

SUMMARY SHEET



*Sustainable
Development and
Environmental Issues*





EduTap Hall of Fame



NABARD Grade A 2021

62 Selections Out of 74



Mr. Albin Sunny



Mr. Amol Darade



Mr. Ankith



Mr. Deepak Kumar



Mr. Gowtham



Mr. Vikram Joshi



Mr. Vinayak Langote



Ms. Arti Shukla



Mr. Nimish



Mr. Nithin



Mr. Prajakt Dhawale



Mr. Pravin



Ms. Dharana



Ms. Pavithra

RBI Grade B 2020 - 21

198 Selections Out of 257



Mr. Ajil



Mr. Aman Choudhary



Mr. Arun Sharma



Ms. Ila Sahu



Mr. Nishant Yadav



Ms. Ojaswi Dale



Mr. Parimal S Athaley



Ms. Resmarani Sahoo



Mr. Ryan Varghese



Mr. Shubham



Mr. Somya Atre



Ms. Srishti Dabas



Ms. Twinkle Dahliya



Mr. Vaibhav Nayer

SEBI Grade A 2022

58 Selections Out of 80



Abhishek Ashish



Anurag Balia



Avinash Jaiswal



Chetan Choraria



Gourav Singh



Himanshi



Vishwabahu



Rishabh



Roshan Lal



Srinidhi Adhikary



Sushant Sanjay



Suvarna



Vivek Sharma



Shweta Meena



Contents

1	Sustainable Development.....	5
1.1	Pillars of sustainable development.....	5
1.2	Sustainable Development Goals.....	5
2	Important Conventions, Alliances and Protocols	5
2.1	United Nations Conference on Environment and Development (UNCED)	5
2.2	Agenda 21.....	6
2.3	Convention on Biological Diversity (CBD).....	6
2.4	Meeting of the parties to the convention (Important Conference of Parties).....	6
2.5	Cartagena Protocol	6
2.6	Nagoya Protocol	7
2.7	The United Nations Environment Programme (UNEP).....	7
2.8	The International Treaty on Plant Genetic Resources for Food and Agriculture	7
2.9	UNFCCC: United Nations Framework Convention on Climate Change	8
2.10	Kyoto protocol	8
2.11	Important Summits.....	10
2.11.1	Lima Summit, 2014	10
2.11.2	Paris summit, 2015	11
2.12	International Solar Alliance	12
2.13	United Nations Convention to Combat Desertification (UNCCD)	13
2.14	Stockholm Convention.....	13
2.15	Montreal Protocol	13
2.16	Kigali Agreement	14
3	Important Organizations/Bodies	14
3.1	Intergovernmental Panel on Climate Change	14
3.2	The World Wide Fund for Nature.....	14
3.3	The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	15
3.4	TRAFFIC – The Wildlife trade monitoring network.....	15
4	India's National Action Plan on Climate Change	15
4.1	Eight National Missions under National Action Plan.....	15
4.1.1	National Solar Mission.....	15
4.1.2	National Mission for Enhanced Energy Efficiency (NMEEE).....	15
4.1.3	National Mission on Sustainable Habitat	16
4.1.4	National Water Mission (NWM) Mission.....	16
4.1.5	National Mission for Sustaining the Himalayan Ecosystem (NMSHE).....	16
4.1.6	National Mission for a Green India.....	16
4.1.7	National Mission for Sustainable Agriculture (NMSA).....	16

4.1.8	The National Mission on Strategic Knowledge for Climate Change (NMSKCC).....	16
4.2	National Clean Air Programme (NCAP).....	17
4.3	National Adaptation Fund on Climate Change (NAFCC).....	17
5	Pollution Related Acts.....	17
5.1	The Water (Prevention and Control of Pollution) Act of 1974 and Amendment, 1988.....	17
5.2	The Water (Prevention and Control of Pollution) Cess Act of 1977.....	17
5.3	The Air (Prevention and Control of Pollution) Act of 1981 and amendment, 1987.....	17
6	Environment & Biodiversity Acts/Bodies.....	18
6.1	Environment (Protection) Act of 1986	18
6.2	Genetic Engineering Appraisal Committee (GEAC)	18
6.3	Wild Life (Protection) Act of 1972 and Amendment, 1982	18
6.4	The Wild Life (Protection) Amendment Act, 2006	18
6.5	Animal Welfare Board of India	19
6.6	Project Tiger – Tiger Conservation	19
6.7	Forest (Conservation) Act of 1980.....	19
6.8	Biological Diversity Act 2002	20
6.9	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006...20	
6.10	National Green Tribunal Act, 2010	20
7	Coastal Environment and Wetlands related Legislation/Rules	21
7.1	Coastal Regulation Zone (CRZ).....	21
7.2	Wetlands (Conservation and Management) Rules, 2017.....	21
8	Other important concepts	22
8.1	Natural Capital Accounting and Valuation of the Ecosystem Services (NCAVES)	22
8.2	Coalition for Disaster Resilient Infrastructure (CDRI).....	22

EduTap

1 Sustainable Development

It is the idea that human societies must live and meet their needs without compromising the ability of future generations to meet their own needs.

Sustainable development recognizes that **growth must be both inclusive and environmentally sound** to reduce poverty and build shared prosperity for today's population, and to continue to meet the needs of future generations.

1.1 Pillars of sustainable development

The three pillars of sustainable development – **economic growth, environmental stewardship, and social inclusion** – carry across all sectors of development, from cities facing rapid urbanization to agriculture, infrastructure, energy development and use, water availability, and transportation.

1.2 Sustainable Development Goals

- Active participation of countries, people and business along with United Nations has intensified the efforts to achieve **Agenda 2030 for sustainable development**. Seventeen Sustainable Development Goals (SDGs) for Agenda 2030 were officially enforced on January 1, 2016 by the leaders of the world.
- The SDGs were developed in the Post-2015 Development Agenda as the future global development framework to succeed the **Millennium Development Goals which ended in 2015**.
- The SDGs were set up in 2015 by the **United Nations General Assembly**. They are included in a UN Resolution called the **2030 Agenda or what is colloquially known as Agenda 2030**.
- Seventeen Sustainable development Goals are:



2 Important Conventions, Alliances and Protocols

2.1 United Nations Conference on Environment and Development (UNCED)

- The United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit was a major United Nations conference held in Rio de Janeiro from 3 to 14 June 1992.
- 172 governments participated, with 116 sending their heads of state or government.
- As a follow-up, the **World Summit on Sustainable Development (Rio+10)** was held in 2002 in Johannesburg, South Africa.
- In 2012, the **United Nations Conference on Sustainable Development** was also held in Rio, and is also commonly called **Rio+20** or Rio Earth Summit 2012.

Major issues addressed in the Summit

- Systematic scrutiny of patterns of production particularly the production of toxic components, such as lead in gasoline, or poisonous waste including radioactive chemicals.

- Alternative sources of energy to replace the use of fossil fuels which are linked to global climate change.
- New reliance on public transportation systems in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smoke.
- The growing scarcity of water.

The Earth Summit resulted in the following documents:

- Rio Declaration on Environment and Development
- Agenda 21
- Forest Principles

The following Conventions (Rio Convention) were opened for signature:

- Convention on Biological Diversity
- United Nations Framework Convention on Climate Change (UNFCCC)
- United Nations Convention to Combat Desertification

2.2 Agenda 21

- Agenda 21 is an action plan of the United Nations (UN) related to sustainable development.
- The number **21** refers to an agenda for the 21st century.
- It is a comprehensive blue print of action to be taken globally, nationally and locally by organizations of the UN, Governments, and major groups in every area in which humans directly affect environment.

2.3 Convention on Biological Diversity (CBD)

- Biodiversity knows no political boundaries and its conservation is therefore a collective responsibility of all nations.
- Convention on Biological Diversity (CBD) is a step towards conserving biological diversity or biodiversity with the involvement of the entire world.
- The historic Convention on Biological Diversity (Biodiversity Convention - a multilateral treaty) was opened for signature at the Earth Summit in Rio de Janeiro in 1992 and entered into in 1993.
- The **Convention is legally binding**; countries that join it ('Parties') are obliged to implement its provisions.
- Almost all UN members and the European Union are parties to the convention.
- All UN member states—with the exception of the United States—have ratified the treaty.

2.4 Meeting of the parties to the convention (Important Conference of Parties)

- The meeting of the parties to the Convention on Biological Diversity takes place every two years.
- On 29 January 2000, the Conference of the Parties to the Convention on Biological Diversity adopted a supplementary agreement to the Convention known as the **Cartagena Protocol on Biosafety**.
- At the 2010, 10th Conference of Parties (COP) to the Convention on Biological Diversity in October in Nagoya, Japan, the **Nagoya Protocol** was adopted.

2.5 Cartagena Protocol

- The Cartagena Protocol on Biosafety (CPB), the first international regulatory framework for safe transfer, handling and use of Living Modified Organisms (LMOs).

- The Biosafety Protocol seeks to protect biological diversity from the potential risks posed by genetically modified organisms resulting from modern biotechnology.
- The Biosafety Protocol makes clear that products from new technologies must be based on the precautionary principle and allow developing nations to balance public health against economic benefits.
- The Protocol had **173 parties**, which includes 170 United Nations member states, the State of Palestine, Niue, and the European Union

2.6 Nagoya Protocol

- The Nagoya Protocol is about “**Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization**”, one of the three objectives of the CBD.
- The Protocol was adopted on 29 October 2010 in Nagoya, Japan, and entered into force on 12 October 2014. It has been ratified by 60 parties.
- **The Nagoya Protocol is intended to create greater legal certainty and transparency for both providers and users of genetic resources by:**
 - Helping to ensure benefit-sharing when genetic resources leave the contracting party providing the genetic resources.
 - By helping to ensure benefit-sharing, the Protocol creates incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being.

2.7 The United Nations Environment Programme (UNEP)

- It is responsible for coordinating responses to environmental issues within the United Nations system.
- It was established after the **United Nations Conference on the Human Environment in Stockholm in June 1972**.
- As a member of the United Nations Development Group, UNEP aims to help the world meet the 17 Sustainable Development Goals.
- UNEP **hosts the secretariats of several multilateral environmental agreements** and research bodies, including The Convention on Biological Diversity (CBD), The Minamata Convention on Mercury, The Convention on Migratory Species and The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- In 1988, the World Meteorological Organization and UNEP established the **Intergovernmental Panel on Climate Change (IPCC)**.
- UNEP is also one of several Implementing Agencies for the **Global Environment Facility (GEF)** and the Multilateral Fund for the Implementation of the Montreal Protocol.
- UNEP sometimes uses the alternative name **UN Environment**.

2.8 The International Treaty on Plant Genetic Resources for Food and Agriculture

- This treaty was adopted by the Thirty-First Session of the Conference of the Food and Agriculture Organization of the United Nations on 3 November 2001. Popularly known as the **International Seed Treaty**.

Aim of the Treaty

- Recognizing the enormous contribution of farmers to the diversity of crops that feed the world;
- Establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials;

2.9 UNFCCC: United Nations Framework Convention on Climate Change

- The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty.

Objective of the Treaty

- To "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".
- **Legal Effect:** Treaty is considered legally non-binding: The treaty itself set no binding limits on greenhouse gas emissions for individual countries.
- **Currently, there are 198 Parties** (197 States and 1 regional economic integration organization) **to the United Nations Framework Convention on Climate Change.**

Common But Differentiated Responsibilities (CBDR)

- It puts the obligation to reduce current emissions on developed countries on the basis that they are historically responsible for the current levels of greenhouse gases in the atmosphere.
- CBDR divides countries into **two categories**.
- Historically biggest polluting developed countries like US, UK, France, Japan, Russia etc. (they are polluting the earth since Industrial Revolution).
- Recently polluting developing countries like China, India, Brazil, etc. (polluting since 1950s).
- "Common" in Common But Differentiated Responsibility means every country (both developing and developed) must take part in the fight against climate change.
- "But differentiated responsibilities" means historically biggest polluters should do more compared to the recent polluters that is responsibilities proportional to pollution caused.
- So, under CBDR, developed countries like US, UK, Russia etc. must contribute more to reduce GHGs (greenhouse gases).
- They must accept to certain binding limits on GHG emissions.
- They must contribute funds towards reducing GHG emissions in developing and least developed countries.
- On the other hand, developing and least developed countries should do everything possible to cut down their GHG emissions. But nothing is binding and every initiative is voluntary.

Criticisms of the UNFCCC

- Nothing except Kyoto Protocol made any binding limits on GHG emissions.
- Never achieved its stated goals of reducing the emission of carbon dioxide.
- Negotiations are governed by consensus and small group of countries often block the negotiations.
- It is easy for the developed countries to escape from their responsibility: United States, one of the biggest polluters never ratified Kyoto Protocol. Canada pulled out of Kyoto Protocol citing wealth transfers out the country due to binding limits.
- Treaty doesn't cover developing countries which now include the largest CO₂ emitters (India and China).
- Japan, Russia didn't sign second Kyoto term because it would impose restrictions on it not faced by its main economic competitors, China, India and Indonesia.

2.10 Kyoto protocol

- The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets.

- Recognizing that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."
- The Kyoto Protocol **was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005.**
- The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh, Morocco, in 2001, and are referred to as the "Marrakesh Accords."
- There are currently 192 Parties to the protocol. USA never ratified Kyoto Protocol. Canada withdrew in 2012.

Commitment period of Kyoto Protocol

- There are **two commitment periods of Kyoto Protocol.**
- The first commitment period under the Kyoto Protocol was from 2008-2012.
- The second commitment period of the Kyoto Protocol or Doha Amendment for 2013-2020 period was adopted in 2012. (In Doha, Qatar, on 8 December 2012, the "Doha Amendment to the Kyoto Protocol" was adopted.)

Classification of Parties under Kyoto Protocol

- **Annex I:** Developed countries (US, UK, Russia etc.) + Economies in transition (EIT) (Ukraine, Turkey, some eastern European countries etc.)
- **Annex II:** Developed countries. Annex II is a subset of Annex I. Required to provide financial and technical support to the EITs and developing countries to assist them in reducing their greenhouse gas emissions.
- **Annex B:** Annex I Parties with first or second-round Kyoto greenhouse gas emissions targets. The first-round targets apply over the years 2008–2012 and the second-round Kyoto targets, which apply from 2013–2020. They have compulsory binding targets to reduce GHG emissions.
- **Non-Annex I:** Parties to the UNFCCC not listed in Annex I of the Convention are mostly low-income developing countries. No binding targets to reduce GHG emissions.
- **LDCs:** Least-developed countries. No binding targets to reduce GHG emissions.
- Developing countries may volunteer to become Annex I countries when they are sufficiently developed.
- **The Kyoto Protocol emission target gases include** Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Sulphur Hexafluoride (SF₆), Groups of hydro fluorocarbons (HCFs) and Groups of Per fluorocarbons (PFCs)

Flexible Market Mechanisms – Kyoto Protocol

Countries bound to Kyoto targets have to meet them largely through domestic action— that is, to reduce their emissions onshore. But they can meet part of their targets through three “market-based mechanisms”. Market mechanisms are **Clean Development Mechanism (CDM), Joint Implementation (JI) and Emission Trading**

1) Clean Development Mechanism (CDM)

- The Clean Development Mechanism (CDM), defined in the Kyoto Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries.

- Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO₂, which can be counted towards meeting Kyoto targets.
- Developed countries emit more and lose carbon credits. They provide financial assistance to developing and least developed countries to create clean energy (solar, wind energy etc.) and gain some carbon credits to meet their Kyoto Quota (Kyoto units) of emissions without violations.

2) Joint Implementation (JI)

- The mechanism known as “joint implementation,” allows a country with an emission reduction commitment under the Kyoto Protocol (Annex B Party) to earn emission reduction units (ERUs) from an emission-reduction project in another Annex B Party, each equivalent to one tonne of CO₂, which can be counted towards meeting its Kyoto target.
- Joint implementation offers Parties a flexible and cost-efficient means of fulfilling a part of their Kyoto commitments, while the host Party benefits from foreign investment and technology transfer.

3) International Emissions Trading

- Emissions trading, allows countries that have emission units to spare - emissions permitted to them but not "used" - to sell this excess capacity to countries that are over their targets.
- Thus, a new commodity was created in the form of emission reductions or removals.
- Since carbon dioxide is the principal greenhouse gas, people speak simply of trading in carbon.
- Carbon is now tracked and traded like any other commodity. This is known as the "carbon market."

Non-Compliance of Kyoto Protocol and Penalties

- If a country does not meet the requirements for measurements and reporting said country **loses the privilege of gaining credit through joint implementation projects.**
- If a country goes above its emissions cap, and does not try to make up the difference through any of the mechanisms available, then said country must make up the difference plus an additional thirty percent during the next period.
- The country could also be banned from participating in the '**cap and trade**' program.

Criticism of Kyoto Protocol

- Under Kyoto Protocol, Annex 1 countries can meet their targets by cutting emissions or buying unused allowances (carbon credits, carbon trading) from other countries.
- Kyoto Protocol is based on the “common but differentiated responsibility” approach to global warming. Under CBDR, many countries were allowed to increase pollution.
- It excluded most polluting countries like China and India, which have since become the world's largest and fourth largest polluters.

2.11 Important Summits

2.11.1 Lima Summit, 2014

- COP20 or CMP10 or Lima Summit was held in Lima, Peru, in December 2014.
- 2014 United Nations Climate Change Conference is the 20th yearly session of the Conference of the Parties (COP 20) to the 1992 United Nations Framework Convention on Climate Change

(UNFCCC) and the 10th session of the Meeting of the Parties (CMP 10) to the 1997 Kyoto Protocol.

- The overarching goal of the conference was to reduce greenhouse gas emissions (GHGs) to limit the global temperature increase by 2030 to 2 degrees Celsius above 1850 baseline or pre-Industrial era.
- No agreement was reached due to lack of consensus between developed and developing countries.
- There was no clarity on the burden that each country has to bear and the summit ended in mere symbolism.

Last-minute deal to end the impasse at Lima Summit

- The last-minute deal urged developed countries to provide financial support to developing countries to meet their “ambitious mitigation” goals (Slightly in favor of Common But Differentiated Responsibility).
- The agreement urges parties to take national pledges by finalizing their Intended Nationally Determined Contributions (INDC) by November 2015 (Before Paris Summit).

2.11.2 Paris summit, 2015

- 2015 United Nations Climate Change Conference (COP 21 or CMP 11) took place from November 30 to December 11, 2015 in Paris.
- Previous summit was held in 2014 in Lima, Peru. No agreement was reached in Lima. All agreements and decisions were reserved for Paris Summit 2015.
- Paris Summit is one of the most important environmental conferences because of the INDC commitments made by major polluters.
- The conference objective is to achieve a legally binding and universal agreement on climate to be signed in 2015, and implemented by 2020.
- **Aims of Paris Agreement**
 - Keep the global temperature rise this century well below 2 degrees Celsius above the pre-industrial level.
 - Pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.
 - Strengthen the ability of countries to deal with the impacts of climate change.

Salient Features

- Paris Accord talks about limiting the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100.
- Rich countries should help poorer nations by providing “**climate finance**” to adapt to climate change and switch to renewable energy.
- The agreement is **binding in some elements** like reporting requirements, while leaving other aspects of the deal such as the setting of emissions targets for any individual country as non-binding.
- The Paris Agreement requires all Parties to put forward their best efforts through “nationally determined contributions” (NDCs) and to strengthen these efforts in the years ahead. In 2018, Parties has taken stock of the collective efforts in relation to progress towards the goal set in the Paris Agreement.

- There will also be a **global stock take every 5 years** to assess the collective progress towards achieving the purpose of the Agreement and to inform further individual actions by Parties.

India's Intended Nationally Determined Contributions (INDC)

It was announced in October, 2015 (Lima summit urged every country to announce its INDCs by Nov, 2015)

- 1) Reduce emission intensity **by 33 to 35 per cent by 2030 compared to 2005** levels.
- 2) Produce **40 per cent of electricity from non-fossil fuel-based** energy resources by **2030**, if international community helps with technology transfer and low-cost finance.
- 3) Create an **additional carbon sink of 2.5 to 3 billion tonnes** of carbon dioxide equivalent by **2030** through additional forest and tree cover.

Enforcement of Paris Agreement

- The agreement came into force on 4th November 2016, thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary.
- India has ratified the Paris Agreement on climate change on the 147th birth anniversary of Mahatma Gandhi (2nd October, 2016).
- With this, India became 62nd country to ratify the agreement. These 62 countries including India are responsible for almost 52% of Green House Gases (GHG) emissions.
- On 5 October 2016, the threshold for entry into force of the Paris Agreement was achieved.

NOTE – Rest all important summits are covered in the fodder material of this chapter.

Concept Check

Q. Which is the national implementing agency of National Adaptation Fund on Climate Change:

- (a) RBI
- (b) Ministry of Finance
- (c) NITI Aayog
- (d) NABARD
- (e) None of the above

Answer: D

2.12 International Solar Alliance

- India and France had launched International Solar Alliance (ISA) at the **Conference of Parties (CoP21) Climate Conference in Paris, France**.
- The idea of alliance was mooted by Indian PM Narendra Modi to harness solar power as a major step to mitigate carbon gas emissions.

Salient Features

- Aims to bring solar rich tropical countries located fully or partly between the Tropic of Cancer and Capricorn together to tap solar energy.
- These tropical countries are potential members of alliance and shall be united by the shared vision to bring clean, renewable solar energy within the reach of all.

- The objective of the alliance is to augment solar power generation in these countries with a view to contribute global sustainable development.
- It would play important role in achieving the objective of keeping global warming **below 2 degrees Celsius**.
- It will function from the Gurgaon based **National Institute of Solar Energy (NISE)**.

Note: For all the future conferences which would be held in the subsequent years, kindly refer EduTap's ESI in news monthly Current Affairs magazine.

2.13 United Nations Convention to Combat Desertification (UNCCD)

- UNCCD is a Convention **to combat desertification** and mitigate the effects of drought through national action programs (NAP).
- The Convention stemmed from a direct recommendation of the Rio Conference's Agenda 21, was adopted in Paris, France in 1994 and entered into force in 1996.
- It is the only internationally legally **binding** framework set up to address the problem of desertification.
- To help publicize the Convention, 2006 was declared "International Year of Deserts and Desertification".
- **UNCCD collaborates closely with Convention on Biological Diversity (CBD).**

2.14 Stockholm Convention

- It is a global treaty to **protect human health and environment from persistent organic pollutants (POPs)**.
- It is legally binding.
- **India ratified the Stockholm Convention in 2006.**
- Ministry of Environment had notified the 'Regulation of POP Rules' in 2018, under the **Environment (Protection) Act, 1986**.

2.15 Montreal Protocol

- The Montreal Protocol is an international treaty designed **to protect the ozone layer**. It came into force in **1989**.
- It aims at reducing the production and consumption of ozone depleting substances (ODS) in order to protect the earth's fragile ozone layer.
- It has been ratified by 197 parties making it universally ratified protocol in United Nations history.
- **India became its signatory member on 19th June 1992.**
- It is also highly successful international arrangement, as it has phased-out more than 95% of the ODS so far in its main mandate less than 30 years of its existence.
- With International cooperation this treaty has successfully led the phase-out operation of production & consumption of major **Ozone Depleting Substance (ODS) viz CFCs, HCFCs, Carbon tetrachloride (CTC) and Halons** globally in span of 27 years.
- Hydrofluorocarbons (HFCs) took the place of above ODS, which worked as an alternative to CFCs & HCFCs and is now commonly used as refrigerants and coolants in refrigerators and air-conditioners.

2.16 Kigali Agreement

- A historic global climate deal was reached in Kigali, Rwanda at the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (MOP28) in November, 2016.
- The Kigali Amendment, which **amends the 1987 Montreal Protocol**, aims to phase out Hydrofluorocarbons (HFCs), a family of potent greenhouse gases by the late 2040s.
- Under Kigali Amendment, in all 197 countries, including India have agreed to a timeline to reduce the use of HFCs by roughly **85% of their baselines by 2045**.
- The Kigali Agreement or amended Montreal Protocol for HFCs **reduction is binding on countries from 2019**.
- It also has provisions for **penalties for non-compliance**. Under it, developed countries will also provide enhanced funding support estimated at billions of dollars globally. The exact amount of additional funding from developed countries will be agreed at the next Meeting of the Parties in Montreal in 2017.
- All signatory countries have been divided into three groups with different timelines to go about reductions of HFCs.
 - **First group**: It includes richest countries like US and those in European Union (EU). They will freeze production and consumption of HFCs by 2018. They will reduce them to about **15% of 2012 levels by 2036**.
 - **Second group**: It includes countries like China, Brazil and all of Africa etc. They will freeze HFC use by 2024 and cut it to **20% of 2021 levels by 2045**.
 - **Third group**: It includes countries India, Pakistan, Pakistan, Iran, Saudi Arabia etc. They will be freezing HFC use by 2028 and reducing it to about **15% of 2025 levels by 2047**.

3 Important Organizations/Bodies

3.1 Intergovernmental Panel on Climate Change

- It is a scientific **intergovernmental body** under the auspices of the United Nations.
- It was set up at the request of member governments.
- It was first **established in 1988** by two United Nations organizations, **the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP)**.
- Membership of the IPCC is open to all members of the WMO and UNEP.
- The IPCC produces **reports** that support the United Nations Framework Convention on Climate Change (UNFCCC).
- The IPCC does not carry out its own original research.
- Thousands of scientists and other experts contribute on a voluntary basis.
- The 2007 Nobel Peace Prize was shared, in two equal parts, between the IPCC and an American Environmentalist.
- **The aims of the IPCC** are to assess scientific information relevant to human-induced climate change, the impacts of human-induced climate change and options for adaptation and mitigation.

3.2 The World Wide Fund for Nature

- The World Wide Fund for Nature (WWF) is an **international non-governmental organization** founded on April 29, 1961, and is working on issues **regarding the conservation, research and restoration of the environment**.

- It is the world's largest conservation organization with over 5 million supporters worldwide, working in more than 100 countries, supporting around 1,300 conservation and environmental projects.
- The group's mission is "to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature."

3.3 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

- CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an **international agreement between government entered into force in 1975**.
- It is the **only treaty** to ensure that international trade in plants and animals does not threaten their survival in the wild.
- CITES is administered through **United Nations Environment Programme (UNEP)**.
- CITES works by subjecting international trade in specimens of selected species to certain controls.

3.4 TRAFFIC – The Wildlife trade monitoring network

- TRAFFIC, the wildlife trade monitoring network, is an international organization dedicated to ensuring that trade in wild plants and animals is not a threat to the conservation of nature.
- TRAFFIC is a **joint programme of World Wide Fund for Nature (WWF) and the World Conservation Union (IUCN)**.
- TRAFFIC also works in close co-operation with the **Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.
- Founded in 1976, TRAFFIC's headquarters are now located in Cambridge, United Kingdom

4 India's National Action Plan on Climate Change

- India's **National Action Plan on Climate Change (NAPCC)** was launched in **2008**.
- Government is implementing the National Action Plan on Climate Change (NAPCC) with a view to enhance the ecological sustainability of India's development path and address climate change.

4.1 Eight National Missions under National Action Plan

4.1.1 National Solar Mission

- The National Solar Mission is a major initiative to promote ecologically sustainable growth while addressing India's energy security challenge. At the end of each plan there will be an evaluation of progress.
- **Objectives**
 - To establish India as a global leader in solar energy, by creating the policy conditions for its diffusion across the country as quickly as possible.
 - To create an enabling policy framework for the deployment of 100,000 MW of solar power by 2022.
 - To create favorable conditions for solar manufacturing capability, particularly solar thermal for indigenous production and market leadership.

4.1.2 National Mission for Enhanced Energy Efficiency (NMEEE)

- NMEEE seeks to strengthen the market for energy efficiency by creating conducive regulatory and policy regime.

- NMEEE has been envisaged to foster innovative and sustainable business models to the energy efficiency sector.
- The NMEEE seeks to create and sustain markets for energy efficiency in the entire country which will benefit the country and the consumers".

4.1.3 National Mission on Sustainable Habitat

- "National Mission on Sustainable Habitat" seeks to promote sustainability of habitats through improvements in energy efficiency in buildings, urban planning, improved management of solid and liquid waste, modal shift towards public transport and conservation through appropriate changes in legal and regulatory framework.
- It also seeks to improve ability of habitats to adapt to climate change by improving resilience of infrastructure, community-based disaster management and measures for improving advance warning systems for extreme weather events.

4.1.4 National Water Mission (NWM) Mission

- Ensuring integrated water resource management for conservation of water, minimization of wastage and equitable distribution both across and within states.
- Developing a framework for optimum water use through increase in water use efficiency by 20% through regulatory mechanisms with differential entitlements and pricing, taking the National Water Policy (NWP) into consideration.

4.1.5 National Mission for Sustaining the Himalayan Ecosystem (NMSHE)

- Develop a sustainable National capacity to continuously assess the health status of the Himalayan Ecosystem.
- Assist States in the Indian Himalayan Region with their implementation of actions selected for sustainable development.

4.1.6 National Mission for a Green India

- Increased forest/tree cover on **5 million hectares (ha)** of forest/non-forest lands and improved quality of forest cover on another 5 million ha of non-forest/forest lands (a total of 10 million ha)
- Improved ecosystem services including biodiversity, hydrological services, and carbon sequestration from the 10 million ha of forest/ non-forest lands mentioned above
- Increased forest-based livelihood income of about 3 million households, living in and around the forests
- **Enhanced annual CO2 sequestration by 50 to 60 million tons in the year 2020.**

4.1.7 National Mission for Sustainable Agriculture (NMSA)

The NMSA has identified key dimensions for Adaptation and mitigation, Improved Crop Seeds, Livestock and Fish Culture, Water Efficiency, Pest Management, Improved Farm Practices, Nutrient Management, Agricultural Insurance, Credit Support, Markets, Access to Information, Livelihood Diversification.

4.1.8 The National Mission on Strategic Knowledge for Climate Change (NMSKCC)

- Formation of knowledge networks among the existing knowledge institutions engaged in research and development relating to climate science.

- Establishing research networks and encouraging research in the areas of climate change impacts on important socio-economic sectors like agriculture, health, natural ecosystems, biodiversity, coastal zones, etc.

4.2 National Clean Air Programme (NCAP)

- It is a pollution control initiative launched by the Ministry of Environment to cut the concentration of coarse (PM10) and fine particles (PM2.5) by at least 20% in the next five years, with 2017 as the base year for comparison.
- It is to be implemented in **102 non-attainment cities**.
- Central Pollution Control Board (CPCB) executes the programme for the prevention, control, and abatement of air pollution within the framework of NCAP. It directs state governments about implementing action plans immediately under NCAP.

4.3 National Adaptation Fund on Climate Change (NAFCC)

- In the Budget 2015, "National Adaptation Fund" for climate change was introduced.
- As an initial sum, an amount of Rs 100 crore will be transferred to the fund.
- Government has set up a budget provision of Rs.350 crores for the year 2015-16 and 2016-17, with an estimated requirement of Rs. 181.5 crores for financial year 2017-18 for NAFCC
- Money obtained from coal cess goes into NAF.
- **Objective:** Assist States and Union Territories that are particularly vulnerable to the adverse effects of climate change in meeting the cost of adaptation.
- The **National Bank for Agriculture and Rural Development (NABARD)** has been appointed as National Implementing Entity (NIE) responsible for implementation of adaptation projects under the (NAFCC).

5 Pollution Related Acts

5.1 The Water (Prevention and Control of Pollution) Act of 1974 and Amendment, 1988

- The Act vests regulatory authority in State Pollution Control Boards to establish and enforce effluent standards for factories.
- A Central Pollution Control Board performs the same functions for Union Territories and formulates policies and coordinates activities of different State Boards.
- The Act grants power to SPCB and CPCB to test equipment and to take the sample for the purpose of analysis.

5.2 The Water (Prevention and Control of Pollution) Cess Act of 1977

- The Water Cess Act was passed to generate financial resources to meet expenses of the Central and State Pollution Boards.
- The Act creates **economic incentives** for pollution control and requires local authorities and certain designated industries to pay a cess (tax) for water effluent discharge.
- The **Central Government**, after deducting the expenses of collection, pays the Central Board and the States such sums, as it seems necessary.

5.3 The Air (Prevention and Control of Pollution) Act of 1981 and amendment, 1987

- To implement the decisions taken at the **United Nations Conference on the Human Environment** held at Stockholm in June 1972, Parliament enacted the nationwide Air Act.
- The main objectives of this Act are to improve the quality of air and to prevent, control and abate air pollution in the country.

- The Air Act's framework is **similar** to that of the Water Act of 1974.
- The Air Act expanded the authority of the central and state boards established under the Water Act, to include air pollution control.
- States not having water pollution boards were required to set up air pollution boards.
- Under this Act, all industries operating within designated air pollution control areas must obtain a "consent" (**permit**) from the **State Boards**.

6 Environment & Biodiversity Acts/Bodies

6.1 Environment (Protection) Act of 1986

- In the wake of the **Bhopal tragedy**, the government of India enacted the Environment (Protection) Act of 1986.
- The purpose of the Act is to implement the decisions of the **United Nations Conference on the Human Environment** of 1972, in so far as they relate to the protection and improvement of the human environment and the prevention of hazards to human beings, other living creatures, plants and property.
- **Important Provisions**
 - The Act empowers the **center** to "take all such measures as it deems necessary".
 - The Act **explicitly prohibits discharges of environmental pollutants** in excess of prescribed regulatory standards.
 - There is also a **specific prohibition against handling hazardous substances** except those in compliance with regulatory procedures and standards.

6.2 Genetic Engineering Appraisal Committee (GEAC)

- The Genetic Engineering Appraisal Committee (GEAC) is the **apex body** constituted in the Ministry of Environment and Forests under 'Rules for Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or Cells 1989', under the Environment Protection Act, 1986.

6.3 Wild Life (Protection) Act of 1972 and Amendment, 1982

- In 1972, Parliament enacted the Wild Life Act (Protection) Act.
- **The Wild Life (Protection) Act provides for:**
 - 1) State Wildlife Advisory Boards,
 - 2) Regulations for hunting wild animals and birds,
 - 3) Establishment of sanctuaries and national parks,
 - 4) Regulations for trade in wild animals, animal products and trophies, and
 - 5) Judicially imposed penalties for violating the Act.
- Harming **endangered** species listed in **Schedule 1** of the Act is prohibited throughout India.
- Hunting species, like those requiring special protection (Schedule II), big game (Schedule III), and small game (Schedule IV), is regulated through licensing.
- A few species classified as **vermin (Schedule V)**, may be hunted without restrictions.

6.4 The Wild Life (Protection) Amendment Act, 2006

- NTCA was set up under the Chairmanship of the Minister for Environment and Forests.
- **The Act provides for creating:**
 - 1) National Tiger Conservation Authority and

2) Tiger and Other Endangered Species Crime Control Bureau (Wildlife Crime Control Bureau).

- **Functions of NTCA**

- The Authority lays down standards, guidelines for tiger conservation in the Tiger Reserves, National Parks and Sanctuaries.
- State level Steering Committees will be set up in the Tiger States under the Chairmanship of respective Chief Ministers. This has been done with a view for ensuring coordination, monitoring and protection of tigers in the States.
- A provision has been made for the State Governments to prepare a Tiger Conservation Plan.

6.5 Animal Welfare Board of India

- Statutory advisory body advising the Government of India on animal welfare laws, and promotes animal welfare in the country of India.
- It works to ensure that animal welfare laws in the country are followed; provides grants to Animal Welfare Organizations; and considers itself "the face of the animal welfare movement in the country."
- It was established in 1960 under Section 4 of The Prevention of Cruelty to Animals Act, 1960.
- The subject of Prevention of Cruelty to Animals is under Ministry of Environment and Forests.

Indian government has also started some conservation projects for individual endangered species like Hungul (1970), Lion (1972), Tiger (1973), Crocodiles (1974), Brown-antlered Deer (1981) and Elephant (1991-92).

6.6 Project Tiger – Tiger Conservation

- Indian tiger population at the end of the 20th century was estimated at 20,000 to 40,000 individuals.
- The **first country-wide tiger census conducted in 1972** estimated the population to comprise a little more than 1,800 individuals, an alarming reduction in tiger population.
- In 1973, **Project Tiger was launched in the Palamau Tiger Reserve**, and various tiger reserves were created in the country based on a 'core-buffer' strategy.
- Tiger reserves are governed by the **Project Tiger (1973)**.
- It is a Centrally Sponsored Scheme of the Ministry of Environment and Forests.
- It is **administered by the** National Tiger Conservation Authority.
- **Aim:** Protect tigers from extinction by ensuring a viable population in their natural habitats.

6.7 Forest (Conservation) Act of 1980

- First Forest Act was **enacted in 1927**.
- Alarmed at India's rapid deforestation and resulting environmental degradation, Centre Government enacted the Forest (Conservation) Act in 1980.
- It was enacted to consolidate the law related to forest, the transit of forest produce and the duty livable on timber and other forest produce.
- Forest officers and their staff administer the Forest Act.
- Under the provisions of this Act, prior approval of the Central Government is required for diversion of forestlands for non-forest purposes.
- An Advisory Committee constituted under the Act advises the Centre on these approvals.
- The Act deals with the four categories of the forests, namely reserved forests, village forests, protected forests and private forests.

6.8 Biological Diversity Act 2002

- The legislation aims at regulating access to biological resources so as to ensure equitable sharing of benefits arising from their use.
- The Biological Diversity Bill was introduced in the Parliament in 2000 and was passed in 2002.
- **Salient features**
 - The main intent of this legislation is to protect India's rich biodiversity and associated knowledge against their use by foreign individuals and organizations without sharing the benefits arising out of such use, and to check biopiracy.
 - The Act provides for setting up of a National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs) in local bodies. The NBA will enjoy the power of a civil court.

6.9 The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

- Forest Rights Act, 2006 provides for the restitution of deprived forest rights across India.
- The Act provides scope of integrating conservation and livelihood rights of the people.
- **FRA is a tool**
 - To empower and strengthen the local self-governance
 - To address the livelihood security of the people
- **For the first time** Forest Rights Act recognizes and secures:
 - Community Rights in addition to their individual rights.
 - Right to protect, regenerate or conserve or manage any community forest resource which the communities have been traditionally protecting and conserving for sustainable use.
 - Right to intellectual property and traditional knowledge related to biodiversity and cultural diversity.
 - Rights of displaced communities & Rights over developmental activities.

Salient Features

- Nodal Agency for the implementation is **Ministry of Tribal Affairs (MoTA)**.
- This Act is applicable for Tribal and Other Traditional Forest Dwelling Communities.
- The Act provides for recognition of forest rights of **other traditional forest dwellers** provided they have for at least three generations prior to 13.12.2005 primarily resided in and have depended on the forests for bonafide livelihood needs.
- The maximum limit of the recognizing rights on forest land is **4 ha**.
- **National Parks** and **Sanctuaries** have been included along with Reserve Forest, Protected Forests for the recognition of Rights.
- The Act recognizes the right of ownership access to collect, use, and dispose of minor forest produce by tribals.
- The rights conferred under the Act shall be **heritable but not alienable or transferable**.
- As per the Act, the **Gram Sabha** has been designated as the competent authority for initiating the process of determining the nature and extent of individual or community forest rights.

6.10 National Green Tribunal Act, 2010

- Act of the Parliament of India which enables creation of NGT to handle the expeditious disposal of the cases pertaining to environmental issues.

- It was enacted under India's constitutional provision of Article 21, which assures the citizens of India the right to a healthy environment.
- The specialized architecture of the NGT will facilitate fast track resolution of environmental cases and provide a boost to the implementation of many sustainable development measures.
- NGT is mandated to dispose the cases within **six months** of their respective appeals.
- **Origin** - During the Rio de Janeiro summit of United Nations Conference on Environment and Development in June 1992, India vowed the participating states to provide **judicial and administrative remedies** for the victims of the pollutants and other environmental damage.
- **Members**
 - The sanctioned strength of the tribunal is currently 10 expert members and 10 judicial members although the act allows for up to 20 of each.
 - The Chairman of the tribunal who is the administrative head of the tribunal also serves as a judicial member.
 - Every bench of tribunal must consist of at least one expert member and one judicial member.
 - The Chairman of the tribunal is required to be a **serving or retired Chief Justice of a High Court or a judge of the Supreme Court of India**
- **Jurisdiction** - The Tribunal has Original Jurisdiction on matters of “substantial question relating to environment” (i.e., a community at large is affected, damage to public health at broader level) & “damage to environment due to specific activity” (such as pollution).

7 Coastal Environment and Wetlands related Legislation/Rules

7.1 Coastal Regulation Zone (CRZ)

- The coastal stretches of seas, bays, estuaries, creeks, rivers and back waters which are influenced by tidal action are declared "Coastal Regulation Zone" (CRZ) in 1991.
- India has created institutional mechanisms such as **National Coastal Zone Management Authority (NCZMA)** and State Coastal Zone Management Authority (SCZMA) for enforcement and monitoring of the CRZ Notification.
- These authorities have been delegated powers under Section 5 of the **Environmental (Protection) Act, 1986** to take various measures for protecting and improving the quality of the coastal environment and preventing, abating and controlling environmental pollution in coastal areas.

7.2 Wetlands (Conservation and Management) Rules, 2017

Provisions

- **Constitution of State Wetland Authority:** It has provisions for setting up of a State Wetland Authority (SWA) in every state and Union Territory to be headed by the Minister of Environment of the respective state. It is to include a range of government officials. One expert each in the fields of hydrology, socioeconomics, landscape planning, fisheries, and wetland ecology. They will determine the ‘wise use principle’ that shall govern the management of wetlands. “Wise use” can be defined as the principles of sustainable use that are compatible with conservation. This has led to the decentralization of powers. The SWA shall:
 - Develop a comprehensive list of activities to be regulated and permitted within notified wetlands and their zone of influence.
 - Recommend additional prohibited activities for specified wetlands.

- Define strategies for better use of wetlands.
- Recommend measures for wetland conservation and for raising awareness among its stakeholders and local communities with respect to the importance of wetlands.
- **Setting up of National Wetland committee (NWC):** NWC will replace the Central Wetlands Regulatory Authority and shall be headed by the secretary to MoEFCC.
- **Prohibited Activities:** The rules prohibit activities like conversion of wetland for non-wetland uses including encroachment of any kind, setting up and expansion of industries, waste dumping and discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements.
- **Digital inventory of all wetlands:** It is mandatory for state authorities to prepare list of all wetlands and list of wetlands to be notified within six months. Based on it, a comprehensive digital inventory of all wetlands will be created and will be updated every ten years.

8 Other important concepts

8.1 Natural Capital Accounting and Valuation of the Ecosystem Services (NCAVES)

- NCAVES India Forum 2021 was organised by the Ministry of Statistics and Programme Implementation.
- Natural Capital Accounting (NCA) is a tool that can help measure the full extent of a country's natural capital. It also provides a perspective on the link between the economy, ecology and environment.
 - Natural capital includes individual environmental assets or resources, both biotic and abiotic (such as water, minerals, energy, timber and fish), as well as ecosystem assets (e.g. forests and wetlands), biodiversity and ecosystem services (e.g. air and water filtration and purification, flood protection, carbon storage, pollination of crops and habitats for wildlife).
- NCA establishes the links between an ecosystem and the economy, which can be presented in both physical and monetary terms.

8.2 Coalition for Disaster Resilient Infrastructure (CDRI)

- CDRI is a multi-stakeholder global partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, private sector, and academic and knowledge institutions.
- It was announced by India's PM at **UN Climate Action Summit 2019**.
- It aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks, thereby ensuring sustainable development.