# CURRENT AFFAIRS 2020

## Environment

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# Plastic Pollution

CA - 1229

## News

On August 15, in his Independence Day address, Prime Minister Narendra Modi called for a **movement to eliminate single-use plastic** in India, beginning on Gandhi Jayanti

## What is a plastic?

It is a lightweight, hygienic and resistant material which can be moulded in a variety of ways and utilized in a wide range of applications.

## Key terms

1. Thermosets and thermoplastic
2. Single use plastic
3. Microplastics
4. PET and others

## Impacts of plastic pollution

1. Non-biodegradable
2. Threat to fauna
3. Bioaccumulation
4. Choke waterways and exacerbate natural disasters
5. Toxic emissions from burning
6. Indirect social costs
7. Can aggravate transmission of vector-borne diseases
8. Marine plastic pollution

## Steps Taken

1. Plastic Waste Management Rules, 2016
    a. Increase the minimum thickness of plastic carry-bags
    b. Expanded the jurisdiction of applicability
    c. Defined a very complicated system of EPR
2. Maharashtra was the first state in India to implement a ban on single-use plastics, followed by Telangana, Himachal Pradesh and Tamil Nadu.

### Issues

1. In spite of the notification of the Plastic Waste Management Rules, most cities and towns are not prepared to implement its provisions.
2. Failure in waste segregation
3. EPR implementation is loose: In April 2019, the Central Pollution Control Board (CPCB) issued notice to 52 companies asking them to file their plan to fulfil their EPR (extended producer responsibility) obligation.
4. 'Good' plastics suffer from limitations
5. Absence of robust testing and certification

## Solutions

1. There should be research and funding to develop and promote innovative biodegradable products as affordable alternatives to plastic
2. The research on plastic eating bacteria

3. Waste segregation should be made mandatory for waste generators
4. Innovative means to encourage recycling and reap economic benefits should be developed. Example: A Canadian company has plastic collection centres, where waste can be exchanged for many things (e.g. for medical insurance, cooking fuel)
5. Citizen awareness
6. Effective implementation of rules; collection of fines
7. Reduction and gradually phasing out plastic consumption
8. 6 R's- Record, Replace, Refuse, Restore, Refill and Rethink on plastic over use

**International efforts**

1. The Ellen MacArthur Foundation, in collaboration with the United Nations Environment Programme (UNEP), has evolved a new hypothesis titled the 'New Plastics Economy: Global Commitment'. The basic premise of the proposed new plastic economy is: Eliminate-Innovate-Circulate.
2. SDG 14
3. Efforts in France, China and others
4. Efforts to cleanup global garbage patch

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# Madrid Climate Talks

## Context

COP25 of UNFCCC took place in Madrid, Spain in December 2019

## Objectives

1. To complete the rule-book to the 2015 Paris Agreement that would become effective in 2020 to replace the 1997 Kyoto Protocol
2. To discuss the functioning of international emissions trading systems, compensation for poor countries.
3. To commit to a long-term action plan for combating climate change

## Key Outcomes

1. Inclusion of oceans in future NDCs
2. Climate ambition alliance
3. Rules under Article 6 of the Paris Agreement
4. Common time frames
5. Finance
6. Periodic Review
7. Response Measures
8. Common Metrics
9. Gender Action Plan

## India's efforts

1. National Action Plan on Climate Change (NAPCC) which covers eight major missions on Solar, Enhanced Energy Efficiency, Sustainable Habitat, Water, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture and Strategic Knowledge on Climate Change.
2. International Solar Alliances (ISA)
3. State Action Plan on Climate Change (SAPCC)
4. FAME Scheme – for E-mobility
5. Atal Mission for Rejuvenation & Urban Transformation (AMRUT) – for Smart Cities
6. Pradhan Mantri Ujjwala Yojana – for access to clean cooking fuel
7. UJALA scheme - for embracing energy efficient LED bulbs
8. Swachh Bharat Mission
9. INDC- India recently submitted its Second Biennial Update Report (BUR) to the UNFCCC in December 2018 as per the reporting obligations under the convention. The report brings out the fact that emission intensity of India's GDP came down by 21% between 2005 & 2014 and India's achievement of climate goal for pre-2020 period is on track.

## Reports, Terms & Initiatives

1. Greenhouse Gas Bulletin
2. Climate Action Summit
3. Emissions Gap Report
4. Fridays For Future
5. Climate Change Performance Index
6. Global Stocktake

# Ozone Hole

## Context

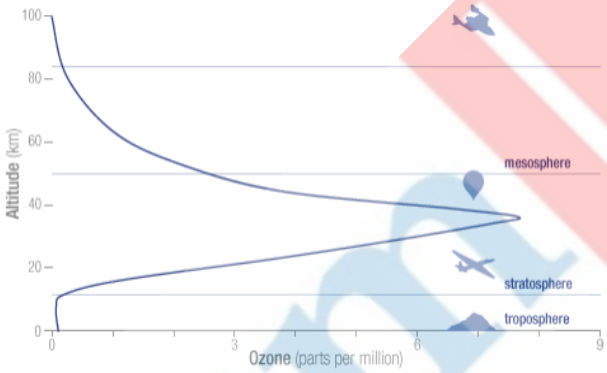
2019 Ozone hole is the smallest on record since its discovery.

## Ozone Hole

The ozone hole is not technically a "hole" where no ozone is present, but is actually a region of exceptionally depleted ozone in the stratosphere.

## Utility of Stratospheric Ozone

Ozone layer is a sunscreen, shielding the planet from potentially harmful ultraviolet radiation that can cause skin cancer and cataracts, suppress immune systems, damage plants disruption and disruption of marine ecosystems. The peak concentration of ozone occurs at an altitude of roughly 32 kilometers (20 miles) above the surface of the Earth.




Ozone concentration in various layers of atmosphere

## Key Terms

1. Dobson unit
2. Ground level ozone pollution
3. Polar stratospheric clouds
4. HFCs

## Montreal Protocol

1. This is a global agreement to protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances (ODS)
2. It was finalized in 1987
3. It is the first treaty to achieve universal ratification by all countries in the world
4. The Parties are assisted by the Ozone Secretariat, which is based at UN Environment headquarters in Nairobi, Kenya.
5. Developing and developed countries have equal but differentiated responsibilities- both groups of countries have binding, time-targeted and measurable commitments.
6. On October 15, 2016, Parties to the Montreal Protocol adopted the **Kigali amendment** to phase down production and consumption of hydrofluorocarbons (HFCs)

## Concerns

1. Global warming and sluggish recovery of ozone hole
2. Exempted chemicals

# Environment issues

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# PARIS AGREEMENT

- PA is an international agreement within the UNFCCC dealing with GHG emission mitigation, Adaptation and finance starting in the year 2020. PA was adopted at COP 21 in Paris. The Paris Agreement central aim is to strengthen the GLOBAL RESPONSE to the threat of climate change and its impacts
- **Long term mitigation goal** of the agreement is TO KEEP global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the global warming even further to 1.5 degrees Celsius.
- The Paris Agreement requires all Parties to put forward their best efforts through nationally determined contributions (NDCs) and to pursue domestic measures to achieve them.
- All the Parties are required to report regularly on their emissions and on their implementation efforts.
- There will also be a GLOBAL STOCKTAKE every 5 years to assess the collective progress towards achieving the goal of the Agreement and to inform Parties in updating and enhancing their action and enhancing international cooperation on climate action.

# PARIS AGREEMENT

All Parties should engage in adaptation, including by formulating and implementing **National Adaptation Plans (NAP).**

The Paris Agreement recognises importance of addressing loss and damage associated with the adverse effects of climate change and aims to find appropriate responses.

The developed countries **reaffirmed the commitment to mobilize $100 billion a year in climate finance by 2020,** and agreed to continue mobilizing finance at the level of $100 billion a year until 2025.

The agreement also provides that the Financial Mechanism of the Convention, Green Climate Fund (GCF), shall serve the Agreement.

# PARIS AGREEMENT

In order to facilitate COOPERATIVE EFFORTS , Paris agreement provides a FRAMEWORK to govern the international transfer of mitigation outcomes (ITMOs). The Agreement recognizes the rights of Parties to use emissions reductions outside of their own jurisdiction toward their NDC, in a system of carbon accounting and trading.

SUSTAINABLE DEVELOPMENT MECHANISM: Paris deal also provides for a mechanism "to contribute to the mitigation of greenhouse gases and support sustainable development". SDM is considered to be the successor to the CDM a flexible mechanism under the Kyoto Protocol, by which parties could collaboratively pursue emissions reductions for their NDCs

The Paris rule book agreed at the UN climate summit in Katowice, Poland, gives countries a COMMON FRAMEWORK for reporting and reviewing progress towards their climate targets.

Paris rule book is a set guidelines that will define how climate action is implemented, and accounted for, over the coming decades.

# PARIS AGREEMENT

India had submitted its National Determined Contributions in 2015. The three main goals of India are as follows

- ✓33% to 35% of reduction in the GDP emission intensity by 2030 as compared to that of 2005 levels
- ✓To create carbon sink of 2.5 to 3 billion tonnes of carbon dioxide: REDD pluss
- ✓To increase the share of non-fossil fuel-based electricity to 40% by 2030

India is on track to achieve two of these goals — of emissions intensity and electricity generation — according to independent climate-watch site Climate Tracker.

# Emissions Gap Report 2020

Published by United Nations Environment Programme (UNEP)

Report is a yearly review of the difference between where greenhouse emissions are predicted to be in 2030 and where they should be to avoid the worst impacts of climate change.

Despite a dip in greenhouse gas emissions from the COVID-19 economic slowdown, the world is still heading for a temperature rise in excess of 3°C this century – far beyond the Paris Agreement goals of limiting global warming to well below 2°C and pursuing 1.5°C.

Global GHG emissions continued to grow for the third consecutive year in 2019, reaching a record high of **52.4 GtCO2e** (range: ±5.2) without land-use change (LUC) emissions and 59.1 GtCO2e (range: ±5.9) when including LUC.

# Emissions Gap Report 2020

- Over the last decade, the top four emitters (China, the United States of America, EU27+UK and India) have contributed to 55 per cent of the total GHG emissions without LUC.
- India accounts for 7% of global emissions
- China accounted for 27% of Global emissions
- Emissions in the U.S account for 15% of the global total
- European Union (10 per cent)

# Emissions Gap Report 2020

- The rich countries have higher **consumption-based emissions** (emissions allocated to the country where goods are purchased and consumed, rather than where they are produced) than **territorial-based emissions (**emissions allocated to the country where goods are produced), as they typically have cleaner production, relatively more services and more imports of primary and secondary products.
- Unconditional NDCs are consistent with limiting warming to 3.2°C by the end of the century (66 per cent probability). If both conditional and unconditional NDCs are fully implemented, this estimate is 0.2°C lower.
- The new and updated NDCs need to become consistent with the net-zero emissions goals.

# Emissions Gap Report 2020

## The distribution of GHG emissions across sectors

- Fossil carbon dioxide (CO2) emissions (from fossil fuels and carbonates) dominate total GHG emissions
- Agriculture and waste are 15 per cent of total GHG emissions, with most emissions from enteric fermentation (ruminant animals, such as cattle), nitrogen fertilizers on agricultural soils, and municipal waste.
- The industry sector has significant emissions from energy use (11 per cent of total GHG emissions), in additional to industrial processes (9 per cent) from mineral products (such as cement) and other chemical reactions.
- The transport sector has contributed to around 14 per cent of global GHG emissions on average over the last decade
- Emissions from LUC are around 11 per cent of the global total, but the bulk of these emissions are from relatively few countries.

# Zero Carbon Law

- New Zealand has passed a law that aims to make the country almost carbon neutral by 2050.
- The Zero Carbon law aims to tackle climate change by setting a net-zero target for almost all GHG emissions by 2050.
- Net Zero, the new goal for most greenhouse gases, is where the amount of emissions produced is equivalent to the amount absorbed by the atmosphere.
- The law establishes a **Climate Change Commission** which will advise the government on how to reach its targets.
- Agriculture is key to the economy of New Zealand, which is home to just under five million people but more than 10 million cows and 28 million sheep.
- Those animals emit methane, resulting in an unusual greenhouse gas emission profile for the country. **Almost half of total emissions come from agriculture**.
-

# European Green Deal

- A roadmap ( a set of policy initiatives) by European commission with the overarching aim of making Europe climate neutral in 2050
- To encourage investment in **environmentally sustainable** activities and prevent companies falsely claiming their products are environmentally friendly - practice known as **green-washing.**
- **Carbon Border Adjustment Mechanism (CBAM):** is one of the primary policy instruments of the Green Deal which seeks to put in place rules to make Europe climate-neutral by 2050. Under the CBAM, the EU may impose **carbon taxes** on imports, beginning with energy-intensive sectors, in order to prevent **'carbon leakage'.**
- According to the European Commission, carbon leakage refers to the situation that may occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries with lenient laxer emission constraints.
- India has pointed out that there could be possible issues of non-compliance with WTO rules and the matter required further scrutiny

# The IPCC Special Report on Global warming of 1.5 °C

IPCC report provides a summary of, on one hand, existing research on the impact that a warming of 1.5 °C would have on the planet, and on the other hand, the necessary steps to limit global warming.

Even with full implementation of NDC's submitted by nations in the Paris Agreement, net emissions would increase compared to 2010, leading to a warming of about 3 °C by 2100.

For limiting global warming below or close to 1.5 °C, net GHG emissions must reach *net zero* by 2050.

Even just for limiting global warming to below 2 °C, CO2 emissions should decline to net zero by 2075.

Limiting global warming to 1.5°C, compared with 2°C, could reduce the number of people both exposed to climate-related risks and susceptible to poverty by up to several hundred million by 2050.

# The IPCC Special Report on Global warming of 1.5 °C

- Climate-related risks associated with increasing global warming depend on **geographic location**, "**levels of development and vulnerability**", and the **speed and reach of climate mitigation and adaptation practices**
- Limit global warming to 1.5 °C with no or limited overshoot would require reducing emissions to below 35 $GtCO_2eq$ per year in 2030.
- Use of negative emission technologies (carbon capture) and solar radiation management.

# Global Climate Risk Index 2020

- The Global Climate Risk Index 2020 is published by International Environmental think tank Germanwatch.
- The Climate Risk Index 2020 published its results after assessing 181 countries and quantifying the impacts of climate change through economic fatalities.
- India was the fifth most climate-affected country in 2018, according to the Global Climate Risk Index 2020
- Japan topped the list of the most affected countries in 2018.

# Environment Issue

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# Deforestation and Forest degradation

- Deforestation occurs when forests are converted to non-forest uses, such as agriculture and road construction.
- Forest degradation occurs when forest ecosystems lose their capacity to provide important goods and services to people and nature.
- Loss of Ecological services
- The world's forests absorb around 2.5 billion tonnes of carbon dioxide (CO2) per year
- land use change, including Deforestation and forest degradation accounts for 11%  of global greenhouse gas emissions.
- Forests also play a crucial role in climate change adaptation efforts.

# The State of the Worlds Forests 2018 (SOFO 2018): FAO

- SOFO 2018 analyses the role that forests and trees – and the people who use and manage them – can play in helping countries achieve their objectives and bring about a brighter future.
- The Global Forest Resources Assessment (FRA), coordinated by FAO, found that the world's forest area decreased from 31.6 percent of global land area to 30.6 percent between 1990 and 2015, but that the pace of loss has slowed in recent years.
- Soil and Water conservation: According to the Millennium Ecosystem Assessment (2005), over 75 percent of the world's accessible freshwater comes from forested watersheds.
- Forests contribute directly to food security by providing food and dietary diversity, supplying wood energy for cooking food, and enhancing the resilience of the ecological and social systems surrounding agriculture.
- **Disaster risk reduction**

# India State of Forest Report

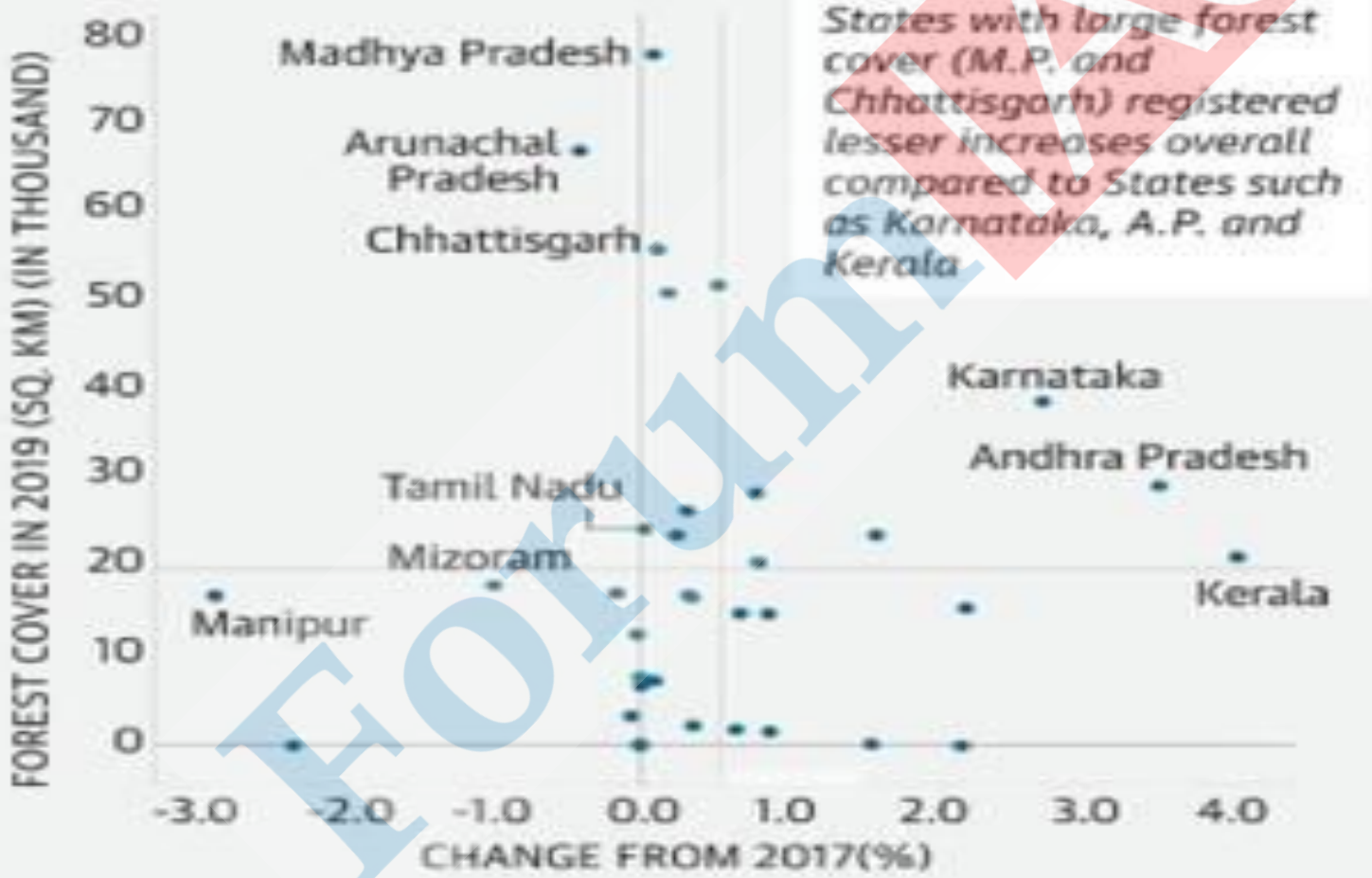
- The ISFR, a biennial report, assesses the forest and tree cover, bamboo resources, carbon stock and forest fires.
- **Tree and forest cover** together made up **25.6 %** of India's area. In the last assessment it was around **24.4 %.**
- **Forest cover** constituted **21.7%** of the nation's geographical area (7.12 lakh sq. km)
- The **total carbon stock** of the country was estimated at **7.12 billion tons,** which is an increase of 43 million tons from the last assessment.
- The forest cover in the country increased by around **4000 square kilometres.**
- The forest cover within the "Recorded Forest Area" (Area officially classified by States or the Centre as 'forest,) showed a 330 sq km decrease, but "forest outside recorded area" increased by 4,306 sqkm.

# India State of Forest Report

- Forest cover declined sharply in the north-eastern States of Arunachal Pradesh, Manipur and Mizoram.
- The top three States showing an increase in forest cover are Karnataka, Andhra Pradesh and Kerala.

# Greener cover

Forest cover in Kerala grew by 4.05%, the most in the country, while the largest decrease of 2.88% was recorded in Manipur



# Draft National Forest Policy 2018

- Unlike the previous policies, which stressed on environmental stability and maintenance of ecological balance, the 2018 policy focusses on the international challenge of climate change.
- Policy proposes climate change mitigation through sustainable forest management.
- Public-private participation models will be developed for undertaking afforestation and reforestation activities in degraded forest areas and forest areas available with Forest Development Corporations and outside forests.
- The draft policy orients itself more on the conservation and preservation of forest wealth rather than regenerating them through people's participation.

# Draft National Forest Policy 2018

## Goal

- **To safeguard the ecological and livelihood security** of people, of the present and future generations, based on sustainable management of the forests
- In order to achieve the national goal for eco-security, the country should have a minimum of **one-third of the total land area** under forest and tree cover. In the hills and mountainous regions, the aim will be to maintain **two-third of the area** under forest & tree cover in order to prevent soil erosion and land degradation and also to ensure the stability of the fragile eco-systems.

# Draft National Forest Policy 2018

- Integrate climate change mitigation and adaptation measures in forest management through the mechanism of REDD+ so that the impacts of the climate change is minimised.
- Factor green accounting, valuation of ecosystem services and climate change concerns adequately into the planning and management of forests and other ecosystems.
- Improvement in livelihoods for people based on sustainable use of ecosystem services.
- Management of North-Eastern Forests: Most of the forests (about 85%-90%) are community owned that's why these forests will be treated as mosaic of community forest management landscapes and will be delineated and mapped having well defined digitized boundaries. The capacity building of forest management by democratic institutions such as existing autonomous district councils and other authorities in North-East will be taken up by the State Forest Departments. The community ownership and participation for forest management will be ensured.

# Draft National Forest Policy 2018

- **Biodiversity of the forest areas** of the country will be surveyed and documented systematically and Legal and administrative measures for protection of biodiversity against **bio-piracy** will be taken, in sync with National Biodiversity Act.
- Modern techniques of **ex-situ conservation** will be promoted for the preservation of Relic, Endangered and Threatened (RET) species.
- Strengthen Wildlife Management : Ecotourism, Man-Animal conflict, Trade in Exotic species, Wildlife crime and illegal trade, Wildlife habitat and Corridors
- National Community Forest Management (CFM) Mission will be launched to further strengthen **participatory approach** in forest management
- Forest management for **water recycling** : Watershed management
- Promotion of Social forestry, Agro-forestry and Urban greens

# Draft National Forest Policy 2018

- A **National Board of Forestry** headed by the central minister in-charge of forests and **State Boards of Forestry** headed by state minister in-charge of forests will be established for ensuring inter-sectoral convergence, simplification of procedures, conflict resolution and periodic review.
- **The Compensatory Afforestation fund** which is being transferred to the states would be a major source of funds for taking up Afforestation & rehabilitation works in degraded forest areas as well as for bringing new areas under forest & tree cover. Efforts for tapping funds from other national sectors like Rural Development, Tribal Affairs, National Highways, Railways, Coal, Mines, Power, etc., will be taken for appropriate implementation of linking greening with infrastructure and other development activities. Central assistance to the states will be enhanced.

# Draft National Forest Policy 2018

- To stimulate growth in the **forest based industry** sector to create green jobs and to create market for forestry programmes

# BONN CONVENTION

The **Convention on the Conservation of Migratory Species of Wild Animals.**

It is an international treaty concluded under the aegis of UNEP , aims to conserve terrestrial, marine and avian migratory species throughout their geographical range.

Convention entered into force in 1983.

Migratory species threatened with extinction are listed on Appendix I of the Convention. Parties are obliged to afford them strict protection.

Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention.

Convention encourages the Range States to conclude global or regional Agreements to protect these species

The 13th Conference of Parties (COP) of the Convention on the conservation of migratory species of wild animals (CMS) was hosted by India in February 2020 at Gandhinagar in Gujarat.

GIBI ( Great Indian bustard) was the  mascot of the event.

# BONN CONVENTION

- **Seven species were added to Appendix I,** which provides the strictest protection: the Asian Elephant, Great Indian Bustard, Bengal Florican, Jaguar, Little Bustard, Antipodean Albatross and the Oceanic White-tip Shark.
- The **Urial, Smooth Hammerhead Shark and the Tope Shark** were listed for protection under Appendix II, which covers migratory species that have an unfavourable conservation status and would benefit from enhanced international cooperation and conservation actions.
- CMS COP13 also adopted the Gandhinagar Declaration which calls for migratory species and the concept of 'ecological connectivity' to be integrated and prioritized in the Post-2020 Global Biodiversity Framework

# State of India's Birds Report 2020

- This is the **first comprehensive assessment** of the distribution range, trends in abundance, and conservation status for most of the bird species that regularly occur in India.
- The report was released at the **13th Conference of Parties (CoP) of the Convention on the Conservation of Migratory Species of Wild Animals**, held in Gandhinagar, Gujarat.
- More than 50 per cent of the Indian bird species have registered a decline over the last few decades

# State of India's Birds Report 2020

- 101 bird species have been categorised under high conservation concern with raptors, migratory shorebirds, White-rumped vulture, Richard's Pipit, Indian vulture, Large-billed Leaf Warbler, Pacific Golden Plover and Curlew Sandpiper registering the highest fall.
- Indian vulture has recorded a consistent drop in its numbers since the 1990s. **White-rumped Vulture** has suffered the most severe declines, followed by **Indian Vulture and Egyptian Vulture** (former two are critically endangered and the latter one is endangered on Red list).
- The **Indian bustards** including the Great Indian Bustard, the Macqueen's Bustard, Lesser Florican and the Bengal Florican have decreased in numbers due to loss of habitat and hunting practices by humans.

# State of India's Birds Report 2020

- Only 48 per cent of all the species analyzed in the report have registered a stable bird population and a slight increase in their numbers.
- The species which have registered a healthy spurt in their numbers include Rosy Starling, Feral Pigeon, Glossy Ibis, Plain Prinia and Ashy Prinia.
- The biggest highlight in the bird population report has been a dramatic jump in the number of the **national bird peacock**.
- Contrary to the speculations of the house sparrow experiencing a big fall in numbers, the report has found that its population has remained stable over the last 2-3 decades.

# The National Action Plan for Vulture Conservation 2020-25

- was recently approved by National Board for Wild life. The plan has suggested that new veterinary non-steroidal anti-inflammatory drugs be tested on vultures before they are commercially released.
- The new plan automatically removes veterinary use of a drug if it is found to be toxic to vultures. This is to be done with the help of Drugs Controller General of India.
- Under the plan, every state will host at least one **vulture safe zone** to conserve the remnant population of vultures in the state. These centres will facilitate conservation and breeding of vultures.
- A coordinated Nation-wide **vulture counting** is to be conducted by the Bombay Natural History Society, Forest Department, non-profit organisations, Research Institute, etc. These countings are to be conducted at regular intervals.
- 5 new vulture conservation centres are to be established in the states of Tripura, Uttar Pradesh, Karnataka, Maharashtra and Tamil Nadu.

# All India Tiger Estimation Survey 2018

The census was conducted by National Tiger Conservation Authority and the Wildlife Institute of India. The latest survey was conducted using a camera trap.

India is home to 2,967 tigers according to 2018 census

More than 80% of the world's wild tigers are in India

The census concluded that the India's tiger population has increased by one-third in 2018 as compared to 2014.

Madhya Pradesh has been found with the highest number of tigers in the country with 526 big cats in the state followed by Karnataka with 524 big cats and Uttarakhand with 442 big cats.

There are a total of 50 tiger reserves in the country though three of them – Dampa Reserve (Mizoram), Buxa Reserve (West Bengal) and Palamau Reserve (Jharkhand) have no tiger left in it.

The Corbett Tiger Reserve in Uttarakhand has the highest number of 231 tigers in the country, followed by Nagarhole and Bandipora Reserves in Karnataka

# All India Tiger Estimation Survey 2018

- The Global Tiger Forum(GTF), an international collaboration of tiger-bearing countries, has set a goal of doubling the count of wild tigers by 2022 (St. Petersburg declaration 2010)
- 13 tiger range countries in the world – India, China, Russia, Bangladesh, Bhutan, Nepal, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Thailand and Vietnam.

# UN Convention to combat desertification

- Established in 1994, the United Nations Convention to Combat Desertification (UNCCD) is the sole legally binding international agreement linking environment and development to sustainable land management.
- The Convention requires individual countries to draw up their national action programmes (NAP) using a bottom-up approach — from the local community up. Local communities play central roles in design, development and implementation of NAPs.
- It also ensures the participation of local NGOs, women, youth and farmers who are all victims of the degraded lands. UNCCD also encourages the use of the latest technology, along with traditional ones, to combat degradation.

# UN Convention to combat desertification

- UNCCD COP 14 was held in Greater NOEDA in September 2019.
- The Conference adopted the **Delhi Declaration** in which parties expressed commitment for a range of issues, including gender and health, ecosystem restoration, taking action on climate change, private sector engagement, Peace Forest Initiative and recovery of 26 million hectares of degraded land in India.

# WETLAND

- The Ramsar convention, which is an international intergovernmental treaty for conservation of wetlands, to which India is a party, defines wetlands as “areas of marsh, peatland 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 tides, does not exceed six meters”.
- The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat is a treaty for conservation and sustainable use of such sites. It is named after Ramsar, the Iranian city where the treaty was signed in 1971, and places chosen for conservation under it are given the tag ‘Ramsar site.’
- Also known as the Convention on Wetlands, it aims to develop a global network of wetlands for conservation of biological diversity and for sustaining human life.
- The Montreux Record is a register of wetland sites on the ‘List of Wetlands of International Importance’ where variations in ecological character have happened, are happening, or are likely to happen as an outcome of technological developments, pollution, or other human interference.

# WETLAND

- India is endowed with a rich diversity of wetlands – ranging from high altitude wetlands of Himalayas, floodplains of rivers like Ganga and Brahmaputra, lagoons and mangrove marshes on the coastline and reefs in the marine environments.
- Indian Space Research Organisation has carried out a National Wetland Inventory and Assessment using Indian remote sensing satellites during 2006-2011 and subsequently brought out national- and state-level wetland inventory atlases.
- A total of 757,060 wetlands have been mapped in the country. The total wetland area estimated is 15.26 million hectares, which is around 4.63% of the geographical area of the country

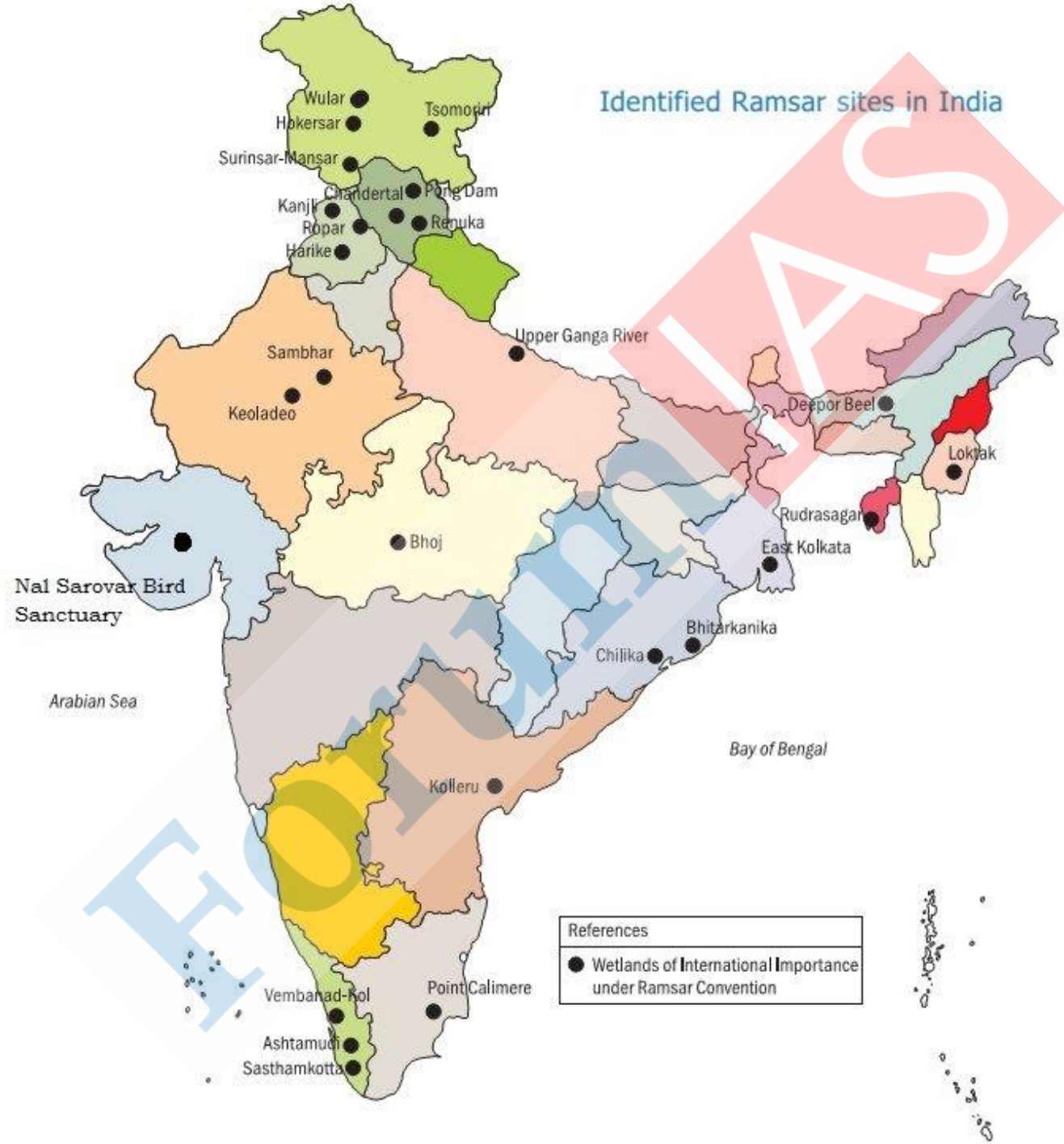
# WETLAND

- The wetlands support rich biodiversity and help stabilise water supplies, cleanse polluted waters, protect shorelines, and recharge groundwater aquifers.
- It is estimated that wetlands are vanishing three times faster than forests and their rate of disappearance is increasing. For instance, 87% of wetlands have been lost since the 1700s and 35% have disappeared since the 1970s.
- Factors such as infilling for agriculture and construction, pollution, overexploitation of resources, invasive species and climate change threaten their existence.

# WETLAND

**Wetlands recently designated as Ramsar sites by the** Ministry of Environment, Forest and Climate (Total 41 Ramsar sites)

- Sundarban wetlands
- Nandur Madhameshwar, a first for Maharashtra; Keshopur-Miani, Beas Conservation Reserve and Nangal in Punjab; Nawabganj, Parvati Agra, Saman, Samaspur, Sandi and Sarsai Nawar in Uttar Pradesh.
- Lonar Lake in Maharashtra (Lonar Lake Pink Colorization)
- Sur Sarovar lake or Keetham lake in Uttar Pradesh
- The Kabartal Wetland (Kanwar Jheel) in Bihar
- Asan Conservation Reserve in Uttrakhand


Identified Ramsar sites in India
Wular
Hokersar
Surinsar-Mansar
Tsomoriri
Chandertal
Pong Dam
Kanji
Ropar
Renuka
Harike
Upper Ganga River
Sambhar
Keoladeo
Deepor Beel
Loktak
Rudrasagar
East Kolkata
Bhoj
Nal Sarovar Bird Sanctuary
Bhitarkanika
Chilika
Arabian Sea
Bay of Bengal
Kolleru
Vembanad-Kol
Point Calimere
Ashtamudi
Sasthamkotta
References
Wetlands of International Importance under Ramsar Convention

# Wetland (Conservation and Management) Rules 2017

- MoEFCC had notified the Wetland (Conservation and Management) Rules 2017 to replace the 2010 version of the rules.
- The 2017 rules called for setting up a wetlands authority comprising ministers, officials and experts, in all states. The authority would formulate a list of activities to be allowed, regulated or prohibited within wetlands and their zone of influence, define conservation strategies and wise use of wetlands.
- these authorities were required to designate an expert each for wetlands ecology, hydrology, fisheries, landscape planning and socioeconomics.
- The latest guidelines recommended that “at least one member may be drawn from civil society to enable stakeholder representation.”
- The 2017 rules had also stressed that the state governments shall designate a “department as nodal department for wetlands”, which “shall provide all necessary support and act as secretariat to the authority.”

# Wetland (Conservation and Management) Rules 2017

- The management of notified wetlands is recommended to "be based on wise-use approach" as they are impacted by the use of resources by humans. Wise use calls for the **resource use patterns** which can ensure that human dependence on wetlands can be maintained not only in the present but also in the future."
- The 2017 rules had listed out **activities prohibited within notified wetlands**, such as the setting up of any industry and expansion of existing industries, manufacture or handling or storage or disposal of construction and demolition waste, solid waste dumping, discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements.

# Wetland (Conservation and Management) Rules 2017

- Environment Ministry has recently issued the guidelines to the states to guide them in preparing a list of wetlands; identifying wetlands for notification under the Wetlands (Conservation and Management) Rules, 2017; delineating wetlands, wetlands complexes and zone of influence; developing a list of activities to be regulated and permitted; and developing an **integrated management plan** for wetlands, which are rich reservoirs of biodiversity.

# Environment Issues

ForumIAS

# Air pollution in India

- In 2016, a World Health Organisation (WHO) study found that **fourteen of the twenty** world's most polluted cities belonged to India.
- Air pollution led to around **1.24 million or 12.5% of total deaths** recorded in the country during 2017.
- According to **Air Quality Life Index (AQLI) report, released by The Energy Policy Institute (TEPI) at the University of Chicago**, India is second most polluted country in the world in terms of air pollution, after Bangladesh.
- According to the AQLI, India's yearly average particulate pollution concentration of around 63 ug/m3 in 2018 reduced life expectancy of the average Indian by 5.2 years.
- The Indo-Gangetic plain is worst effected by air pollution: Stubble burning, weather, Urban sprawl, Construction, Land use change etc.

# World Air Quality Report 2019

- A global compilation of PM 2.5 particulate pollution data by IQAir, a company that primarily works on air filtration.
- India 5th Most Polluted Country In The World
- Ghaziabad in the National Capital Region ranked as the most polluted city in the world
- Whilst cities in India, on average, exceed the World Health Organisation target for annual PM2.5 exposure by 500%, national air pollution decreased by 20% from 2018 to 2019, with 98% of cities experiencing improvements

# National Clean Air Program

- ✓The NCAP envisages 102 of India's most polluted cities reducing particulate pollution ($PM_{2.5}$ and $PM_{10}$) by 20-30% by 2024 with a reference year of 2017.
- ✓Under the NCAP, **city-specific action plans** will be developed for 102 Non-attainment cities. Non-attainment cities are those which were found to be consistently violating the National Ambient Air Quality Standards (NAAQS) from 2011-2015.The States, where these cities are located, have submitted a road map on how they would go about this reduction.
- ✓The first step, according to Environment Ministry officials, would be to improve the measurement. Unlike Delhi, which has nearly 37 automatic air quality monitors that continuously measure particulate matter, many cities have barely a handful.

# Bharat Emission Standards

The Bharat Stage emission standards are the legal limits on the amount of air pollutants like carbon monoxide and particulate matter that a vehicle in India can emit.

These standards are targeted at making improvements in three areas -- emission control, fuel efficiency and engine design.

India was operating on the BS-IV emission norms till April 2020.

Union Government mandated **Bharat Stage VI emission standards** for various classes of motor vehicles throughout the country from April 1, 2020, leapfrogging BS-V. So **from April 1 2020**, all vehicles sold in India should comply with **BS-VI emission standards.**

Sulphur content is reduced to 10 mg/kg max in BS-VI compliant fuel from 50 mg/kg in BS-IV compliant fuel

Reduction in sulphur makes it possible to equip vehicles with **better catalytic converters** that capture pollutants like PM, hydrocarbons, NOx and CO. However, BS-VI fuel is expected to be costlier that BS-IV fuel. Vehicles that are compliant with BS-VI will also be more expensive.

# National Electric Mobility Mission Plan (NEMMP) 2020

- It had set a target of achieving a **sale of seven million EVs by 2020** and thereby aimed to cut total carbon dioxide emissions by three per cent from the 'do nothing' scenario.
- The recommendations pertained to providing **demand and supply side incentives**, the creation of requisite **charging infrastructure**, and the **promotion of research and development** for localisation and indigenisation.
- Due to lack of implementation of the recommendations, as of January, 2019, only 0.263 millions EVs have been sold in the country thus far.
- The Supreme Court recently sought the response of the government on a petition that alleges the non-implementation of the National E-Mobility Mission Plan, 2020 (NEMMP), which came out in 2012, that made several recommendations for the adoption of **electric vehicles (EVs)**, including electric-powered government fleets and public transportation and subsidies for those who opt for electric and zero emission vehicles.

# Hydrogen fuel cells

The Ministry of Road Transport and Highways has issued the Standards for Safety Evaluation of vehicles propelled by Hydrogen Fuel Cells.

Around 48% of Hydrogen produced in India are from natural gas and 30% from oil, 10% from coal and 4% from electrolysis.

**Benefits of Hydrogen Fuel Cells**

- Very small quantities of Green house gases are produced
- The Fuel cells emit only heat and water as by product
- The Hydrogen based fuel cells are more energy efficient than that of traditional combustion engine.
- There are wide availability of resources to produce hydrogen

**Concerns**

- Handling of Hydrogen requires utmost care as it is more explosive than petrol
- The vehicles running on hydrogen powered fuel cells are expensive than those running on fossil fuels

# Biofuel Policy

- Policy allows use of **surplus food grains for production of ethanol** for blending with petrol with the approval of National Biofuel Coordination Committee (NBCC)
- The policy also provides for a **viability gap funding scheme** of ₹5,000 crore in six years for second generation (more advanced) **ethanol bio-refineries** in addition to tax incentives and a higher purchase price as compared to first generation biofuels.
- reducing crop burning and conversion of agricultural residues/wastes to biofuels
- The policy **expands the scope of raw material for ethanol production** by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, that are unfit for human consumption, for ethanol production

# STUBBLE BURNING

The menace of rice straw is a product of mechanised agriculture – exacerbated by shortage of labour and lack of time.

When paddy is **harvested** by a combined harvester and thresher, the machine leaves behind a significant length of straw and stubble on the field. This prevents other machines from sowing wheat seeds.

In Punjab and Haryana, the paddy crop is usually harvested in October. Farmers then sow the wheat crop from the first week of November until the middle of December. With only 15-20 days between the rice-harvesting season and the wheat-sowing time, farmers often burn the stubble to quickly eliminate the paddy stubble.

According to some estimates, farmers burned about 11 million tonnes of stubble in Punjab and Haryana, out of the 27 million tonnes of paddy stubble produced last year.

# STUBBLE BURNING

- Apart from contributing to air pollution, stubble burning deteriorates the soil's organic content, essential nutrients and microbial activity – which together will reduce the soil's long-term productivity.
- In India, although both the Centre and state governments have encouraged alternatives, for example by promoting the use of new machines and technologies, farmers have been reluctant to adopt them.
- Instead, they find the traditional way of stubble-burning to be easier, low cost and time-efficient, compared to alternatives that demand more time, investment and labour.

# STUBBLE BURNING

## Creating alternatives for stubble utilisation

- We should adopt a **do-ecology approach** with farmers to convert rice stubble into income rather than making them agents of eco-disaster."
- You can also upcycle stubble to make products including paper, cardboard and animal feed. In Palla village outside Delhi, for example, a non-profit called the Nandi Foundation recently **launched an** initiative to turn stubble into manure.
- Instead of burning the stubble, **a tractor-mounted machine called the Happy Seeder** "cuts and lifts rice straw, **sows wheat** into the bare soil, and deposits the straw over the sown area as **mulch.**
- To incentivise farmers to make the shift towards millets

# STUBBLE BURNING

- **Pusa Research Institute** has presented a very cheap alternate solution to the problem of stubble burning. They have formulated **Decomposer capsules (made with seven types of fungi)**, four capsules can be mixed with a liquid solution prepared by **jaggery and gram flour** and can be sprayed to cover one hectare of land. The mixture when sprayed, softens hard straw and turns it into manure.
- Punjab Energy Development Agency (PEDA) a state nodal agency working towards promotion and development of renewable energy, has gotten set up 11 **biomass power plants** where around **100 mega watts (MW) of power** is generated. In these plants, around **1 million metric tonnes of paddy stubble**, which is less than 5 per cent of the total 20 million tonnes paddy stubble generated in Punjab, is used annually to generate power.
- Two more biomass power projects with 14 MW capacity are under execution and will be commissioned from June 2021.

# ENVIRONMENT IMPACT ASSESSMENT

- An EIA makes a scientific estimate of the likely impacts of a project on environment and local community
- **EIA rules must meet the requirements of the precautionary principle**. The precautionary principle, proposed as a new guideline in environmental decision making, has **four central components:**

✓Taking preventive action in the face of uncertainty;

✓Shifting the burden of proof to the proponents of an activity;

✓Exploring a wide range of alternatives to possibly harmful actions; and

✓Increasing public participation in decision making.

# ENVIRONMENT IMPACT ASSESSMENT

- In India , Environment Protection act 1986 Provides legal and institutional framework for EIA . The EIA Notification, 2006 under EPA 1986 provide procedure for EIA.
- For the purpose of Environmental clearance, All projects and activities are broadly categorized in to two categories - **Category A and Category B**, based on the SPATIAL EXTENT of potential impacts and potential impacts on HUMAN HEALTH and RESOURCES ( both natural and man made).
- According to the notification, **all Category A projects (with potentially significant impacts) are required to carry out an EIA and undertake a PUBLIC HEARING before an Environment clearance may be granted** by the Union environment ministry.

# ENVIRONMENT IMPACT ASSESSMENT

- Category B projects (with potentially less significant impacts) are evaluated and given a clearance by state level authorities, the **State Environment Impact Assessment Authority (SEIAA)** and State Expert Appraisal Committee (SEAC). A State Level Environment Impact Assessment Authority (SEIAA) is constituted by the Central Government under the provisions in Environment (Protection) Act, 1986.
- **The B category projects have been further classified into two categories: B1 and B2.** The projects under Category B1 require an EIA and public consultation, but **those falling under B2 are exempted from requirements of both EIA and public consultation.**
- The Expert Appraisal Committees (EACs) at the Central Government and SEACs which are constituted at the State and UT level , scope and appraise projects or activities in Category 'A' and Category 'B' respectively.
- The EAC and SEAC shall be reconstituted after every three years.

# ENVIRONMENT IMPACT ASSESSMENT

- Screening: To determine whether the project belongs to B1 or B2 category
- Scoping: To determine comprehensive Terms Of Reference (TOR) addressing all relevant environmental concerns for the preparation of an Environment Impact Assessment (EIA).
- Public consultation
- Appraisal
- Post Environmental Clearance Monitoring

# Draft Environment Impact Assessment Notification 2020

- The Ministry of Environment, Forest and Climate Change (MoEF&CC) has published the draft Environment Impact Assessment Notification 2020, with the intention of replacing the existing EIA Notification 2006, under the Environment protection act 1986.
- An EIA makes a scientific estimate of the likely impacts of a project. There is also a **provision for public consultation in the rules,** including a public hearing at which the local community and interested persons can give opinions and raise objections, based on the draft EIA report prepared by experts for the project.
- In new notification, Several activities have been removed from the purview of public consultation.

# Draft Environment Impact Assessment Notification 2020

- A list of projects has been included under **Category B2**, expressly exempted from the requirement of an EIA
- The projects included in B2 category include **offshore and onshore oil, gas and shale exploration**, hydroelectric projects up to 25 MW, irrigation projects between 2,000 and 10,000 hectares of command area, small and medium mineral beneficiation units, small foundries involving furnace units, some categories of re-rolling mills, small and medium cement plants, small clinker grinding units, acids other than phosphoric or ammonia, sulphuric acid, micro, small and medium enterprises (MSMEs) in dye and dye intermediates, bulk drugs, synthetic rubbers, medium-sized paint units, all **inland waterway projects**, expansion or widening of highways between 25 km and 100 km with defined parameters, aerial ropeways in ecologically sensitive areas, and specified building construction and area development projects.
- Under existing norms, these projects are identified on the basis of **screening by Expert Appraisal Committees**, **rather than being exempted** through listing in the Schedule. Also, coal and non-coal mineral prospecting and solar photovoltaic projects do not need prior environmental clearance or permission in the new scheme.

# Draft Environment Impact Assessment Notification 2020

- Similarly, for project modernisation and expansion, the norms in Notification 2020 are liberal, with only those involving more than 25% increase requiring EIA, and over 50% attracting public consultation.
- Moreover, the **notice period for public hearing** has been cut from 30 days to 20 days. This will make it difficult to study the draft EIA report, more so when it is not widely available or provided in the regional language.
- In the new draft the process of issuing environment clearance has been made more transparent and expedient through implementation of an online system
- System of late fees/penalties in case of failure to submit the annual compliance reports by the project proponent

# Draft Environment Impact Assessment Notification 2020

- There is a new provision for **post-facto environmental clearance** (of projects executed without prior clearance)
- Under the proposed changes, project proponents need to submit **only one annual report on compliance with conditions**, compared to the existing two.
- The EIA Notification 2020 excludes **reporting by the public of violations and non-compliance**. Instead, the government will take cognisance of reports only from the **violator-promoter**, government authority, Appraisal Committee or Regulatory Authority.

# Desert Locust

- Desert locusts normally live and breed in semi-arid/desert regions.
- Locusts aren't dangerous as long as they are individual hoppers/moths or small isolated groups of insects, in what is called the "solitary phase". It is when their population grows to large numbers – the resultant **crowding induces behavioral changes and transformation from the "solitary" to "gregarious" phase** – that they start forming swarms.
- The large-scale breeding and swarm formation, however, takes place only when conditions turn very favourable in their natural habitat, i.e. desert and semi-arid regions. These areas should get rains in **spring breeding season** that will produce enough green vegetation to enable both egg laying and hopper development.

# Desert Locust

- locusts are normally present in southeast Iran and southwest Pakistan during the spring and along the Indo-Pakistan border during the summer.
- Normally they are seen in India only after July post the monsoon's arrival, while confining themselves mostly to the desert areas of West Rajasthan where they breed and exist as solitary insects or in isolated groups
- We have had **two meteorological drivers behind the current locust invasions**: one, unseasonal heavy rains in the main spring-breeding tracts in March-April, and, two, strong westerly winds.

# Desert Locust

- A proactive exercise of control, through aerial spraying of ultra-low volume of concentrated insecticides in all potential breeding sites, is required, along with continuous monitoring of the crops during the ensuing kharif season.
- Most countries combating locust swarms are mainly relying on organophosphate chemicals. These are applied in small concentrated doses by vehicle-mounted and aerial sprayers.
- local villagers have been asked to make noise by beating 'thalis' and bursting crackers. Officials say these measures will help in controlling or eliminating locusts at their resting place.
- International cooperation: Indian officials, last year and this year too, have blamed Pakistan for not spraying adequate pesticide to stem the nascent population.

# Desert Locust

- The **Positive Indian Ocean Dipole** was so strong that it brought higher than normal rainfall in several parts of West Asia, Oman, Yemen and in the Horn of Africa — Ethiopia, Somalia, Kenya --- facilitating the formation of several locust swarms. Due to **favourable winds**, it helped swarms to fly and breed in traditional grounds in Iran, Afghanistan, Pakistan and India.
- The unusually mild summer this year, which saw **several bouts of rainfall over north and western India from March to May, also helped the insects breed.**
- The **Food and Agriculture Organization (FAO),** a specialised agency of the United Nations has been sending alerts on developing swarms. Somalia and Pakistan declared a national emergency.
- Strong Indian Ocean Dipoles are expected to become more frequent whetted by an overall trend of warming oceans. This phenomenon could trigger regular locust infestations

# EPIDEMICS

- An epidemic is the **rapid spread of infectious disease** to a large number of people in a given population within a short period of time.

- An outbreak occurs when there is a *sudden* increase in the number of cases of a disease, like COVID-19.

- A pandemic is a type of epidemic that relates to geographic spread and describes a disease that affects an entire country or the whole world.

- An epidemic becomes a pandemic when it spreads over **significant geographical areas** and affects a large percent of the population.

# EPIDEMICS

## Factors

- Human immunity
- Vectors
- Reservoir host: Zoonotic diseases
- Virulence
- Socioeconomic factors
- Multidrug resistant bacterias: Misuse and overuse of antimicrobials are the main drivers in the development of drug-resistant pathogens. Ex. **Colistin resistant bacteria**

# EPIDEMICS

## Epidemic outbreaks in 21st century

- SARS outbreak in 2002
- Novel influenza virus, H1N1 outbreak in 2009
- MERS outbreak in 2012
- Ebola epidemic outbreak in 2014
- Zika virus outbreak in 2015: A mosquito-borne viral infection that primarily occurs in tropical and subtropical areas of the world. It is **Spread** by the bite of an infected Aedes species mosquito
- Nipah virus outbreak in Kerala in 2018, a pathogenic zoonotic disease
- Covid-19 outbreak

# EPIDEMICS

## Preparedness and mitigation measures

- **Early warning system for outbreak detection**: a timely **surveillance system** that collects information on epidemic-prone diseases in order to trigger prompt public health interventions.
- Environment conservation
- **Sanitation**
- **Public health infrastructure**
- Health insurance
- Welfare measures
- Awareness generation and community capacity building

# EPIDEMICS

## Response measures

- Risk communication
- Lock down
- Testing
- Containment
- Social distancing
- Engaging communities
- Treating patients
- Protecting the health workforce