	8.11.2005	0.49
11	Pong Dam Lake	Himachal Pradesh	19.8.2002	156.62
12	Renuka Wetland	Himachal Pradesh	8.11.2005	0.2
13	Wular Lake	Jammu & Kashmir	23.3.1990	189
14	Hokera Wetland	Jammu and Kashmir	8.11.2005	13.75
15	Surinsar-Mansar Lakes	Jammu and Kashmir	8.11.2005	3.5
16	Tsomoriri Lake	Jammu and Kashmir	19.8.2002	120
17	Asthamudi Wetland	Kerala	19.8.2002	614
18	Sasthamkotta Lake	Kerala	19.8.2002	3.73
19	Vembanad Kol Wetland	Kerala	19.8.2002	1512.5
20	Tso Kar Wetland Complex	Ladakh	17.11.2020	95.77
21	Bhoj Wetlands	Madhya Pradesh	19.8.2002	32.01
22	Lonar Lake	Maharashtra	22.7.2020	4.27
23	Nandur Madhameshwar	Maharashtra	21.6.2019	14.37
24	Loktak Lake	Manipur	23.3.1990	266
25	Bhitarkanika Mangroves	Orissa	19.8.2002	650
26	Chilka Lake	Orissa	1.10.1981	1165
27	Beas Conservation Reserve	Punjab	26.9.2019	64.289
28	Harike Lake	Punjab	23.3.1990	41
29	Kanjli Lake	Punjab	22.1.2002	1.83
30	Keshopur-Miani Community Reserve	Punjab	26.9.2019	3.439

31	Nangal Wildlife Sanctuary	Punjab	26.9.2019	1.16
32	Ropar Lake	Punjab	22.1.2002	13.65
33	Keoladeo Ghana NP	Rajasthan	1.10.1981	28.73
34	Sambhar Lake	Rajasthan	23.3.1990	240
35	Point Calimere Wildlife and Bird Sanctuary	Tamil Nadu	19.8.2002	385
36	Rudrasagar Lake	Tripura	8.11.2005	2.4
37	Bakhira Wildlife Sanctuary	Uttar Pradesh	29.06.2021	28.94
38	Haiderpur Wetland	Uttar Pradesh	8.12.2021	69.08
39	Nawabganj Bird Sanctuary	Uttar Pradesh	19.9.2019	2.246
40	Parvati Agra Bird Sanctuary	Uttar Pradesh	2.12.2019	7.22
41	Saman Bird Sanctuary	Uttar Pradesh	2.12.2019	52.63
42	Samaspur Bird Sanctuary	Uttar Pradesh	3.10.2019	79.94
43	Sandi Bird Sanctuary	Uttar Pradesh	26.9.2019	30.85
44	Sarsai Nawar Jheel	Uttar Pradesh	19.9.2019	16.13
45	Sur Sarovar	Uttar Pradesh	21.8.2020	4.31
46	Upper Ganga River (Brijghat to Narora Stretch)	Uttar Pradesh	8.11.2005	265.9
47	Asan Conservation Reserve	Uttarakhand	21.7.2020	4.444
48	East Kolkata Wetlands	West Bengal	19.8.2002	125
49	Sunderbans Wetland	West Bengal	30.1.2019	4230

(Source: Ministry of Environment & Forests, Government of India)

Check Your Progress 1

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What are the salient features of the Antarctic Treaty, 1959?

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2. Write a short note on the Ramsar Convention, 1972.

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14.5 THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. It aims to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. **CITES was drafted as a result of a resolution adopted in 1963** at a meeting of members of the International Union for Conservation of Nature (IUCN). **CITES entered into force in July 1975.** Currently, there are 183 Parties (including countries or regional economic integration organizations). **The CITES Secretariat** is administered by UNEP (The United Nations Environment Programme) and is **located in Geneva, Switzerland.** It plays a coordinating, advisory and servicing role in the **working of the Convention (CITES).** The Conference of the Parties to CITES is the **supreme decision-making body** of the Convention and comprises all its Parties. Although CITES is **legally binding on the Parties,** it does not take **the place of national laws.** Rather, **it provides a framework to be respected by each Party,** which has to **adopt its domestic legislation** to ensure that CITES is implemented at the national level.

The CITES works by subjecting international trade in specimens of selected species to certain controls. All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a licensing system. Each party to the Convention must designate one or more “Management Authorities” in charge of administering the licensing system and one or more “Scientific Authorities” to advise them on the effects of trade on the status of the species. Appendices I, II and III to the Convention are lists of species afforded different levels or types of protection from over-exploitation.

Appendix I lists species that are the **most endangered** among CITES-listed animals and plants. Examples include **gorillas, sea turtles, most lady slipper orchids, and giant pandas**. Currently, **931 species are listed**. They are threatened with extinction and CITES **prohibits international trade** in specimens of these species **except when the purpose of the import is not commercial**, for instance for scientific research. In these exceptional cases, trade may take place provided it is authorized by the granting of both an import permit and an export permit (or re-export certificate).

Appendix II lists species that are **not necessarily now threatened with extinction but that may become so unless trade is closely controlled**. **Most CITES species are listed in this Appendix**, including American ginseng, **paddlefish, lions, American alligators, mahogany and many corals**. Currently, **34,419 species are listed**. It also includes so-called "**look-alike species**", i.e., species whose specimens in trade look like those of species listed for conservation reasons. **International trade** in specimens of Appendix-II species may be **authorized by the granting of an export permit or re-export certificate**. **No import permit is necessary** for these species under CITES. Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild.

Appendix III includes species that are listed at the request of a party that **already regulates trade** in the species and that **needs the cooperation of other countries** to prevent unsustainable or illegal exploitation. Examples include **map turtles, walruses and Cape stag beetles**. Currently, **147 species are listed**. **International trade** in specimens of species listed in this Appendix is **allowed only on presentation of the appropriate permits or certificates**.

India is one of the recognized **mega-diverse countries** of the world, harbouring nearly **7-8% of the recorded species** of the world, and representing **4 of the 34** globally identified biodiversity **hotspots** (Himalaya, Indo-Burma, Western Ghats and Sri Lanka, Sundaland). **India, being a CITES party, actively prohibits the international trade of endangered wild species** and several measures are in place to control threats from invasive alien species.

14.6 THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS (MARPOL)

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering the prevention of pollution of the marine environment by ships from operational or accidental causes. The MARPOL Convention was adopted on 2 November 1973 at IMO (International Maritime Organization). The Protocol of 1978 was adopted in response to a spate of tanker accidents in 1976-1977. As the 1973 MARPOL

Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument entered into force on 2 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes.

Annexe I Regulations for the Prevention of Pollution by Oil

Annexe I covers the prevention of pollution by oil from operational measures as well as from accidental discharges; the 1992 amendments to Annex I made it mandatory for new oil tankers to have double hulls and brought in a phase-in schedule for existing tankers to fit double hulls, which was subsequently revised in 2001 and 2003.

Annexe II Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk

Annexe II Details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk; some 250 substances were evaluated and included in the list appended to the Convention; the discharge of their residues is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are complied with. In any case, no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land.

Annexe III Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form

Annexe III contains general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications.

Annexe IV Prevention of Pollution by Sewage from Ships

Annexe IV contains requirements to control pollution of the sea by sewage; the discharge of sewage into the sea is prohibited, except when the ship has in operation an approved sewage treatment plant or when the ship is discharging comminuted and disinfected sewage using an approved system at a distance of more than three nautical miles from the nearest land; sewage which is not comminuted or disinfected has to be discharged at a distance of more than 12 nautical miles from the nearest land.

Annexe V Prevention of Pollution by Garbage from Ships

Annexe V deals with different types of garbage and specifies the distances from land and how they may be disposed of; the most important feature of the Annex is the complete ban imposed on the disposal into the sea of all

forms of plastics.

Annexe VI Prevention of Air Pollution from Ships

Annexe VI sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone-depleting substances; designated emission control areas set more stringent standards for SO_x, NO_x and particulate matter.

IMO International Maritime Organization 2020

As of 1 January 2020, new emission standards are enforced for fuel oil used by ships, in a regulation known as IMO 2020. The global sulphur limit (outside Sulphur Emission Control Areas) dropped from an allowed 3.5% sulphur in marine fuels to 0.5%. This will significantly improve the air quality in many populated coastal and port areas, which will prevent over 100,000 early deaths each year, and many more cases of asthma in these regions and cities. This is expected to create massive changes for the shipping and oil industries, with major updates required to ships and the increased production of lower sulphur fuel.

The IMO has worked on ensuring consistent implementation of the 0.5% sulphur limit in its Marine Environmental Protection Committee (MEPC) and its subcommittee on Pollution Prevention and Response (PPR). This has led to the development of several regulatory and practical measures to enable any non-compliance to be detected.

14.7 THE CONVENTION FOR THE CONSERVATION OF ANTARCTIC SEALS

The Convention for the Conservation of Antarctic Seals (CCAS), which is aimed at protecting the stocks of Antarctic seals from commercial exploitation, was signed on 1 June 1972. It entered into force in 1978. The purpose of the Convention is to promote and achieve the objectives of protection, scientific study and rational use of Antarctic seals, and to maintain a satisfactory balance within the ecological system. The Convention applies to the seas south of 60° South Latitude, in respect of which the Contracting Parties affirm the provisions of Article IV of the Antarctic Treaty. This Convention may apply to any or all of the following species: Southern elephant seal; Leopard seal; Weddell seal; Crabeater seal; Ross seal; Southern fur seals (Article 1).

Article 2 Implementation

1. The Contracting Parties agree that the species of seals enumerated in article 1 shall not be killed or captured within the Convention area by their nationals or vessels under their respective flags except in accordance with the provisions of this Convention.
2. Each Contracting Party shall adopt for its nationals and vessels under its

flag such laws, regulations and other measures, including a permit system as appropriate, as may be necessary to implement this Convention.

Article 3 Annexed Measures

1. Contracting Parties may from time to time in the future adopt other measures with respect to the conservation, scientific study and rational and humane use of seal resources, prescribing, inter alia:
 - a) permissible catch;
 - b) protected and unprotected species;
 - c) open and closed seasons;
 - d) open and closed areas, including the designation of reserves;
 - e) the designation of special areas where there shall be no disturbance of seals;
 - f) limits relating to sex, size, or age for each species;
 - g) restrictions relating to the time of day and duration, limitations of effort and methods of sealing;
 - h) types and specifications of gear and apparatus and appliances which may be used; and
 - i) procedures for facilitating the review and assessment of scientific information;

Article 4 Special Permits

- 1) Notwithstanding the provisions of this Convention, any Contracting Party may issue permits to kill or capture seals in limited quantities and conformity with the objectives and principles of this Convention for the following purposes:
 - a) to provide indispensable food for men or dogs;
 - b) to provide for scientific research; or
 - c) to provide specimens for museums, educational or cultural institutions.

Article 5 Exchange of Information and Scientific Advice

Each Contracting Party shall provide to the other Contracting Parties and the Scientific Committee on Antarctic Research of the International Council of Scientific Unions (SCAR) the information specified in the annexe within the period indicated therein.

14.8 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS), 1982

The United Nations Convention on the Law of the Sea (UNCLOS) is an international treaty which was adopted and signed in 1982 in Montego Bay (Jamaica). It replaced the four Geneva Conventions of April 1958, which respectively concerned the territorial sea and the contiguous zone, the continental shelf, the high seas, fishing and conservation of living resources on the high seas. It incorporated all the facts in the four earlier conventions with a more global perspective while developing new rules. Its preamble clearly describes the global approach that had been adopted: "the problems of ocean space are closely inter-related and need to be considered as a whole". The Convention confirms already existing marine areas, from the coast to the open sea, and from the surface to the seabed or, as in the case of Exclusive Economic Zones (EEZs), creates them in the course of its development.

The Convention has created three new institutions on the international scene:

- The International Tribunal for the Law of the Sea is headquartered in Hamburg (Germany).
- The International Seabed Authority is headquartered in Kingston (Jamaica).
- The Commission on the Limits of the Continental Shelf.

The Convention comprises 320 articles and nine annexes, governing all aspects of ocean space, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters. Some of the key features of the Convention are the following:

- The coastal States exercise sovereignty over their territorial sea which they have the right to establish its breadth up to a limit not to exceed 12 nautical miles; foreign vessels are allowed "innocent passage" through those waters;
- Ships and aircraft of all countries are allowed "transit passage" through straits used for international navigation; States bordering the straits can regulate navigational and other aspects of passage;
- The archipelagic States, made up of a group or groups of closely related islands and interconnecting waters, have sovereignty over a sea area enclosed by straight lines drawn between the outermost points of the islands; the waters between the islands are declared archipelagic waters where States may establish sea lanes and air routes in which all other States enjoy the right of archipelagic passage through such designated sea lanes;
- Coastal States have sovereign rights in a 200-nautical mile exclusive economic zone (EEZ) with respect to natural resources and certain

economic activities, and exercise jurisdiction over marine science research and environmental protection;

- All other States have freedom of navigation and overflight in the EEZ, as well as the freedom to lay submarine cables and pipelines;
- Land-locked and geographically disadvantaged states have the right to participate on an equitable basis in the exploitation of an appropriate part of the surplus of the living resources of the EEZs of coastal States of the same region or sub-region; highly migratory species of fish and marine mammals are accorded special protection;
- The Coastal States have sovereign rights over the continental shelf (the national area of the seabed) for exploring and exploiting it; the shelf can extend at least 200 nautical miles from the shore, and more under specified circumstances;
- The Coastal States share with the international community part of the revenue derived from exploiting resources from any part of their shelf beyond 200 miles;
- The Commission on the Limits of the Continental Shelf shall make recommendations to States on the shelf's outer boundaries when it extends beyond 200 miles;
- All States enjoy the traditional freedoms of navigation, overflight, scientific research and fishing on the high seas; they are obliged to adopt or cooperate with other States in adopting, measures to manage and conserve living resources;
- The limits of the territorial sea, the exclusive economic zone and the continental shelf of islands are determined in accordance with rules applicable to land territory, but rocks which could not sustain human habitation or economic life of their own would have no economic zone or continental shelf;
- States bordering enclosed or semi-enclosed seas are expected to cooperate in managing living resources, environmental and research policies and activities;
- The land-locked States have the right of access to and from the sea and enjoy the freedom of transit through the territory of transit States;
- States are bound to prevent and control marine pollution and are liable for damage caused by violation of their international obligations to combat such pollution;
- All marine scientific research in the EEZ and on the continental shelf is subject to the consent of the coastal State, but in most cases, they are obliged to grant consent to other States when the research is to be conducted for peaceful purposes and fulfils specified criteria;

- States are bound to promote the development and transfer of marine technology "on fair and reasonable terms and conditions", with proper regard for all legitimate interests;
- States Parties are obliged to settle by peaceful means their disputes concerning the interpretation or application of the Convention;
- Disputes can be submitted to the International Tribunal for the Law of the Sea established under the Convention, to the International Court of Justice, or arbitration. Conciliation is also available and, in certain circumstances, submission to it would be compulsory. The Tribunal has exclusive jurisdiction over deep seabed mining disputes.

Check Your Progress 2

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. Discuss the aim and function of CITES.

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2. Discuss the importance of the MARPOL Convention.

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3. Write a short note on the Convention for the Conservation of Antarctic Seals, 1978.

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4. What all aspects are covered under the United Nations Convention on the Law of the Sea (UNCLOS), 1982?

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14.9 LET US SUM UP

The impacts of international trade on the habitat of biodiversity are numerous. They can be direct and indirect, which makes them difficult to identify, measure and limit. Limiting the impacts of trade on habitat and biodiversity can be achieved by policies properly designed, and consistent with WTO (World Trade Organization) principles. The trade policy can be used in two ways: firstly, to limit impacts on biodiversity, and secondly as a negotiating lever to encourage the partners to implement more ambitious policies in favour of biodiversity. In this unit, we have discussed the salient features of the Ramsar Convention, the CITES, MARPOL, UNCLOS and the Convention for the Conservation of Antarctic Seals.

14.10 KEY WORDS

Conservation: It is the process or action of preventing loss or change into a serious imbalance of nature.

Ecosystem Services: The benefits that people receive from ecosystems, including provisioning, regulating, and cultural services”.

Ramsar Sites: The wetlands designated by the Contracting Parties for inclusion in the List of Wetlands of International Importance because they meet one or more of the Ramsar Criteria.

14.11 SUGGESTED FURTHER READING/REFERENCES

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14.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. Please refer to section 14.3
2. Please refer to section 14.4

Check Your Progress 2

1. Please refer to section 14.5
2. Please refer to section 14.6
3. Please refer to section 14.7
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15.1 INTRODUCTION

"We have the moral responsibility to bequeath to our children a world which is safe, clean and productive, a world which should continue to inspire the human imagination with the immensity of the blue ocean, the loftiness of snow-covered mountains, the green expanse of extensive forests and the

silver streams of ancient rivers," said the former Prime Minister of India, Dr Manmohan Singh.

Climate change as a global issue is affecting the lives of both developing and developed countries. Moreover, the debates on climate change are helping to build up a comprehensive climate change regime with a country-specific action plan. Climate change management at the international level consists of the 1992 United Nations Framework Convention on Climate Change (UNFCCC), the 1997 Kyoto Protocol and the decisions taken by the signatory countries under these instruments. Even though it was considered a first step to address climate change and its consequences, it was not sufficient to force member states to take appropriate actions to address climate change with rapid change in the environment and rising temperature. It was widely considered an inadequate instrument to combat climate change. Both the UNFCCC and Kyoto Protocol did not contain the necessary clauses to mitigate greenhouse gas (GHG) emissions, which resulted in a lack of binding obligation for developing countries. Some of the developing countries withdrew from the Kyoto protocol in the second commitment period. Hence, Parties to the UNFCCC came together and formed an Ad-Hoc Working Group at the Durban Conference in 2011. It was called as Durban Platform for Enhanced Action (ADP) to negotiate a new climate agreement by 2015 that would come into force in 2020. The four years of the continuous negotiating process resulted in the formulation of the 2015 Paris Agreement, which was expected to govern, regulate and incentivise the next generation of climate actions. With this introduction, through this unit, we will discuss Copenhagen Summit; Paris Agreement; National Action Plan on Climate Change (India) and State's Action Plan in India.

15.2 OBJECTIVES

After studying this unit, you should be able to:

- discuss the history of climate change debate;
- explain the significance of the Kyoto Protocol and Paris Agreement on Climate Change;
- describe Copenhagen summit 2009 and India's position at Copenhagen Summit;
- describe National Action Plan on Climate Change; and
- examine the efforts of state governments in India to address climate change-related issues.

15.3 HISTORY OF CLIMATE CHANGE DEBATE

Climate change as an environmental fact has begun to be felt in the year 1987 with the release of the Brundtland Commission report, *Our Common Future*. The report highlighted the issues such as depletion of the ozone layer, loss of biological diversity and the rising greenhouse gas concentration and argued for achieving sustainability by formulating effective socio-economic policies.

The development of the global climate change regime can be divided into five phases before the Kyoto protocol. The five periods are as follows;

- The foundational period expresses scientific concern about global warming.
- The agenda-setting phase (1985-88) intended to transform the scientific concern into a policy matter.
- Pre-negotiation period (1988-1990) involved government in the process of climate change regime
- The formal intergovernmental negotiation (1992) impressed upon the adoption of FCCC by May 1992
- The post-agreement phase focused on the elaboration and implementation of FCCC and the adoption of Kyoto commitments.

15.3.1 First Phase: The Emergence of Scientific Consensus

In the early 1960s, the increasing atmospheric concentration of greenhouse gas was published by the scientists from Mauna Loa, Hawaii to establish climate change as a scientific fact. The 1979 report of the National Academy of Science evaluated the existing models of the atmosphere and concluded that the increase of carbon dioxide in the atmosphere will lead to future climate change. By the mid-1980s, scientists opined that anthropogenic emission of gases like methane and nitrous oxide are also cause of concern.

15.3.2 Second Phase: Agenda Setting

The accumulation of scientific knowledge has significantly contributed to forming both public and political opinions on the issues of climate change. Scientists across the world worked to push the climate change debate to the public. The establishment of the Advisory Group on Greenhouse Gases and the report of the Enquete Commission helped to translate the uncertainties of climate change science into a real-world possibility.

15.3.3 Third Phase: Early International Responses

The establishment of IPCC in 1988 is a landmark in the climate change debate. The IPCC has produced comprehensive assessment reports in 1990, 1995, 2001, 2007, 2014, and 1.5 degrees Celcius special report in 2018. IPCC reports on the scientific assessment of global warming compelled the governments to initiate a strong position concerning climate change concerns. In the Noordwijk meeting, the split occurred amongst the governments of western countries about committing themselves to address the challenges of climate variability. In this context, many European countries had joined the CANZ group in support of imposing quantitative limitations upon the countries to reduce the emission level of greenhouse gas. In contrast, the United States and the other Western States continued to give emphasis more on having a neutral position than adopting the European model of a target-

timetable approach to reducing the rate of greenhouse emission. Developing countries showed unity among themselves and agreed to adopt the target-timetable approach and showed commitment to promoting technology transfer to reduce the emission level. As a Plan of Action, various small island states of developing nations came up with an alliance and formulate the body, i.e., the Alliance of Small Island States (AOSIS) which played a key role in further FCCC negotiations in reducing carbon dioxide emission intensity. On the other hand, the oil-producing states critically looked at the science of climate change and argued for adopting a go-slow approach to carbon dioxide emission reduction. Similarly, developing countries like Brazil, India and China emphasized their right to economic growth and formed a strong opinion to accept the principle of differential responsibility in combating climate change impact.

15.3.4 Fourth Phase: Negotiation of the FCCC

In the year 1990, the UN General Assembly established the body, i.e., the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC) with specific emphasis on imposing appropriate commitments upon the countries. The primary principles included in the Convention were as follows:

1. **Target and Timetables:** The European Union and AOSIS advocated following a target and timetable approach to limit the emission level.
2. **Financial Assistance and Transfer of Technology:** The developing countries demanded the creation of a new fund towards helping developing countries implement the Convention.
3. **Institution and Implementation Mechanisms:** OECD countries including the United States advocated establishing implementation machinery including scientific body, deliberate meetings, reporting, and monitoring of the implementation work to tackle the climate change problem.

15.3.5 Fifth Phase: Post-Rio Developments

UN conference on Environment and Development at Rio deliberated on issues like global climate change, biological diversity, deforestation and desertification and many treaties and agreements were signed. And it also stressed that the nation's future policies on economic development should be drafted by considering the environmental implications of socio-economic development. Agenda 21 was a special product of this conference which is also known as the Earth summit. The Earth Summit led to the formation of the United Nations Framework Convention on Climate Change (UNFCCC). The UN Framework Convention on Climate Change is a treaty signed by 192 countries. It does not set any binding targets on countries for cutting emissions. It only calls for stabilizing carbon emissions. But it set in motion international negotiations for settling the issue of who will cut and how

much. The parties to the convention have met annually from 1995 onwards at the conference of parties (COP). The Conference of the Parties is the governing body of the Convention and advances the implementation of the Convention through the decisions it takes at its periodic meetings.

The Convention entered into force at the Berlin conference in the year 1994 to elaborate and implement the commitments to address the climate change problem. The Berlin meeting had the following objectives:

- To establish an ad hoc committee to negotiate a protocol;
- To initiate joint activities among the participating countries to carry out a survey;
- To use Global Environment Facility as the FCCC's financial mechanism; and
- To locate FCCC permanent office at Bonn.

Broadly, the negotiations about climate change were subscribed to two major concerns namely Emission-target limitations for developed nations; and establishing different mechanisms for developed nations to meet the targets. The climate change debate needs to address the issue of equity not only concerning the future generation but also concerning the present generation. In response to the challenge, the international community phrased the common but differentiated responsibility (CBDR) principle as the guiding principle of climate change science.

15.4 RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT

UN conference on Environment and development met at Rio de Janeiro from 3-14 June 1992. It reaffirmed the declaration of the UN Conference on the Human Environment, adopted in Stockholm on 16th June 1972. UNCED firmly affirmed that development is not an isolated affair. It is part of the environment, economic and social issues. At that conference, the issues of global climate change, biological diversity, deforestation and desertification were debated and many treaties and agreements were signed. And it also stressed that the nation's future policies on economic development should be drafted by considering the environmental implications of socio-economic development. Agenda 21 was a special product of this conference which is also known as the Earth summit. Although agenda 21 was not a global consensus document, it is unique in the sense that it created a broader perspective on sustainable development and it brought local, national and global debate and action. The preamble states "*Agenda 21 is a dynamic program. It will be carried out over time by the various actors according to the different situations, capacities and priorities of countries and regions. The process marks the beginning of a new global partnership...*". The Earth Summit led to the formation of the United Nations Framework Convention on Climate Change (UNFCCC). Now let us learn about UNFCCC.

15.5 UNFCCC

The UN Framework Convention on Climate Change was adopted at the Earth Summit in Rio de Janeiro in 1992. It is a treaty signed by 192 countries. It does not set any binding targets on countries for cutting emissions. It only calls for stabilizing carbon emissions. But it set in motion international negotiations for settling the issue of who will cut and how much. The parties to the convention have met annually from 1995 onwards at the conference of parties (COP). The Conference of the Parties is the governing body of the Convention and advances the implementation of the Convention through the decisions it takes at its periodic meetings.

Table 15.1 COP Meetings

Session	Location	Conference
COP 1	Berlin, Germany	Berlin Climate Change Conference-1995
COP 2	Geneva, Switzerland	Geneva Climate Change Conference-1996
COP 3	Kyoto, Japan	Kyoto Climate Change Conference - December 1997
COP 4	Buenos Aires, Argentina	Buenos Aires Climate Change Conference - November 1998
COP 5	Bonn, Germany	Bonn Climate Change Conference - October 1999
COP 6	The Hague, Netherlands	The Hague Climate Change Conference - November 2000
COP 6-2	Bonn, Germany	Bonn Climate Change Conference - July 2001
COP 7	Marrakech, Morocco	Marrakech Climate Change Conference - October 2001
COP 8	New Delhi, India	New Delhi Climate Change Conference - October 2002
COP 9	Milan, Italy	Milan Climate Change Conference - December

		2003
COP 10	Buenos Aires, Argentina	Buenos Aires Climate Change Conference - December 2004
COP 11	Montreal, Canada	Montreal Climate Change Conference - December 2005
COP 12	Nairobi, Kenya	Nairobi Climate Change Conference - November 2006
COP 13	Bali, Indonesia	Bali Climate Change Conference - December 2007
COP 14	Poznan, Poland	Poznan Climate Change Conference - December 2008
COP 15	Copenhagen, Denmark	Copenhagen Climate Change Conference - December 2009
COP 16	Cancun, Mexico	Cancún Climate Change Conference - November 2010
COP 17	Durban, South Africa	Durban Climate Change Conference - November 2011
COP 18	Doha, Qatar	Doha Climate Change Conference - November 2012
COP 19	Warsaw, Poland	Warsaw Climate Change Conference - November 2013
COP 20	Lima, Peru	Lima Climate Change Conference - December 2014
COP 21	Paris, France	Paris Climate Change Conference - November 2015
COP 22	Marrakech,	Marrakech Climate

	Morocco	Change Conference - November 2016
COP 23	Bonn, Germany	UN Climate Change Conference - November 2017
COP 24	Katowice, Poland	Katowice Climate Change Conference – December 2018
COP 25	Madrid, Spain	UN Climate Change Conference - December 2019
COP 26	Glasgow	Glasgow Climate Change Conference

Source: <https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop>

15.6 IPCC

The IPCC was set up jointly by the United Nations and the World Meteorological organizations and convened its first meeting in the year 1998 to discuss the scientific uncertainties over climate change. The IPCC has described the climate uncertainties concerning magnitude, timing, and regional patterns of climate change. The first meeting of IPCC was held as part of the political interest among countries over the world to participate in the development of models to address the challenges of global climate change. The IPCC has produced comprehensive assessment reports in 1990, 1995, 2001, 2007, 2014, and a 1.5°C special report in 2018. In the preparation of these reports, a much debated and contested fact was the climate change of the twenty-first century. In particular, many scientists felt that the climate uncertainties are such that it is refraining scientists from making any predictions and estimates for future climate variability (Ibid.). IPCC being an inter-governmental body assured the involvement of government representatives, scientists and policymakers in the process.

The acceptance and realization of the problem of global warming on the global platform has led to the formulation of the international Framework Convention on Climate Change (FCCC), which was signed by over 160 countries. After the Earth Summit in 1992, the arguments concerning the scientific importance of IPCC were intensified in the world's press. The Climate Convention signed at the Rio conference acknowledged the importance of the balanced relationship between humans with their environment. The Convention emphasized maintaining the harmonious relationship between human society and their environment towards stabilizing the greenhouse gas concentration in the environment. Further, it set the objective for concrete action to reduce and stabilize climate change. The signatories to the Convention consensually agreed upon the initiation of

Box 15.1: The Climate Convention

- The convention concerned that human activities have been substantially increasing the concentration of greenhouse gases in the atmosphere.
- Convention noted that the largest share of global greenhouse gases emission originated in developed countries as compared to developing countries.
- The convention recognizes that various mitigation actions can be justified economically and can further help in solving other environmental problems.
- The convention specified areas/countries such as low-lying countries, countries with low-lying coastal areas, and semiarid areas or areas liable to flood are vulnerable to climate variability.
- Convention affirmed that action responding to climate change needs to be coordinated with the socio-economic development in an integrated pattern.
- The Convention determined to protect the climate system for both present and future generations.

The primary objectives of the Climate Convention those were contained in the Article 2 are as follows:

- To prevent any anthropogenic interference with the climate system, there is a need to stabilize the concentration of greenhouse gases in the atmosphere.
- The stabilization of the concentration of greenhouse gases needs to be achieved within a specific timeframe while ensuring effective food production and economic development sustainably.

15.7 CLIMATE CHANGE AND THE NORTH-SOUTH DEBATE

The climate change debate needs to address the issue of equity not only concerning the future generation but also concerning the present generation. In this context, the main concern of the International Community was the development of an international legal regime which can reflect and address the vast disparities between developing and developed countries regarding wealth and greenhouse gas emissions. In response to the challenge, the international community phrased the common but differentiated responsibility (CBDR) principle as the guiding principle of climate change

science. The principle of differentiated responsibility was well incorporated in the UN Framework Convention on Climate Change.

Common but Differential Responsibility

The CBDR principle was derived from the principle of equity, which is an important principle of international law. For the first time, the Rio Declaration on Environment and Development was instrumental in incorporating the principle of CBDR at the global level. Principle 7 of the Climate Convention in the Rio Declaration states:

“States shall co-operate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. Given the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development because of the pressures their societies place on the global environment and of the technologies and financial resources they command” (Atapattu, 2008).

This principle has become the most contested issue in the forum of the Rio Conference. Principle 7 often emphasized the legal responsibilities of the developed countries to combat climate change impacts due to their contributions to environmental problems in the past. Often, principle 7 was debated over the issue of whether the principle is implying legalities or it can be adopted as a guiding principle in the Climate Convention. CBDR as the guiding principle was profusely endorsed by the UN Framework for Climate Convention in Article 3. Article 3 states;

“The Parties should protect the climate system for the benefit of present and future generations of humankind, based on equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, developed country Parties should take the lead in combating climate change and the adverse effects thereof”.

Further, Article 3 acknowledged the specific needs and vulnerabilities of the developing countries with regard to the impact of climate change and emphasized that developing countries interest needs specific consideration under the Convention as the developing countries parties are bearing the disproportionate burden of climate variability.

15.8 KYOTO PROTOCOL

The Kyoto Protocol was adopted on December 11, 1997, in Kyoto. It came into force in February 2005. Under the protocol, 39 industrialized countries, Annexure I countries, committed themselves to reduce the emissions by 5.2 per cent of the 1990 levels by 2012. The Kyoto Protocol was formulated on the basic principle of CBDR and specified that industrialized countries will have to take lead in the process of reduction of greenhouse gas emissions. The Kyoto mechanisms include three strategies to reduce emission levels

such as Joint Implementation (JI), The Clean Development Mechanisms (CDM) and Emission Trading. The Kyoto protocol also assists countries in adapting to the adverse effects of climate change. It facilitates the development and deployment of techniques that can help increase resilience to the impacts of climate change. The adaptation fund was established to finance adaptation projects and programmes in developing countries that are parties to the Kyoto protocol. The fund is financed mainly with the share of proceeds from Clean Development Mechanism project activities. Kyoto protocol applies to industrial nations only. Developing countries like India and China were not required to commit to reductions because their per capita GHG emissions are much lower than those of developed nations.

The commitments included in the Kyoto protocol ranged from developing national inventories/strategies of greenhouse gas emissions, formulating and implementing national-level programs concerning mitigation and adaptation strategies of climate change, promoting and cooperating with the transfer of sustainable technology, promoting sustainable and integrated development, cooperating in preparing adaptation plans, promoting and supporting scientific research and promoting education, training and public awareness about the effect of climate change (Atapattu 2008). In the year 2001, the protocol suffered major setback because US refused to ratify which is producing 36.1 % of the carbon dioxide emission. EU and Japan supported the protocol and ratified it. Reluctance supporters are US, Australia, Russia and Canada. The major shortcomings of the Kyoto protocol are:

- Excluding developing countries from the protocol. This will reduce the effectiveness of the agreement.
- Exclusion of India and China which constitute 36% of world's population and both countries are growing economy.
- Using of older, outdated and environmentally unfriendly technologies by the developing countries, which are excluded from the Kyoto protocol.
- Growing unchecked developing countries emission.
- The Kyoto protocol only raises the awareness and not in real terms.

15.9 COPENHAGEN SUMMIT 2009

The mandate of the 15th Conference of Parties (COP) in Copenhagen is to enhance long term cooperation on climate change under the Bali action plan. The Copenhagen summit was convened to negotiate post-Kyoto protocol agreement at the UN Framework Convention on Climate Change (UNFCCC) to sign a legally binding deal. The Bali action plan in the year 2007 laid a roadmap for the post-Kyoto Protocol agreement for developed countries (Annexure 1 parties in the convention) to reduce greenhouse gases (GHG) emission and assist developing countries to adapt climate change. The developed countries also agreed to help developing countries by transferring their technology to make them adopt a low carbon emission pathway. The Bali climate convention has agreed on two-track negotiations: 1. "working

group for long-term cooperative action", 2. "working group on Kyoto protocol".

IPCC set the targets for the Copenhagen negotiations. According to them, the GHG emissions will increase enormously by 2015 and then decline by 25-40% over 1990 level by 2020 and will reduce by 80 % over 1990 by 2050 to stabilize carbon dioxide concentration at 450ppm to limit the global warming below 2⁰C (IPCC 2007). The analysis of World Resource institute shows that the commitments announced so far by rich countries may add up to only 13-19 % emission reduction whereas according to IPCC, 25-40 % reduction is needed (Levin and Bradley, 2009). According to the study by International Energy Agency, limiting global warming to 2⁰C with the carbon dioxide concentration limited to 450ppm is feasible, only if the world is ready to invest in low carbon technologies. The key issues discussed at Copenhagen summit are as follows:

- Making continuous progress in the negotiations of Kyoto protocol.
- Insisting governments to commit mid-term GHG emissions reduction.
- Developing scientific monitoring, reporting and verification methods.
- Funding for adaptation and mitigation.
- Transferring technology to the developing countries.

According to the assessment, even if the carbon dioxide concentration is stabilized at 450 ppm which seems highly unlikely there is 26-78 % of risk of overshooting the 2⁰C goal (Meinshausen, 2005). The Copenhagen summit has taken into consideration of scientific communities' view on restricting global warming below 2⁰C. After the debates and the intervention of Island countries and Least Developed Countries, the summit included 1.5⁰C as a target for future negotiations and considerations. This Copenhagen summit also recognized the need to cooperate in achieving halting of the global and national emissions as soon as possible by keeping the special circumstances of developing countries and the need for economic development and poverty alleviation (Ravindranath, 2010).

Copenhagen green fund was established to support mitigation, adaptation, technology transfer and reducing emissions from deforestation. The accord also agreed to transfer technology by establishing a mechanism to do the same. The developed countries agreed to provide US\$ 30 billion immediately for the period of 2010-2012 and mobilize US\$ 100 billion per year for the developing countries.

15.9.1 India and Copenhagen Summit

The Indian delegations in the Copenhagen Summit have expressed the positive outcome because it does not set the time limit for reducing the GHG emissions. India has to increase fossil fuel-based energy to promote the economic growth. The assumption is that if it increases the fossil fuel energy, it automatically reduces the poverty.

India's expectation from Copenhagen Summit is as follows:

- International cooperation should be there to combat climate change.
- The outcome of the negotiations in the Copenhagen should be fair and equitable. It must be in accordance with the "principle of common but differentiated responsibilities and respective capabilities" as per 1992 Rio declaration.
- Summit should provide a space to accelerate socio-economic development in order to eradicate poverty through ecologically sustainable manner.

15.9.2 India's Position

1. India, as a sovereign State totally rejected any form of surveillance or supervision by international organisations in relation to CO₂ emission reduction within the state, especially to the extent that:
 - It did not want financial support from international agencies or organization. It was ready to manage from domestic resources.
 - It was ready to take its own procedure for reduction of CO₂ emissions and the percentage reduction will remain at the discretion of the country.
2. The Copenhagen Conference is not a legally binding text. The Copenhagen Conference is only a procedure for improving the existing institutional framework to combat climate change and is not under any circumstances a re-negotiation of it nor can it result in the development of a new framework.
3. The Kyoto Protocol remains the core, adequately binding text at international level, and consequently it was not considered necessary to prepare a new text. The only subject for debate is determination of new restrictions on the quantity of CO₂ emissions for developed countries and the setting of a new time period for achieving those targets after 2010.
4. As mentioned earlier, the developed economies are responsible for the phenomenon of underdevelopment in the global system. As a consequence, it is for certain that the responsibility of the developed countries to actively support sustainable development in developing countries by transferring economic resources and technology without enforcing conditions of any sort, such as patents or copyright. The parties responsible for the underdevelopment cannot set conditions.
5. It is unfair to impose emission norms to all industries at global level on issues relating to sectoral emission reduction policies. In other words, the types of industries which cause the greatest harm by emitting large quantities of CO₂ must be identified and focus should be given only on those industries.

It may be stated that the “Accord is meant to facilitate the ongoing negotiations in the two tracks in accordance with the principles and provisions of the UNFCCC, the Kyoto Protocol and the Bali Action Plan. The Accord was not adopted by the Conference of Parties but just taken note of. However, the Accord could have value if the areas of convergence reflected in the Accord are used to help the Parties reach agreed outcomes under the UN multilateral negotiations in the two tracks, i.e., the Ad-hoc Working Group on Long Term Cooperative Action and the Ad-hoc Working Group on Kyoto Protocol. The Accord is only an input into the two-track negotiations. The Accord is not /a new track of negotiations or a template for outcomes.” (www.usclimatenetwork.org/policy/copenhagen-accord-commitments #note10).

15.9.3 Impact of India’s Position on the Copenhagen Summit

1. India has emerged as regional leader in the SAARC region by strengthening its economy.
2. Development of basic block in the conference is the result of India’s aspiration as a regional leader to foster ad hoc partnership.
3. It has strengthened its relationship with China.
4. The closer ties of India and China on climate change issues are expected to bring multiple impact at the international level.
5. India strengthened its position by mobilizing more developing countries to adopt joint position and shape the final conference text. So, the text was not binding. It acted as a powerful member for the economically developing force.
6. The role played by the G77 was worth to be noted and India being part of G77 group had a significant influence.
7. The conference proceedings showed that the developed countries have split into many and least developed countries took different positions. The island nations had a different position. This affected the outcome of the conference proceedings and the conference could not take specific time frame for implementing the climate change.

Check Your Progress 1

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What are the issues discussed at Copenhagen Summit?

.....

.....

.....

2. List out the expectations of India from Copenhagen Summit.

15.10 PARIS AGREEMENT

At the Durban Conference (COP 17) an “Ad-Hoc Working Group on the Durban Platform for Enhanced Action” was established “to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties”, by COP 21 so that it can be adopted no later than 2015. The Paris Agreement is the outcome of four-year negotiating process and multilateral diplomacy. Article 2 of the Paris Agreement, states that “in enhancing the implementation of the Convention, including its objective, the agreement aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”. Paris Agreement entered into force on 4th November, 2016. The main features of the agreement are universal application; the principle of equity and principle of common but differentiated responsibilities and respective capabilities; and “legally binding agreement that will apply to those states that have expressed their consent to be bound by means of ratification, acceptance, approval, or accession”. With respect to our country, the agreement demands India to submit “national contributions” every five years; and to embark on low carbon development pathway.

The successful multilateral diplomacy has brought a historic Paris Agreement to address climate change. The Paris Agreement binds all States that have expressed their consent to be bound by this agreement. Once they accept and approve, they ratify the same and take necessary measures to implement the same by formulating laws, policies and programmes. Any legal character of a provision in the international treaties makes the parties to oblige legally. It

also set the standards for States to achieve the obligations within prescribed time period. States need to assess their work in a regular interval and submit reports periodically. This may give clear picture whether states have compliance/non-compliance to the agreed provisions. If we assess Paris Agreement through these lenses, states need to fully oblige mitigation and transparency sections of the Agreement. Unlike mitigation and transparency sections, adaptation sections seem to be soft obligations.

175 countries including India ratified Paris Agreement. As we mentioned earlier, unlike the divisive Kyoto Protocol, all parties required to submit relevant documents with regard to GHG mitigation and adaptation measures to counter adverse effects of climate change as per Paris Agreement at regular intervals. 189 states/countries covering over 95% of global emissions have submitted nationally determined contributions in the context of Paris Agreement. The Paris Agreement has aspired to address adverse effects of climate change by stabilizing temperature rise ('well below 2°C' and to aspire to 1.5°C). As we mentioned earlier, each state/country must report to their efforts to combat GHG emissions or mitigation measures in every five years.

Agreement provides autonomy to the states/countries to decide on their own to address climate change. But their successive efforts must be progressive one compared to previous ones. There are three important components in the Paris agreement. Firstly, states/countries must take transparent measures to address or mitigate climate change and their agreed contribution. Secondly, there will be a global stocktaking process which will be assessed periodically to recognize collective progress towards the Agreement's long-term goals. Thirdly, there will be a compliance system that facilitates member states/countries. It was recognized by the previous studies that the measures taken to mitigate and adapt to climate change might affect human rights. First of its kind, Paris Agreement accepted the relationship between climate change and human rights like right to life, right to health, right to food, and right to housing, with marked departure from earlier climate change instruments. It contained explicit reference. In addition to this, states/countries need to formulate necessary laws to improve socio-economic conditions of vulnerable to address human rights issues. Yet, until recently, no legally binding international climate instrument explicitly recognised the existence of intersections between human rights concerns and climate change.

As far as India is concerned, the Paris Agreement requires India to submit its national contribution every five years, ensuring that each contribution is a progression on the previous one. It also requires India to report periodically on its actions to achieve and implement its contribution. In addition, India should 'strive' to submit long-term low-GHG development strategies within which these national contributions will sit. The Paris Agreement makes India to formulate necessary policies to address energy requirements, environment and development. As mentioned earlier, each member states need to submit

periodically about their progress. To do the same, India must collect quantitative data rigorously to show the progress. Qualitative data may be helpful to recognize the impact of policies on vulnerable. Although, India was able to reduce poverty among vulnerable considerably over plan period, it needed to take further measures to address poverty and vulnerability in certain geographical areas. The measure taken at this issue must be in a right direction. India has responsibility at the international level too. With regard to reducing GHG emissions to bring temperature at certain levels, countries must share burden equitably. Countries like India must give voice in this direction.

15.11 INDIA'S RESPONSE FRAMEWORK

India is one of the fastest-growing economies of the world with deficient energy sources to meet the growing economy. India has more than one billion population. Out of them, 800 million people (79.9 per cent of the population) live on less than the US \$ 2 per day. More than 700 million people cook on traditional cookstoves using crop waste and animal residue. More than 400 million people do not have access to electricity. India stands at 128th position in the World Human Development Index. Further, the rural population is more vulnerable to climate variability as they have low adaptive capacity concerning extreme and fluctuating weather condition. The IPCC assessment report reveals the following:

- Increase in rainfall over the Indian sub-continent by 6-8 per cent.
- Extreme rise of maximum and minimum temperature is expected in the West Coast of India and West Central India.
- Heat spell has become common in Northern India.
- There were around 15 significant droughts in the past 50 years, which affected the productivity of rain-fed crops in drought years.
- Food security is under threat due to the occurrence of drought and flood, and variability in the climate.

The adverse impact of climate change has already threatened the existing livelihood in India, for which India has undertaken various sectoral mitigation measures to contribute towards the objectives of United Nations Framework Convention on Climate Change (UNFCCC). India's development plan is based on the primary principle of sustainability, along with inclusive economic growth. There have been initiatives taken in sectors like coal and oil, renewable energy, hydropower, social energy, energy efficiency and conservation, transport, agriculture, power sector, and so on. The broad areas where the adaptation measures have been carried out include:

- Crop Improvement
- Drought Proofing
- Health
- Risk financing

- Disasters management
- Livelihood Preservation

15.12 NATIONAL ACTION PLAN ON CLIMATE CHANGE

National Action Plan for Climate Change (NAPCC) was formulated and released on 30th June, 2008. The guiding principles for NAPCC are given below:

- Formulation of inclusive, climate change policies by protecting the rights of the poor and vulnerable;
- Achieving national growth objectives by taking measures in a definite direction that must address ecological sustainability which further address greenhouse gas mitigation;
- Devising efficient and cost-effective strategies for end-use demand-side management;
- Developing and deploying appropriate technologies for both adaptation and mitigation of greenhouse gases emission extensively at an accelerated pace;
- Encouraging all stakeholders to develop a new and innovative forms of market, regulatory and voluntary mechanisms to promote sustainable development;
- Ensuring effective implementation of programme through unique linkages, including with civil societies and local government institutions and through public-private partnership;
- Encouraging international cooperation for research, development, sharing and transfer of technologies enabled by additional funding and a global IPR regime that facilitates technology transfer to developing countries under UNFCCC.

Based on the above-mentioned guiding principles, the Government of India has developed eight National Missions.

1. National Solar Mission (NSM);
2. National Mission for enhanced energy efficiency (NMEEE);
3. National Mission on Sustainable Habitat (MNSH);
4. National Water Mission (NWM);
5. National Mission for sustaining the Himalayan Ecosystem (NMSHE);
6. National Mission for a Green India (GIM);
7. National Mission for sustainable agriculture (NMSA); and
8. National mission on strategic knowledge for climate change (NMSKCC).

These missions will be implemented through different ministries based on their subject matter. Apart from ministries assigned to the task, Ministry of Finance, Planning Commission, experts from industry, academics and civil society will be part of the mission. The institutional structure depends upon task allocated for particular mission. Each ministry implements the mission by formulating necessary policies and programmes and develop detailed mission document which will be placed in the individual ministry website. We will discuss mission goals, strengths and weaknesses.

National Solar Mission

Mission has ambitiously targeted to generate considerable percentage of solar power by each state in India individually and country as a whole. The Mission's Renewable Purchase Obligations (RPOs) and auction process has brought fair degree of transparency and accountability to the process. According to the reports, the mission could able to achieve a substantial amount of work in the Phase I. The Mission has failed to recognize the potential off-grid generation which might helpful for poor and vulnerable. India is implementing various sustainable development programmes from first five-year plan period onwards. The success of solar water heater scheme of Ministry of Non-Conventional and Renewable Energy in 1990s in the State of Karnataka and Maharashtra might be notable example for emulation.

- The National Solar Mission aims at generating 20,000 MW of solar power by 2022.
- The Mission also has other targets: 2000 MW of off-grid solar plants, and 20 million square meters of solar collectors to be installed. In addition, 20 million solar lighting systems will be created/distributed in rural areas, saving about 1 billion litres of Kerosene every year.

National Mission for Enhanced Energy Efficiency (NMEEE)

The mission has introduced innovative measures like Perform, Achieve and Trade (PAT), Super-Efficient Equipment Programme (SEEP), and Market Transformation for Energy Efficiency (MTEE). The mission has made available necessary funds to achieve targets like Partial Risk Guarantee Fund (PRGF) and Venture Capital Fund for Energy Efficiency (VCFEE). The mission target was not holistic rather it targets only sub-sectors. It concentrates only on large scale industries.

National Mission on Sustainable Habitat (MNSH)

The mission plan was integrated with the already existing plan Jawaharlal Nehru Urban Renewal Mission and tried to bring smart cities with energy-efficient components. Mission must integrate their ideas by using bottom-up approach to the planning and all its planning should be from stakeholders' perspective.

National Water Mission (NWM)

Mission affirms to bring comprehensive database on the existing water sources. Study must be conducted on the relationship between water and climate change. Identifying existing water sources and restoring and rejuvenating with the help of communities are significant.

National Mission for Sustaining the Himalayan Ecosystem (NMSHE)

The mission aims to evolve policy and management strategies for protecting and sustaining the Himalayan Mountain ecosystem including Himalayan glaciers. Further, it aims to establish “an observational and monitoring network” to assess the resources and ecosystem health of Himalayan ecosystem. The mission recognises the importance of the Himalayas in sustaining large number of people and serves as an opportunity to promote a mountain-driven rather than plains-driven approach. Poor and vulnerable people are directly affected by the deforestation, depletion of natural resources and the construction of dams.

National Mission for a Green India (GIM)

The overarching target of the GIM is to double the area to be taken up for afforestation/eco-restoration in India in the next 10 years, taking the total area to be afforested or eco-restored to 20 million ha. This would increase the above and below-ground biomass in 10 million ha of forests/ecosystems, resulting in increased carbon sequestration of 43 million tons of CO₂e annually. Mission has ambitious plan to regulate and institutionalize local community level institutions. Mission will identify best practices and same will be used as learning sites.

Key features of GIM include:

- Increasing the quality of our forest cover by increasing the cover and density of our medium density and degraded forests.
- Taking a holistic view of forestry, and not merely focus on plantations to meet carbon sequestration targets.
- Focusing on decentralization and involving existing local governance institutions. Forests are the main source of livelihood to over 200 million people in India and hence GIM will actively try to secure the participation of local communities.

National Mission for Sustainable Agriculture (NMSA)

Mission understood the problems faced by country especially agriculture sector with regard to climate change. But mission failed to understand the problems of marginal and small farmers. Identifying and scaling up of agriculture based on agro-climatic zone is important. The mission fails to address fuel and fertiliser shortages. In the era of post-globalization and mechanization of agriculture, the sector altogether faces different kinds of

problem.

National Mission on Strategic Knowledge for Climate Change (NMSKCC)

It is significant to encourage all stakeholders to do research on long-term consequences of climate change. Knowledge gap and the impact of socio-economic changes must be identified through research.

Check Your Progress 2

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What is GIM? Explain its key features.

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2. What are the eight missions under National Action Plan on Climate Change (NAPCC)?

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15.13 STATE GOVERNMENTS' EFFORTS TO ADDRESS CLIMATE CHANGE: STATE ACTION PLAN

The central government formulated NAPCC and requested all State governments to formulate State Action plan on Climate change (SAPCC). In 2009, the Government of India notified state governments to come up with their own climate change policies related to mitigation and adaptation. The plans and actions should be aligned with their respective state priorities as well as the NAPCC goals. Hence, the State Action Plan on Climate Change (SAPCC) in India is the most notable policy reflecting the nature of decentralized climate change mitigation framework of the country.

The State governments need to take following steps before implementing "State Action Plan on Climate Change". It required to seek prior approval from the Ministry of Environment, Forest and Climate Change (MoEFCC)

before implementation of activities listed therein. For implementation of SAPCCs, a combined budgetary requirement of INR 11.32 lakh crores (USD 188.66 billion) has been received by the ministry (MoEFCC, 2014). Ministry will scrutinize the proposal and disburse the required amount as per needs of the State governments. However, States may receive all necessary help from the centre to implement their plans to achieve national targets and priorities related to climate change.

India has vast geographical area having varied agro-climatic conditions. It is important to formulate policies by considering all these factors. Central government broadly frame the policies and state and local governments make necessary changes in the same to suit their local conditions and implement the same within the decentralized framework of mitigation strategies. India as mentioned earlier is a federal State and always involves every level of governance structure for a critical policy intervention. Delivery of services and implementation will be effective only if all are involved in it. With regard to climate change policy, disaggregated climate data clearly indicates that the vulnerabilities and opportunities will be well understood at the state and local level than at the country level. Through states, national policies reach to a large number of sectors and actors effectively while addressing state priorities at the same time. In addition, measurement and monitoring at the state level can be taken up more efficiently. For this reason, many of the national policies in India are implemented through the states. Some other standalone programmes like renewable purchase obligations, implementation of feed-in-tariffs, setting up of state energy conservation funds, implementation of small and hybrid hydroelectric systems and energy conservation building codes are some of the examples of policies that are implemented through the states. Almost all of these now come together within the larger umbrella of the state action plans.

It is significant for the learners to remember the following points related to policies.

- The Ministry of Environment, Forest and Climate Change requested all Indian States to develop action plans by defining their activities and programmes to be undertaken with the aim of adaptation and mitigation in consonance with the objectives of NAPCC.
- The objectives of the NAPCC were to ensure sustainable development in the country. It will provide guidance to formulate necessary policies in a sustainable manner in future. This can be achieved only through the active support of State and local governments. Hence, the Government of India has encouraged the State Governments to develop State Action Plan on Climate Change (SAPCC).
- SAPCCs would address the need of the country as well as provide direction to achieve the same. It would help identify measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively.

- It wants to advance India's development and climate change-related objectives of adaptation and mitigation.
- GIZ and other organizations such as the United Nations Development Programme (UNDP), UK Department for International Development and The World Bank are providing technical assistance to the interested Indian States in the development of SAPCC.
- The State-level plans are not only important for implementation of the NAPCC, but also inclusion of particular regional and local characteristics and specific concerns of vulnerable sectors and communities within each State. Let's now see few examples.

15.13.1 Tamil Nadu

The State of Tamil Nadu in order to further their proactive measures against climate change; and in response to National Action Plan on Climate Change (NAPCC), established the Tamil Nadu State Climate Change Cell (TNSCCC). It has also established web portal to disseminate information. The cell has visualized for building the capacity of all the stakeholders to respond climate change with various measures. It has a vision to make the state resilient. It has planned to collect necessary data and analyse the same to disseminate scientific information among farmers, fishermen, the general public, policy planners', decisions makers', bureaucrats' and others. The important scientific contribution to address climate change was the development of "ClimaRice". "ClimaRice" is indeed an "Intercontinental collaborative project" entitled "Climate Change and persistent Droughts: Impact, vulnerability and adaptation in rice-growing sub-divisions in India". Through this project, climate change impacts on the Cauvery Basin of Tamil Nadu, which is drought-prone have been investigated both in the current and projected climate scenarios. Eventually, a series of adaptation measures have been developed with an aim of sustaining the production in the Cauvery Basin.

The strategies suggested as part of the project to address climate change in the Cauvery basin are:

- Creating awareness among farmers and other stakeholders to do minimum tillage to retain soil carbon content;
- Strategies to develop and promote the "use of drought and flood-tolerant varieties";
- Promoting the crop rotation practices that augment soil productivity;
- Short duration pulse crops are recommended as relay crop, which would enrich the soil with nitrogen, improve soil fertility, and reduce dependence on the chemical fertilizers and pesticides;
- Encouraging the use of quality inputs like quality seeds, and market intelligence;

- Encouraging the farmers to grow green manure crops, and use biofertilizers;
- Introduction of modified cultivation methods such as “System of Rice Intensification”; and
- Promotion of crop residue retention on soil to build up soil biomass.

The broad strategies for climate change adaptation in agriculture and horticulture sector in Tamil Nadu are given in the box 16.1.

Box 15.1: Broad strategies for climate change adaptation in agriculture and horticulture sectors in Tamil Nadu

- Sowing is recommended to align with the onset of South-west and Northeast monsoons;
- Soil erosion must be managed through measures such as minimum tillage, mulching, etc.;
- Soil health and soil nutrient content may be improved through soil-test based Integrated Nutrient Management;
- Promotion of Integrated Pest and Disease Management;
- Water-use efficiency can be improved through methods such as drip, sprinkler irrigation, etc.;
- System of Rice Intensification (SRI) can double or triple current rice yields;
- Emphasis must be on to develop and introduce new crop varieties that are tolerant to high temperature and water stress;
- “Crop Diversification” is recommended to augment the livelihoods;
- Integrated Farming System is recommended to utilize the farm resources efficiently.
- Risk Mitigation Measures such as compulsory crop insurance are recommended to compensate for the crop losses due to extreme weather events;
- Supply of quality agricultural inputs;
- Capacity building on latest agricultural technologies;
- "Rainwater management practices at household and landscape-level";
- “Institute a long-term rice varietal development program to make available new rice varieties and conserving local gene pool through public-private partnership, and actively engaging local farmers, women, and other local agencies in the process”.
- “Help farmers adopt tailored farming practices including soil nutrient

management, choice of crop and cultivars, and pests and disease management as per the suitability/potential of different agro-climatic zones based on weather-based advisories derived from climate analysis of the local area and forecasting which includes probable occurrence of pests and disease”.

- “Support research on weather-based crop insurance schemes to cover risks of increasing intensities and frequencies of extreme weather events. The challenge is to develop a weather-based index to simplify the insurance claims and payment procedures”.

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<http://www.environment.tn.gov.in/doc/TNSAPCC%20PDF/Chapter%205%20Sustainable%20Agriculture%20.pdf> ;

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15.13.2 Delhi

Cities in India are expected to grow with approximately additional 500 million populations. In this transition, governments at all levels especially city government need to equip themselves to address the needs of population in the areas of physical infrastructure, social infrastructure, housing, water, public transportation, health, education, sewage system and solid waste management. Cities, especially mega cities in India with high concentration of population are at risk from the impact of climate and related issues.

Delhi, the capital of India, with geographical area of 1483 square km with high air pollution has developed specific agenda to address and combat climate change. Delhi face threat from climate change and related issues on infrastructure, human lives, human health, personal property, environmental quality and future prosperity. Delhi has introduced a Delhi Climate Change Agenda (2009–2012) by incorporating actions to address the issues raised in the Prime Minister’s National Action Plan on Climate Change. Delhi Government’s agenda aims to reduce Delhi’s carbon footprint by identifying 65 set of action points. These actions will be addressed by taking appropriate measures at the policy level by the various departments of Delhi government. For example, the government of Delhi introduced compressed natural gas (CNG) fuelled buses for public transport by replacing existing diesel-fuelled buses. Delhi government with the help of central government implemented Jawaharlal Nehru Urban Renewal Mission (JNURM) in 2005 itself to address issues related to urban development. But these schemes should be integrated with climate adaptation, mitigation and climate change-related risk management.

Delhi cabinet has decided to upgrade energy efficiency of existing government buildings through retrofitting which are to be carried out by energy service companies in a performance contracting mode. The objective

is to ensure that the government buildings can achieve at least rating of one star from BEE under their office building labelling programme. Delhi government is also considering the installation of energy-efficient water and wastewater treatment operations and methane recovery and reuse for a CDM project.

15.13.3 JHARKHAND

Jharkhand has area coverage of 79,714 square km. Jharkhand has 24 administrative districts. Ranchi is the state capital as well as an industrial city. It has rich physiographic characteristics. The rivers Swarnrekha, Koyal, Shankh and Damodar flow through the State and are utilized for irrigation in many places in the State. Jharkhand has around 40 per cent of the country's mineral resources such as coal, iron ore, copper, uranium, mica, bauxite, granite, limestone, silver, graphite, magnetite and dolomite. It possesses about 40 per cent of the country's mineral wealth. 11 per cent to the State's GSDP comes from mining and quarrying activities. The State mineral reserves include coal, iron ore, bauxite, copper, mica, graphite, manganese, lead, silver, uranium and limestone. The State exports minerals to Bangladesh, Nepal, South Africa and Saudi Arabia. As regards the measures with respect to climate change mitigation, the state has proposed a scheme called Jharkhand Solar Policy (2015).

Jharkhand Solar Policy 2015

The objective of the scheme is to encourage participation of private sector to set up solar power-based projects in the State and increase solar power generation to 2500 MW by the year 2020 in a phased manner.

The **Jharkhand Renewable Energy Development Agency (JREDA)** was incorporated as a society in the year 2001 for promoting use of renewable energy sources in the state. Being a nodal agency, JREDA is working for implementation of fiscal and financial incentives made available by the Ministry of New and Renewable Energy Sources (MNRES), Govt. of India and Indian Renewable Energy Development Agency (IREDA).

15.14 ASSESSMENT OF STATE ACTION PLANS ON CLIMATE CHANGE

This section broadly assesses the existing State Action Plans to address climate change. India has to prepare detailed nation-wide project for 15 agro-climatic zones with varying vulnerabilities. By considering the vastness and varying agro-climatic zones, central government made all States to participate actively to address climate change by assessing their own vulnerabilities. It needs to prepare detailed plan document on par with NAPCC. It needs to identify projects and prepare budgeting and monitoring mechanisms. State governments have freedom to involve local self-governments to implement projects related to climate change. This exercise was considered as one of the biggest in the world. The State Action

Committees submitted 32 plan proposals to the Union Ministry of Environment, Forest and Climate Change (MoEF&CC). The Common framework document for SAPCCs circulated by MoEF&CC requires States to assess "the physical and economic impact of and vulnerability to climate change on the most vulnerable sectors and vulnerable groups". This is very important to plan, adopt and implement mitigation strategies. For example, States like Tamil Nadu, Gujarat, Maharashtra, Karnataka, Orissa, West Bengal and Andhra Pradesh have long coastlines. These States are vulnerable to frequent cyclone and flood. Fishermen and cities close to coastal areas get affected by the unexpected monsoons. It is necessary for these states to assess vulnerability of fishermen and others who are directly depended on sea for their livelihoods. The analysis of Centre for Science and Environment (CSE) shows that "the SAPCCs submitted by most states lack detailed vulnerability assessments. Some are so broad and general that they risk overlooking specific local issues, while others like Gujarat, Odisha and Tamil Nadu have assessed their vulnerability based on a few projects. SAPCCs of Mizoram and Uttarakhand do not even mention vulnerability assessment". According to the report prepared by CSE, the Uttarakhand State has conducted several consultations among civil society groups and academics to recognize the severity of climate vulnerabilities. The result of the consultation was missing in the report. Punjab conducted stakeholder consultation for preparing its SAPCC. Mizoram neither held consultations with civil society nor vulnerable communities. Some have adopted international and national level models and used the same to assess and prepare vulnerabilities. But these models have their limitations concerning projects, region or State-specific changes and vulnerabilities. India's climate system is monsoon driven. States must plan adaptation and mitigation strategies according to climate change projection scenarios. According to CSE analysis, "Mizoram and Odisha lack climate projections in their SAPCCs, while others, including Gujarat, rely on climate models used by the UK. Madhya Pradesh made mid-century and end-century projections based on secondary data collected from various sources. CSE researchers found that the states are depending on secondary sources due to lack of domestic climate models. The outcomes of such projections based on flawed models have a degree of uncertainty as climate change impact is highly local in nature" (Down to Earth, 2018).

The next comes finance. The States have no clarity about financing. It has assumption that the central government or international organization would provide required finance to implement their projects. States like Madhya Pradesh demanded Rupees 4,700 crores, while Tamil Nadu demanded more than Rupees 400,000 crores. Gujarat allocated around 80 per cent to the water sector. Most states do not depict the true picture of their vulnerability in the SAPCC document and the required steps that need to be taken to enhance their adaptive capacity and reduce their vulnerability to climate change extremes. The documents lack mentioning the effective monitoring and evaluation institutions for the project implemented to address climate change. States such as Kerala and Uttarakhand, are in the process of revising their

SAPCCs to meet their domestic and international objectives after recognising the inadequacy in the existing document. “The state of Mizoram has initiated a ninth mission on health, in addition to the eight national-level missions for climate change. The state government is of the opinion that health is one of the major climate change impacts and hence has included it as an additional mission. The National Adaptation Fund for Climate Change (NAFCC) is funding a project to augment livelihood of rural communities by building resilience in agriculture. The project is being implemented by the state agriculture department and is currently in its third year” (Down to Earth, 2018).

Check Your Progress 3

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. Write a short note on the policies of the State of Tamil Nadu to mitigate climate change.

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2. What is the State Action plan on Climate Change?

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15.15 LET US SUM UP

Climate change is the biggest threat in the 21st century. The international scientific community urged the world to stabilize the level of emissions in the atmosphere to avoid future potential impacts. In doing so, the countries have proposed several international summits to discuss climate change and find a solution to the problems of climate change. This process is started in the year 1988 in Toronto as a World Conference on Changing Atmosphere. The conference recommends reducing carbon dioxide emissions by 20 %. In the same year, Intergovernmental Panel on Climate Change (IPCC) met in Geneva and assessed the state of scientific knowledge on climate change, evaluated its impact and brought a realistic solution. The first IPCC report was published in the year 1990. All these events led the world community to

conduct a series of climate conferences. Further, we have studied about Kyoto Protocol and Paris Agreement on Climate Change. Through this unit, we have discussed that India has taken a firm and reasonable stand towards climate change negotiations. The State Action Plan on Climate Change (SAPCC) and its impact too discussed in the unit.

15.16 KEY WORDS

International Organization: Organization which presents at an international level with a scope of dealing with issues among nations.

Niti Aayog: It is a premier think tank of the Government of India. It provides critical knowledge for policy formulation.

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www.usclimatenetwork.org/policy/copenhagen-accord-commitments#note10

www.voanews.com/english/news/india-satisfied-with-copenhagen-climatesummit-79888187.html

15.18 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. The key issues discussed at the Copenhagen summit are as follows:

- Continuing negotiations of the Kyoto protocol.
- Making governments commit to midterm GHG emissions reduction.
- Developing, monitoring, reporting and verification methods.
- Funding for adaptation and mitigation.
- Transferring technology to the developing countries.

2. India's expectations from the Copenhagen summit

- International cooperation should be there to combat climate change.
- The outcome of the negotiations in Copenhagen should be fair and equitable. It must be in accordance with the principle of common but differentiated responsibilities and respective capabilities as per the 1992 Rio declaration.
- Summit should provide a space to accelerate socio-economic development to eradicate poverty in an ecologically sustainable manner.

Check Your Progress 2

1. GIM means Green India Mission. Key features of GIM include:

- Increasing the quality of our forest cover by increasing the cover and density of our medium density and degraded forests.
- Taking a holistic view of forestry, and not merely focusing on plantations to meet carbon sequestration targets.
- Focusing on decentralization and involving existing local governance institutions. Forests are the main source of livelihood for over 200 million people in India and hence GIM will actively try to secure the participation of local communities.

2. The eight National Missions under National Action Plan on Climate Change are as follows:

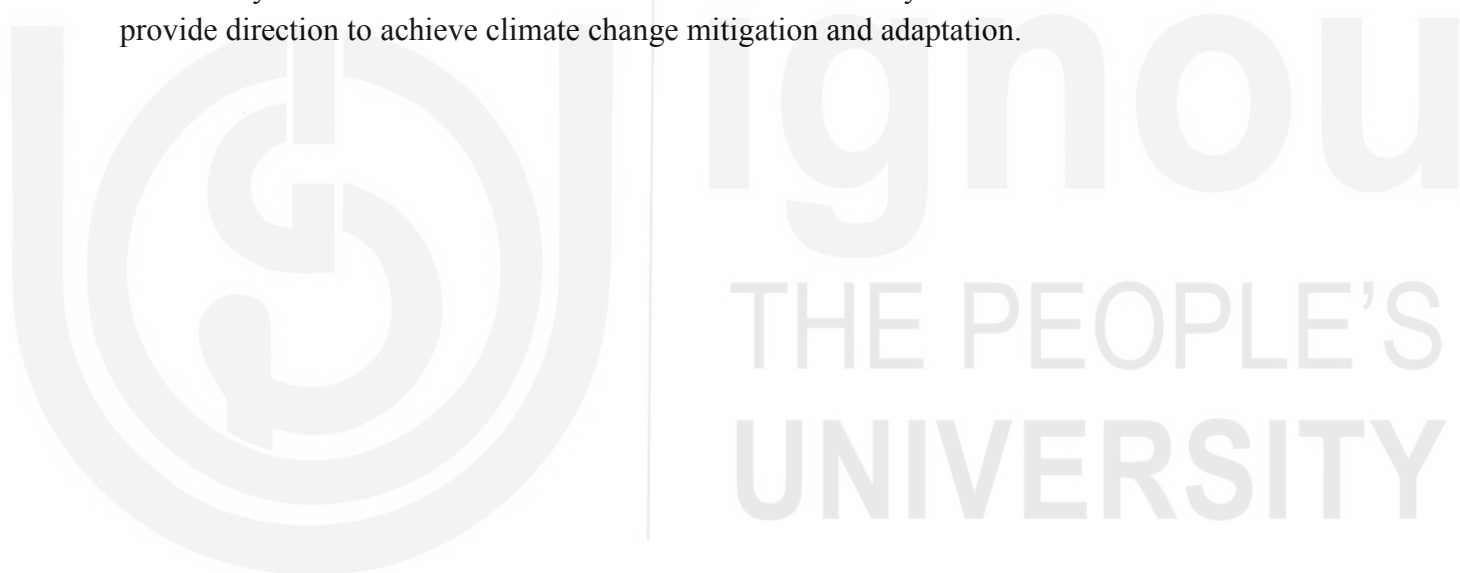
- National Solar Mission (NSM);
- National Mission for enhanced energy efficiency (NMEEE);
- National Mission on Sustainable Habitat (MNSH);
- National Water Mission (NWM);
- National Mission for sustaining the Himalayan Ecosystem (NMSHE);
- National Mission for a Green India (GIM);
- National Mission for sustainable agriculture (NMSA); and
- National mission on strategic knowledge for climate change (NMSKCC).

Check Your Progress 3

1. The State of Tamil Nadu to further its proactive measures against climate change; and in response to National Action Plan on Climate Change (NAPCC), established the Tamil Nadu State Climate Change Cell (TNSCCC). It has also established a web portal to disseminate information. The cell has visualized building the capacity of all the stakeholders to respond to climate change with various measures. It has planned to collect necessary data and analyse the same to disseminate scientific information among farmers, fishermen, the general public, policy planners', decisions makers', bureaucrats' and others. An important

scientific contribution to addressing climate change was the development of "ClimaRice". "ClimaRice" is indeed an "Intercontinental collaborative project" entitled "Climate Change and persistent Droughts: Impact, vulnerability and adaptation in rice-growing sub-divisions in India". Through this project, climate change impacts on the Cauvery Basin of Tamil Nadu, which is drought-prone have been investigated both in the current and projected climate scenarios. A series of adaptation measures have been developed to sustain the production in the Cauvery Basin.

2. Government of India formulated NAPCC and requested all State governments to formulate a State Action plan on Climate change (SAPCC). In 2009, the Government of India notified state governments to come up with their climate change policies related to mitigation and adaptation. The plans and actions should be aligned with their respective state priorities as well as the NAPCC goals. The State Action Plan on Climate Change (SAPCC) in India is the most notable policy reflecting the nature of the decentralized climate change mitigation framework of the country. SAPCCs would address the need of the country as well as provide direction to achieve climate change mitigation and adaptation.



UNIT 16 BIOSAFETY

Structure

- 16.1 Introduction
- 16.2 Objectives
- 16.3 The Basel Convention, 1989
 - 16.3.1 The Ban Amendment
 - 16.3.2 The Basel Action Network (BAN)
- 16.4 Cartagena Protocol on Biosafety, 2003
- 16.5 The Stockholm Convention on Persistent Organic Pollutants, 2004
- 16.6 The Rotterdam Convention, 2004
- 16.7 Let Us Sum Up
- 16.8 Key Words
- 16.9 Suggested Further Reading/References
- 16.10 Answers to Check Your Progress

16.1 INTRODUCTION

Biosafety is the prevention of large-scale loss of biological integrity, focusing both on ecology and human health. To avoid any such condition, strict regulations need to be in place including stringent monitoring mechanisms. In ecology, this term is may be used regarding the invasion of alien species, in agriculture, it might be about transgenic species etc., in medicine, it might be about gene therapy products., and in chemistry, it might be about organo-chemicals especially carcinogens etc.

In January 1948, a multilateral agreement regulating international trade in goods, General Agreement on Tariffs and Trade (GATT) came into force. Its main objective was to reduce the barriers to international trade through the reduction of tariffs, quotas and subsidies and eliminate preferences, on a reciprocal and mutually advantageous basis.

In the 1970s and 1980s, environmental awareness and environmental regulation were in place in developed countries. Public awareness was enough about the ill effects of hazardous waste and hence it was becoming difficult to dispose of such waste. So, developing countries including Eastern Europe became an easy destination to dump such hazardous wastes and wastes from households and incinerator ash. As a result, by the late eighties, there was hard felt need to regulate the transboundary movement of hazardous waste and its disposal. In this light, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 which came into force in 1992 and India became a party to it.

You have already read about the Convention on Biological Diversity (CBD) that was adopted in May 1992 in Nairobi and entered into force on 29 December 1992. Similarly, with advancements in biotechnology, there was an urgent need to have a policy on genetically modified organisms. So, the Cartagena Protocol came into force in September 2003 and was adopted as a complementary agreement to the Convention on Biological Diversity (CBD). The Protocol seeks to protect biological diversity by managing the movements of Live Modified Organisms (LMOs) resulting from the application of modern technology between countries. United Nations has declared 22 May as International Day of Biological Diversity, and the Member States are invited to sign and ratify the Cartagena Protocol to protect biological diversity.

Further, Persistent Organic Pollutants (POPs) are groups of chemicals that can have serious health effects including cancer, endocrine disruption etc. It remained in the environment for so long and can have the ability to transboundary movement by long-range air circulation. Such chemicals are found even in the arctic quite far away from the place of their origin. So, there was a need to eliminate or restrict the production and use of POPs. As a result, an international environmental treaty, Stockholm Convention on POPs was signed on 22 May 2001 and became effective on 17 May 2004.

The treaty was needed not only to monitor the production and use of POPs but also regulation on international trading of hazardous chemicals and pesticides was much required to fix the responsibilities. The Rotterdam Convention (earlier known as, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade) is a multilateral treaty to promote shared responsibilities that came into force on 24th February 2004.

Let's discuss these conventions one by one to understand them better in light of biosafety be it waste, chemicals or living organisms. In this unit, we endeavour to understand the concept of biosafety and how various international conventions came into place to protect biodiversity and human health. We will begin with knowing about the Basel Convention, 1989, and throw some light upon Basel Ban Amendment and the Basel Action Network (BAN). Further, we will discuss the Cartagena Protocol on Biosafety, 2003 and its importance. In the light of the use of Persistent Organics Pollutants (POPs) and its environmental impact, the Stockholm Convention on Persistent Organics Pollutants entered into force in 2004. We will discuss the dirty dozen. Further, we will discuss the Rotterdam Convention, 2004 and the recent merger of secretariats of Basel, Stockholm and the Rotterdam Convention.

16.2 OBJECTIVES

After studying this unit, you should be able to:

- explain the features of the Basel Convention, 1989;

- explain the Cartagena Protocol on Biosafety, 2003;
- explain the features of the Stockholm Convention on Persistent Organic Pollutants, 2004; and
- explain the features of the Rotterdam Convention, 2004.

16.3 THE BASEL CONVENTION, 1989

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 and it came into force in 1992. It is the most comprehensive global environmental agreement on hazardous wastes and other wastes like incinerator ash and household waste. With 189 Parties, it has nearly universal membership. The Convention aims to protect human health and the environment against the adverse effects resulting from the generation, transboundary movements and management of hazardous wastes and other wastes. It defines "hazardous wastes" based on origin and or composition and their characteristics including household waste and incinerator waste under the category of other waste. This convention not only regulates the transboundary movements of hazardous wastes but also obliges its Parties to ensure management and disposal in an environmentally sound manner. "Environmentally sound management of hazardous wastes or other wastes" means taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes. Annex III of the Convention covers toxic, poisonous, explosive, corrosive, flammable, ecotoxic and infectious wastes. Parties also should minimize the quantities that are transported, treat and dispose of wastes as close as possible to their place of generation and prevent or minimize the generation of wastes at the source. The convention has 29 Articles.

16.3.1 The Ban Amendment

The Basel Convention Ban Amendment is an agreement taken by Basel Convention Parties to prohibit the member states of the Organization for Economic Cooperation and Development (OECD), the European Union (EU), and Liechtenstein from exporting hazardous wastes as defined by the Convention to other countries – primarily developing countries.

On 5 December 2019, the Basel Ban Amendment has now received the requisite number of countries (97) with the ratification of Croatia to enter into the force of law. However, it is important to note that many countries, in particular all of the EU countries, have already implemented it into their national law. Though India is a party to the Basel Convention since 1992, it is yet to ratify the Ban Amendment.

Now, you must be thinking about the categories of waste that are covered under the Ban Amendment.

The Ban Amendment includes most Persistent Organic Pollutants (POPs), most electronic wastes, most obsolete ships, most flammable liquids, and

most toxic heavy metals. It will not likely include plastic, scrap metal or paper waste unless it is contaminated with, or contains hazardous waste/material.

Before the amendments adopted in May 2019, most plastic wastes were not considered hazardous. The Basel Convention started to address e-waste issues in 2002 which include, among others, environmentally sound management; prevention of illegal traffic to developing countries and; building capacity around the globe to better manage e-waste.

16.3.2 The Basel Action Network (BAN)

The Basel Action Network (BAN) founded in 1997, as a charitable non-governmental organization, works on confronting the global environmental justice and economic inefficiency of toxic trade of waste and its devastating impacts. Today, BAN serves as the information clearinghouse on the subject of waste trade for journalists, academics, and the general public. Through its investigations, BAN uncovered the tragedy of hazardous electronic waste dumping in developing countries.

Check Your Progress 1

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What are the objectives of the Basel Convention, 1989?

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2. What are the types of wastes covered under Annexure III of the Basel Convention?

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3. What is the transboundary movement of hazardous wastes/wastes?

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4. What is Ban Amendment?

5. Write a short note on the Basel Action Network.

16.4 CARTAGENA PROTOCOL ON BIOSAFETY, 2003

The Cartagena Protocol was adopted in Montreal on 29 January 2000 and entered into force on 11 September 2003, adopted as a complementary agreement to the Convention on Biological Diversity. The Protocol seeks to protect biological diversity by managing the movements of Living Modified Organisms (LMOs) resulting from the application of modern technology between countries. India is a signatory to the Cartagena Protocol on Biosafety and ratified it on January 23, 2003. Biosafety is one of the issues addressed by the Convention on Biological Diversity. This concept refers to the need to protect human health and the environment from the possible adverse effects of the products of modern biotechnology. But the Cartagena Protocol thus creates an enabling environment for the environmentally sound application of biotechnology, making it possible to derive maximum benefit from the potential that biotechnology has to offer while minimizing the possible risks to the environment and human health. The Cartagena Protocol has 40 Articles. For instance, Article 1 reads about the Objective i.e., the precautionary approaches to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology which may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on trans boundary movements.

16.5 THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS, 2004

The Stockholm Convention is a global treaty, adopted on 22 May 2001 in Stockholm and entered into force on 17 May 2004 that aims to protect human health and the environment from the use of Persistent Organic Pollutants (POPs). India ratified the Stockholm Convention on January 13, 2006, as per Article 25(4), which enabled it to keep itself in a default "opt-out" position such that amendments in various Annexes of the convention cannot be enforced on it unless an instrument of ratification/ acceptance/ approval or accession is explicitly deposited with UN depositary. Further, the Ministry of Environment, Forest and Climate Change (MoEFCC) notified the 'Regulation of Persistent Organic Pollutants Rules, on March 5, 2018, under the provisions of the Environment (Protection) Act, 1986. The regulation *inter alia* prohibited the manufacture, trade, use, import and export of seven chemicals namely (a) Chlordecone, (b) Hexabromobiphenyl, (c) Hexabromodiphenyl ether and Heptabromodiphenylether (Commercial octa-BDE), (d) Tetrabromodiphenyl ether and Pentabromodiphenyl ether (Commercial Penta-BDE), (e) Pentachlorobenzene, (f) Hexabromocyclododecane, and (g) Hexachlorobutadiene, which were already listed as POPs under Stockholm Convention.

POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. POPs circulate globally and can cause damage wherever they travel. In implementing the Convention, Governments will take measures to eliminate or reduce the release of POPs into the environment.

Five essential aims of the Stockholm Convention:

- Eliminate dangerous POPs, starting with the dirty dozen
- Support the transition to safer alternatives
- Target additional POPs for action
- Clean up old stockpiles and equipment containing POPs
- Work together for a POPs-free future

Let's know about the magnitude of impact a book can create!

Have you heard about the book "Silent Spring" by Rachel Carson and its impact on the formulation of policy?

The Nobel Prize in Physiology or Medicine 1948 was awarded to Paul Hermann Müller "for his discovery of the high efficiency of DDT as a contact poison against several arthropods". In the United States, DDT was used extensively on crops, particularly cotton, from 1945 to 1972. Rachel Carson published her book *Silent Spring* in 1962 in which she has pen down

her observations about the declining population of birds over the last decades. DDE (a metabolite of DDT) found the culprit behind making weaker eggshells so could not produce live offsprings. As a result, Environmental Protection Agency (EPA) has to ban the use of DDT in 1972. The bald eagle has since experienced one of the most dramatic species recoveries in our history.

Do you know POPs can have a transboundary movement?

A major impetus for the Stockholm Convention on POPs was the finding of POPs contamination in relatively pristine Arctic regions. For example, some POPs can be carried for many miles when they evaporate from water or land surfaces into the air, or when they adsorb to airborne particles. Then, they can return to Earth on particles or in snow, rain, or mist. POPs also travel through oceans, rivers, lakes, and, to a lesser extent, with the help of animal carriers, such as migratory species.

4.3.3 The Dirty Dozen

List of "Dirty Dozen" under this convention includes aldrin and dieldrin, chlordane, DDT, endrin, mirex, heptachlor, hexachlorobenzene, PCBs, toxaphene, dioxins and furans. You might be familiar with some of the most well-known POPs, such as Polychlorinated biphenyls (PCBs), DDT, dioxins and furans etc. POPs are both intentionally and unintentionally produced! POPs include a range of substances that can be produced intentionally for a certain use or unintentionally as a by-product.

Out of the listed twelve, dioxin and furans are unintentionally produced during most forms of combustion, including burning of municipal and medical wastes, backyard burning of trash, and industrial processes. But the rest are intentionally produced and out of these aldrin and dieldrin, chlordane, DDT, endrin, mirex, heptachlor and toxaphene were used as insecticides whereas hexachlorobenzene was used as fungicide used for seed treatment. PCBs were used for a variety of industrial processes and purposes, including in electrical

transformers and capacitors, as heat exchange fluids, as paint additives, in

carbonless copy paper etc. DDT is still used to control mosquitoes that carry malaria including in India. For PCBs, the Stockholm Convention prohibits new PCB production and envisages phasing out electrical equipment that contains high concentrations of PCBs by 2025.

Proposed chemicals are expected to be on the ban list soon

There is always a way to keep adding new chemicals to the ban list under the Stockholm Convention. Let's know about the recent development. The 17th meeting of the POPs Review Committee, held from 24 to 28 January 2022, recommended below mentioned POPs to the ban list by the year 2023.

- **Methoxychlor-** A pesticide that has been used as a replacement for DDT

against a wide range of pests including both agricultural and household. Its endocrine-disrupting effects on fishes. It has been detected in the environment and biota in the Arctic and Antarctica as a result of transboundary movement. It has also been detected in human serum, adipose tissues, umbilical cord blood and human breast milk etc.

- **UV-328** - A chemical typically found in certain plastics having the ability to long-range transport i.e., transboundary movement.
- **Dechlorane Plus**- A flame retardant that has been in use since the 1960s. It has caused neurodevelopmental toxicity and acts as an endocrine disruptor.

16.6 THE ROTTERDAM CONVENTION, 2004

The Rotterdam Convention is a multilateral treaty formulated on 10th September 1998 and entered into force on 24th Feb. 2004, to promote shared responsibilities in relation to the importation of hazardous chemicals. India ratified this convention in January 2006.

The main objectives of the Convention are:

- to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals to protect human health and the environment from potential harm;
- to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, providing for a national decision-making process on their import and export and by disseminating these decisions to Parties.

Further, the Convention creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure.

Merger of secretariats of Basel, Rotterdam and Stockholm (BRS) Convention

In 2012, the Secretariats of the Basel and Stockholm conventions, the Rotterdam Convention Secretariat, merged into a single Secretariat at Rotterdam, the Netherlands with a matrix structure serving the three conventions. The three conventions now hold back-to-back Conferences of the Parties as part of their joint synergies' decisions.

The 15th meeting of the COP (COP15) to the Basel Convention, the tenth meeting of the COP (COP10) to the Rotterdam Convention and the tenth meeting of the COP (COP10) to the Stockholm Convention held in a virtual mode in 2021 and as an in-person event will be held in 2022. The theme of the meetings is "Global Agreements for a Healthy Planet: Sound management of chemicals and waste".

The 2019 joint Conferences of the Parties (COP) to the Basel, Rotterdam and Stockholm (BRS) Conventions achieved several notable outcomes, including the establishment of a compliance mechanism under the Rotterdam Convention on Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; the listing for the elimination of dicofol and perfluorooctanoic acid (PFOA), its salts, and PFOA-related compounds under the Stockholm Convention on Persistent Organic Pollutants (POPs); and the adoption of an amendment to address certain plastic wastes under the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal.

There are a total of 50 chemicals listed in Annex III, 34 pesticides (including 3 severely hazardous pesticide formulations), 15 industrial chemicals, and 1 chemical in both the pesticide and the industrial chemical categories. The parties are required to communicate their import policy for these chemicals to the PIC Secretariat. The exporting Party has to provide the export notification to the importing Party in respect of banned or severely restricted chemicals in the importing country. The export notifications received from other Parties for industrial chemicals are examined by the Department of Chemicals and Petrochemicals, being the DNA for industrial chemicals, and acknowledgement/ reply is sent to the DNA of the exporting country.

Check Your Progress 2

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the unit.

1. What are the benefits of the Cartagena Protocol?

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2. Write a short note on the Stockholm Convention on Persistent Organic Pollutants.

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3. Write a short note on the Rotterdam Convention, 2004.

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16.7 LET US SUM UP

To protect human health and the environment against the adverse effects resulting from the generation, transboundary movements and management of hazardous wastes and other wastes, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 and it came into force in 1992. Biotechnology on one hand has done miracles in the field of science in searching for solutions for diseases. Through this, we have achieved food security but on contrary, there is always a fear of destruction of the global ecosystem by loss of biodiversity and cross-contamination. As a result, Cartagena Protocol on Biosafety, 2003 has been formulated. Scientific investigations could find chemicals like persistent organic pollutants in places like the arctic which boggles the minds of scientists to compel the policymakers to have a policy through which production and use of such chemicals can be further monitored and banned. This was the reason behind the Stockholm Convention on Persistent Organic Pollutants, 2004. Later, the Rotterdam Convention, a multilateral treaty got formulated on 10th September 1998 and entered into force on 24th Feb. 2004, to promote shared responsibilities in relation to the importation of hazardous chemicals. India ratified this convention in January 2006. In 2012, the Secretariats of the Basel, Stockholm conventions, and the Rotterdam Convention Secretariat, merged into a single Secretariat. In this unit, we have discussed various conventions on biosafety.

16.8 KEY WORDS

Wastes: “Wastes” are defined as substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law.

Management: “Management” means the collection, transport and disposal of hazardous wastes or other wastes, including after-care of disposal sites.

Living Modified Organism: “Living modified organism” means any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology.

Modern Biotechnology: “Modern biotechnology” means the application of a. In vitro nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles, or b. Fusion of cells beyond the taxonomic family, that overcome natural physiological reproductive or recombination barriers and that are not techniques used in traditional breeding and selection.

16.9 SUGGESTED FURTHER READING/REFERENCES

<http://www.basel.int/>

<https://www.epa.gov/international-cooperation/persistent-organic-pollutants-global-issue-global-response#pops> (accessed on 03.03.2022)

<https://www.cbd.int/doc/legal/cartagena-protocol-en.pdf>

<http://www.brsmeas.org/>

<https://sdg.iisd.org/news/chemicals-and-waste-conventions-agree-to-eliminate-two-chemical-groups-and-address-plastic-waste-adopt-new-compliance-mechanism/>

16.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. The prime objective of the Basel Convention, 1989 is to protect human health and the environment against the harmful effects of hazardous wastes.
2. Annex III of the Basel Convention covers toxic, poisonous, explosive, corrosive, flammable, ecotoxic and infectious wastes.
3. “Transboundary movement” means any movement of hazardous wastes or other wastes from an area under the national jurisdiction of one State to or through an area under the national jurisdiction of another State or to or through an area not under the national jurisdiction of any State, provided at least two States are involved in the movement.
4. The Basel Ban Amendment is an agreement taken by Basel Convention Parties to prohibit the member states of the Organization for Economic Cooperation and Development (OECD), the European Union (EU), and Liechtenstein from exporting hazardous wastes as defined by the Convention to other countries – primarily developing countries.
5. Please refer to section 16.3.2.

Check Your Progress 2

1. Cartagena Protocol seeks to protect biological diversity by managing the movements of Living Modified Organisms (LMOs) resulting from the application of modern technology between countries. So, it not only protects our health but biodiversity at large.
2. Please refer to section 16.5.
3. Please refer to section 16.6.