



INSIGHTS IAS
Simplifying
IAS EXAM PREPARATION

Insights PT 2018 Exclusive

Environment

June 2017 – January 2018

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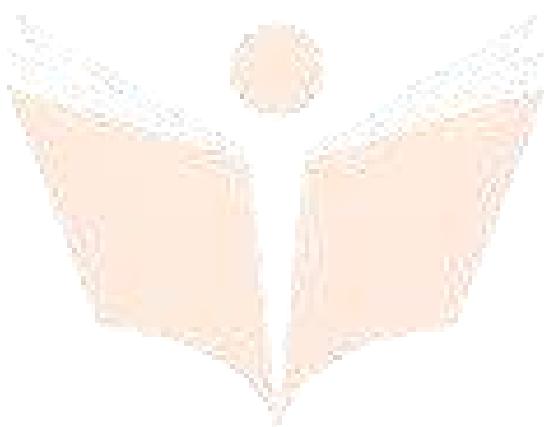
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INSIGHTSIAS
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Government Programmes / Initiatives

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1. Nalanda model of water conservation chosen for national award

- A model of **water conservation** adopted successfully by the authorities in **Nalanda district** of south central Bihar, has been selected for the **national award for excellence in the Mahatma Gandhi national rural employment guarantee programme (MGNREGP)**, by the ministry of rural development.
- The award for excellence will be conferred on '**Project Jal Sanchay**', the water conservation model.
- **Project Jal Sanchay:**
 - 'Project jal sanchay' was launched under MGRNREGP, to offer farmers a wide spectrum of solutions to water crisis.
 - **Check dams** were created and traditional **Aahar-Pyne irrigation system** and traditional water bodies were desilted and renovated, accompanied by campaigns to create awareness about rainwater harvesting.
 - The water conservation project has not only improved the availability of water but has also positively impacted farm production in the areas covered by the project.

2. Rescue wards for injured animals

- To reduce the number of deaths of endangered wildlife in **Thar Desert**, "**rescue wards**" is setup in rural areas of **Jodhpur, Rajasthan**.
- These will provide **quick treatment to animals** injured in road accidents, dog bites, etc.
- This will support the **Bishnoi community** of western Rajasthan who risk their lives to save gazelles from poachers and transport injured animals to Jodhpur.
- **Bishnoi Community:**
 - Jambaji or Guru Jambheshwar (1485 AD) founded the Bishnoi sect.
 - He made a community which included **worship of lord Vishnu (Bishnu) and ban on Killing animals and the felling of trees**.
 - Bishnois do not cut trees for fuel and timber; they remove only the dead trunks and twigs.
 - **Amrita Devi Bishnoi** sacrificed her life to save green trees being felled by the Maharaja of Jodhpur in Marwar, Rajasthan.
 - **Amrita Devi Bishnoi national award for wildlife conservation** is instituted by the government of India.

3. Sagar Vani

- The **Union Ministry of Earth Science** has launched Sagar Vani, an **integrated information dissemination system** on the occasion of Foundation Day of Ministry of Earth Sciences.
- It is a **mobile app** which includes Multi Lingual SMS, Voice Call / Audio Advisory, Social Media, Email, GTS, Fax, Digital Display Boards, Radio / Television broadcast units, IVRS, Cloud Channels, etc.
- It will **serve the coastal community**, especially the fishermen community with

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the **advisories and alerts** towards their livelihood as well as their **safety at sea**.

- It can disseminate services in local languages using advanced **artificial intelligence (AI) and machine learning capabilities**.
- For the **first time in India, the power of television and cable network** mediums for topical and alert dissemination services is being used.

4. India Quake

- **Union Ministry of Earth Sciences** launched “India Quake” - a **mobile app** on the occasion of **Foundation Day of Ministry of Earth Sciences**.
- It been developed by the **National Centre for Seismology (NCS)** for automatic dissemination of earthquake parameter (location, time and magnitude) after the occurrence of earthquakes.
- The App will make **information dissemination faster** with no restrictions on the number of recipients.
- It will help in **reducing panic** amongst people during an earthquake.

5. New Definition of Drought

- In the ‘**Manual for Drought Management 2016**’ released by the government, the ‘moderate’ drought category has been deleted.
- India Meteorological Department (IMD) replaced the word “drought” with “**deficient year**” and “**large deficient year**”.

UPDATED NOMENCLATURE

New terminology	Old terminology	
Normal	Normal	Percentage departure of realized rainfall is within $\pm 10\%$ of the Long Period Average
Below Normal	Below Normal	Percentage departure of realized rainfall is $< 10\%$ of the Long Period Average
Above Normal	Above Normal	Percentage departure of realized rainfall is $> 10\%$ of the Long Period Average
Deficient Year	All India Drought Year	When the rainfall deficiency is more than 10% and 20-40% area of the country is under drought conditions
Large Deficient Year	All India Severe Drought Year	When the rainfall deficiency is more than 10% and when the spatial coverage of drought is more than 40%

6. North Koel Reservoir Project

- The **Union Ministry of Water Resources, River Development and Ganga Rejuvenation** signed a MoU with **Bihar and Jharkhand** for completion of balance works of North Koel reservoir project.
- **60% of the project cost will be financed by Central Government** from **Long Term Irrigation Fund (LTIF)** and remaining **40% will be borne by the States through loan by NABARD**.
- The project is situated on **North Koel River, tributary on Son River**.
- It aims to provide irrigation in most backward and drought prone areas in Jharkhand and Bihar.

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- The project originally started in 1972 and continued till 1993 when it was stopped by the Bihar forest department over environmental concerns.
- The **Mandal dam** as part of the project had threatened to submerge portions of the **Palamu Tiger Reserve and Betla National Park**.
- The **National Wildlife Board (NWB)** had cleared the project in June 2017 with certain conditions.
- **North Koel River:**
 - North Koel River rises on **Ranchi plateau** in Jharkhand.
 - Its principal tributaries are the **Auranga and the Amanat**.
 - The North Koel, along with its tributaries, meanders through the northern part of **Betla National Park**.

7. Ocean Forecasting System

- The **Indian National Centre for Ocean Information Services (INCOIS)** of the Ministry of Earth Sciences inaugurated the **Ocean Forecasting System for Comoros, Madagascar, and Mozambique** at the **third Ministerial Meeting of Regional Integrated Multi-Hazard Early Warning System for Asia and Africa (RIMES)**.
- The ocean forecast and early warming information on high wave, currents, winds, tides, and sub-surface ocean conditions cater to users like fishermen, coastal population, tourism sector, coastal defence officials, marine police, port authorities, research institutions and offshore industries of these countries.
- The Ocean Forecast System developed for the Indian Ocean countries and the real-time data from their territories also help to **improve the ocean forecast and early warning system for the Indian coast too**.
- **RIMES:**
 - The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) is an **international and intergovernmental institution**, owned and managed by its Member States, for the generation and application of early warning information.
 - RIMES provide **regional early warning services** and builds capacity of its Member States in the **end-to-end early warning** of tsunami and hydro-meteorological hazards.

8. Ecosystem Service Improvement Project.

- The Union Government signed the **Global Environment Facility (GEF) Grant Agreement of the World Bank for Ecosystem Service Improvement Project**.
- The Project will be **entirely financed by the World Bank out of its GEF Trust Fund**. The project's duration is of five years.
- The project will be implemented by the **Union Ministry of Environment, Forest and Climate Change (MoEF&CC)** in Chhattisgarh and Madhya Pradesh through **Indian Council of Forestry Research & Education (ICFRE)** under the **National Green India Mission (GIM)**.
- **The objective is to:**
 - **Strengthen the institutional capacity** of the Community Organisations and Departments of Forestry to **enhance forest ecosystem services**.

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- **Improve the livelihoods of forest dependent communities** in Central Indian Highlands.
- The Project will support the Government of India's Green India Mission's (GIM) goal of protecting, restoring and enhancing India's forest cover and responding to climate change.
- **Global Environment Facility (GEF):**
 - GEF is a **multilateral financial mechanism** that provides grants to **developing countries** for projects that benefit the global environment and promote sustainable livelihoods in local communities.
 - It was established during the 1992 **Rio Earth Summit**.
 - Since 1994, the **World Bank** has served as the Trustee of the GEF Trust Fund and provided administrative services.
 - Projects under it address **six designated focal areas**: biodiversity, international waters, climate change, ozone depletion, land degradation and Persistent Organic Pollutants.

9. Green India Mission

- GIM is one of the eight key Missions outlined under **National Action Plan on Climate Change (NAPCC)**.
- It aims at **protecting, enhancing and restoring India's decreasing forest cover** by a combination of **mitigation and adaptation** measures.
- The mission has the objective of both **increasing the forest and tree cover by 5 million ha**, as well as **increasing the quality of the existing forest and tree cover in another 5 million ha** of forest/non forest lands in 10 years.
- It hinges on **decentralized participatory approach** by involving grass root level communities and organizations in decision making, planning, implementation and monitoring.

10. Artificial Reefs

- **Tamil Nadu govt in collaboration with IIT Madras** has been restoring **Vaan Island** in **Gulf of Mannar** by deploying artificial reefs.
- Vaan Island is located 2 km off the Tuticorin coast, Tamil Nadu. It is one of 21 uninhabited islands in the Gulf of Mannar.
- The objective was to **control the erosion of the island** and to facilitate **coral rehabilitation** in surrounding areas.
- **Coral mining** was once rampant in this area, and that combined with **rising sea levels** have over the years harmed the island.
- It is **first time in India** protecting and restoring a sinking island.
- The project has been funded by **NAFCC** of the Ministry of Environment, Forests and Climate Change (MoEFCC).
- **Gulf of Mannar Biosphere Reserve:**
 - **The Gulf of Mannar Biosphere Reserve is the first marine biosphere**



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reserve in Asia, located in the Southern part of the Bay of Bengal.

- The reserve covers 10,500 sq. km and has 21 islands with continuous stretches of **coral reef**.
- Fauna present includes globally endangered **dugong**, several species of **dolphins and whales** and three species of **endangered sea turtles**.
- It is a part of **UNESCO MAB (Man and Biosphere) programme**.

11. National Adaptation Fund for Climate Change (NAFCC)

- NAFCC was launched by the Union Government in 2015 to provide **100% central grant to the State Governments** for implementing **climate change adaptation projects**.
- The objective is to assist states/UTs that are particularly vulnerable to adverse effects of climate change in meeting the cost of adaptation.
- Union Government encourages States to come up with innovative and scalable projects to develop resilience against climate change and mainstream it in the planning processes.
- The **National Bank for Agriculture and Rural Development (NABARD)** is **National Implementing Entity (NIE)** for NAFCC.

12. Polymetallic Nodules Exploration

- **India's exclusive rights to explore polymetallic nodules from seabed in Central Indian Ocean Basin (CIOB)** have been **extended by five years** which was approved by **International Seabed Authority (ISA)**.
- India is the first country to have received the status of a pioneer investor in 1987 and was allocated an exclusive area in Central Indian Ocean Basin by **United Nations (UN)**.
- India is implementing a **long-term programme on exploration and utilization of Polymetallic Nodules** through Ministry of Earth Sciences.
- Polymetallic nodules (also called as manganese nodules) are small sized lumps of minerals found in deep sea.
- They contain **nickel, copper, cobalt, lead, cadmium, vanadium, molybdenum, titanium in various proportions**.
- They were first discovered in 19th century in the **Kara Sea**, in the Arctic Ocean off Siberia.
- **North central Pacific Ocean, the Peru Basin and the central Indian Ocean** are selected by industrial explorers.
- **International Seabed Authority (ISA):**
 - ISA is a UN body set up to **regulate the exploration and exploitation of marine non-living resources** of oceans in international waters.
 - India actively contributes to the work of International Seabed Authority.
 - In 2016, India was re-elected as a member of Council of ISA.

13. FarmerZone: The future of agriculture

- The **Department of Biotechnology (DBT)**, under the Ministry of Science and Technology, convened the **Smart Agriculture Conclave** in New Delhi, in partnership with the **UK's Biotechnology and Biological Sciences Research**

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Council (BBSRC) and Research Councils UK (RCUK) India.

- The objective of this conclave was to set the stage for “**FarmerZone**”.
- FarmerZone is a collective **open-source data platform for smart agriculture** which will use biological research and data to improve the lives of small and marginal farmers.
- FarmerZone has been envisioned by the DBT that **integrates science, technology, innovation and the farm ecosystem**.
- “FarmerZone” will help cater to all needs of the farmer, from dealing with climate change, weather predictions and soil, water, and seed requirements to providing market intelligence.
- It will connect farmers and scientists, government officials, thought leaders in agriculture, economists and representatives from global companies to bring about **technology-based localised agri-solutions**.

14. Ganga Conservation

- Uttarakhand-based **Hemawati Nandan Bahuguna Garhwal University has signed a MoU with Namami Gange Project for Ganga Conservation**.
- Under Namami Gange project, the University will initiate activities like holding events, seminars and conferences to make strong pitch for public outreach and community participation.
- **Namami Gange Programme:**
 - The Union government approved “Namami Gange” Program in May 2015.
 - It integrates the efforts to **clean and protect the Ganga River** in a comprehensive manner.
- **Focus of the programme:**
 - The programme will focus on **pollution abatement** interventions namely Interception, diversion & treatment of wastewater flowing through the open drains through bio-remediation / appropriate in-situ treatment / use of innovative technologies.
- **Implementation:**
 - The program would be implemented by the **National Mission for Clean Ganga (NMCG)**, and its state counterpart organizations i.e., **State Program Management Groups (SPMGs)**.
 - In order to improve implementation, a **three-tier mechanism** has been proposed for project monitoring comprising of:
 - **High level task force** chaired by Cabinet Secretary assisted by NMCG at national level,
 - **State level committee** chaired by Chief Secretary assisted by SPMG at state level,
 - **District level committee** chaired by the District Magistrate.
 - The program emphasizes on improved coordination mechanisms between various Ministries/Agencies of Central and State governments.
- **What is rejuvenation?**
 - Rejuvenation implies **restoring the “wholesomeness” of the river** and that includes three things:

- Aviral dhara (continuous flow),
- Nirmal dhara (unpolluted flow) and
- Ecological and geological integrity.

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15. "Wood is Good" Campaign

- The government has launched "**Wood is Good**" Campaign under the **Partnership for Land Use Science (Forest-Plus)**, a partnership between USAID and India's environment ministry.
- The idea is to promote **wood as a climate-friendly resource** and a substitute to materials like plastic and steel because it is carbon neutral unlike the others while leave a carbon footprint in their production.
- **Forest plus:**
 - **The Partnership for Land Use Science (Forest-Plus)** is a joint programme by the United States Agency for International Development (USAID) and Ministry of Environment, Forest and Climate Change (MoEF&CC)
 - It is to **strengthen capacity for REDD (Reducing Emissions from Deforestation and Forest Degradation)** implementation in India.
 - The programme brings together experts from India and the United States to develop technologies, tools and methods of **forest management** to meet the technical challenges of managing forests for the health of ecosystem, carbon stocks, biodiversity and livelihood.

16. 'B4' – the 'Brahmaputra Biodiversity and Biology Boat'

- The Centre plans to safeguard the fast-eroding **Majuli Island** using research carried out on floating '**B4' boat labs along the Brahmaputra River.**
- The project will "constantly monitor" the impact of various environmental and anthropological factors that affect the river and conduct research to mitigate the effects.
- Majuli Island was once 1200 square kilometres but due to excessive erosion has since shrunk to under 500 square kilometres.
- Despite supporting considerable biodiversity, the **Brahmaputra has not been studied as extensively as the Amazon**.
- **Majuli Island:**
 - Majuli Island is the **biggest river island in the world toppling Marajo in Brazil**.
 - It is the **1st island district of the country**.
 - The island is formed by the Brahmaputra River in the south and Subanisri River in the North.
 - Majuli Island is inhabited by **Mishing, Deori, Sonowal and Kacharis tribal** people. It has been the **hub of Assamese neo-Vaishnavite culture**.
 - Some of the surviving satras (monasteries adhering to Vaishnavism) are Garamurh, Dakhinpat, Kamalabari, Auniati and Bengenati.

17. Protection of Majuli Island

- A new scheme for protection of Majuli Island in Assam has been launched.

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- The scheme **protects the island from flood and erosion**.
- The scheme was sanctioned by Government of India in March, 2017.
- The **funding** for the project would be from **Ministry of DoNER**.
- The scheme has been framed by **Brahmaputra Board** based on the **recommendations of the high level Expert Committee** of the Government of India that visits the island at least twice a year to monitor and recommend anti-erosion measures.

18.Dam Safety Rehabilitation and Improvement Project (DRIP)

- Recently **National Dam Safety Conference** was organized by **Central Water Commission (CWC)** in association with Uttarakhand Jal Vidyut Nigam and IIT Roorkee.
- **Ministry of Water Resources, River Development and Ganga Rejuvenation** with the financial support from the **World Bank** has embarked upon a **six year Dam Safety Rehabilitation and Improvement Project (DRIP)** in the year 2012.
- Comprehensive rehabilitation and improvement of 225 large dams are carried out in seven States.
- **Institutional reforms and strengthening of regulatory measures** related to safe and financially-sustainable dam operations are carried out.
- The seven states where the project is being implemented are **Jharkhand, Karnataka, Kerala, Madhya Pradesh, Odisha, Tamil Nadu, and Uttarakhand**.

19.International Dam Safety Conference

- India hosted the **International Dam Safety Conference – 2018** at Thiruvananthapuram organised by **Central Water Commission**.
- Dam safety conferences are organized as an annual event under the **Dam Safety Rehabilitation and Improvement Project (DRIP)**.
- **DHARMA:**
 - A software programme – **Dam Health and Rehabilitation Monitoring Application (DHARMA)** - was launched during the conference.
 - DHARMA is a **web tool** to digitize all dam related data effectively.

20.Nepal, India to conduct first joint tiger count

- For the first time, **Nepal and India** undertook a **joint tiger census** in their national parks, forests and protected areas adjoining the two countries using a globally-recognised method.
- At the **International Tiger Conference in Russia in 2010**, participating countries including Nepal had made a commitment to double the tiger population by 2022.
- **Tiger range countries (TRCs)** are those where the big cat roams freely. The **13 tiger range countries** include Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Russia, Thailand, and Vietnam.
- **Tiger is an endangered animal** listed in the **Convention on International Trade in Endangered Species (CITES)**.
- According to the **World Wildlife Fund (WWF)**, tigers have lost 93% of their

historical range.

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21. National Wildlife Action Plan (NWAP) for 2017-31

- The government released the **third National Wildlife Action Plan (NWAP) for 2017-31**.
- The plan was released at the meeting of **Global Wildlife Programme (GWP)** that involves 19 Asian and African countries, United Nations, World Bank and other leading global organisations to deal with the wildlife crime.
- The NWAP 2017-31, under which there are 250 projects, is **India's road map to conserve wildlife for the next 15 years**.
- The plan is woven around the **agenda of the United Nations' 15th Sustainable Developmental Goal — “Life on Land”**.
- The key strategic changes in the new plan is adopting a “**landscape approach**” in conservation of all the wildlife — uncultivated flora (plants) and undomesticated fauna (animals) — rather than the areas where they occur.
- This means that while till now programmes and plans related to wildlife were focused on and around national parks and sanctuaries, now the strategies would be based on the landscape of the region that may not be limited to a reserve forest system alone.
- **Global Wildlife Programme (GWP):**
 - **India** (Ministry of Environment, Forests and Climate Change (MoEFCC)) jointly hosted the Global Wildlife Programme (GWP) with **World Bank and United Nations Development Programme**.
 - The GWP will address issues related to illegal wildlife trade across 19 countries in Asia and Africa.
 - It was initiated in 2015 by the **Global Environment Facility (GEF)**.
 - It will act as a platform to **exchange knowledge** and coordinate in on-ground action for **combating illegal poaching** of wildlife and **improve governance** on wildlife conservation.

22. SECURE Himalaya

- The Centre has launched a **six-year project- called SECURE Himalaya**— to ensure conservation of locally and globally significant biodiversity, land and forest resources in the high Himalayan ecosystem spread over four states in India.
- SECURE Himalaya was launched by the **Union environment ministry in association with the United Nations Development Programme (UNDP)**.
- The SECURE – securing livelihoods, conservation, sustainable use and restoration of high range Himalayan ecosystems – is meant for specific landscapes. It includes:
 - Changthang (Jammu and Kashmir),
 - Lahaul – Pangi and Kinnaur (Himachal Pradesh),
 - Gangotri – Govind and Darma – Byans Valley in Pithoragarh (Uttarakhand) and
 - Kanchenjunga – Upper Teesta Valley (Sikkim).
- **Protection of snow leopard and other endangered species** and their habitats is one of the key components of the project

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- It will also focus on securing **livelihoods of the people in the region** and enhancing enforcement to reduce wildlife crime.

23.Turtle Sanctuary in Allahabad

- In order to protect the rich aquatic biodiversity of river Ganga from escalating anthropogenic pressures, development of a **Turtle sanctuary in Allahabad along with a River Biodiversity Park at Sangam** have been approved under **Namami Gange programme**.
- The project include:
 - Development of **River Biodiversity Park at Sangam** (confluence of Ganga, Yamuna and mythical Sarasvati),
 - Establishment of a **Turtle Rearing Centre** and
 - Awareness** about the importance of river Ganga and imperativeness of its conservation.
- The project will help generate awareness for **reducing the impact of human activities on critical natural resources**.
- The task of **dissipating knowledge about river Ganga** will be taken up which is 100% centrally funded.
- Background:**
 - Rivers Ganga and Yamuna at Allahabad are home to some of the most endangered fauna like turtles, the National Aquatic Animal – Gangetic dolphin, the Gharial and numerous migratory and resident birds.

24.Committee for proper management of water resources in North

Eastern Region

- The Government has constituted a **high-level committee for proper management of the water resources in the North Eastern Region (NER)** under the Chairmanship of Vice-Chairman, Niti Aayog.
- The Committee would facilitate optimising benefits of appropriate water management in the form of hydro-electric power, agriculture, bio-diversity conservation, reduced flood damage erosion, inland water transport, forestry, fishery and eco-tourism.
- Ministry of Development of North Eastern Region (DoNER)** will serve as the coordinating point.

25.Graded Response Action Plan

- The **Ministry of Environment, Forest and Climate Change (MoEFCC)** notified the **Graded Response Action Plan to combat air pollution in NCR Delhi region**.
- As per a **Supreme Court order**, the Graded Response Action Plan for the NCR involves **stringent measures against burning of waste, industrial pollution and transport sector emissions**.
- The comprehensive plan is **prepared by the Central Pollution Control Board (CPCB)**.
- CPCB will monitor air quality from various stations located across Delhi-NCR.
- Daily reports will be sent to the **Environment Pollution Control Authority (EPCA)**, the implementing authority of the plan, which will take a **decision on**

the future course of action.

- If data of any station shows a sudden spike in pollution level, a team will rush to the spot and try to analyse the reason. Accordingly, action would be taken and instructions issued.
- **The chief secretaries of NCR states** have been designated as **nodal officers**.
- Graded Response Action Plan **defines the measures to taken based on air quality** on the basis of PM2.5 and PM10 in the atmosphere.
- Based on the air quality the grades have been classified as **Emergency, Severe, Very poor and Moderate poor**.
- Under this plan emergency measures will be automatically enforced in NCR if level of PM2.5 breaches 300 micrograms per cubic metre ($\mu\text{gm}/\text{m}^3$) and PM10 levels stay above 500 ($\mu\text{gm}/\text{m}^3$) for two consecutive days.
- During 'very poor' air quality, it recommends banning diesel generators and parking fee increased by three to four times.

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26. Perform, Achieve and Trade (PAT) scheme

- The results for the **first implementation cycle of PAT** (perform, achieve & trade scheme) of the **Bureau of Energy Efficiency under the Ministry of Power** was released.
- PAT is a **market-based mechanism** focused on **reducing energy consumption** for each unit of production in large energy-intensive industries.
- It is being implemented under the **National Mission on Enhanced Energy Efficiency (NMEEE)** as part of the **National Action Plan on Climate Change (NAPCC)** of 2012.
- The scheme facilitates large, energy-intensive industries to achieve their legal obligation under the **Energy Conservation Act of 2001**.
- Industries which over-achieve target get incentives in the form of **Energy Saving Certificates (ESCert)**.
- These certificates are tradable at two energy exchanges viz. **Indian Energy Exchange and Power Exchange India**, where it can be bought by other industries which are unable to achieve their targets.
- **Central Electricity Regulatory Commission (CERC)** is the Market Regulator and **Bureau of Energy Efficiency** is Administrator for the trading of ESCerts.
- **PAT cycle I (2012-13 to 2014-15)**, was applicable on **eight energy intensive sectors**.
- **PAT cycle II (2016 to 2018-19)**: includes **8 sectors of PAT I and 3 new sectors** viz, railways, discoms and petroleum refineries.
- **PAT cycle III (2017 to 20)**: includes **116 new units** and given a reduction target of 1.06 million tonnes of oil equivalent.

27. Illegal Sand Mining

- In an attempt to crack down on illegal sand mafia operating in and around the river beds of **Sabarmati, Orsang, Tapi and Narmada**, the **Gujarat government**, for the first time, will be **deploying drones for surveillance**.
- **Sand is a minor mineral** under the **Mines and Minerals (Development and Regulation) Act, 1957**. Therefore it comes under the **state government regulations**.

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- MMDR Act also **empowers state governments to frame rules** to prevent illegal mining, transportation and storage of minerals.

28. Indian Forest (Amendment) Bill, 2017

- The Lok Sabha passed Indian Forest (Amendment) Bill, 2017. It **amends Indian Forest Act, 1927**.
- The amendment is to **exempt bamboo grown in non-forest areas from definition of tree**, thereby dispensing with the requirement of felling/transit permit for its economic use.
- However, **bamboo grown in the forest areas shall continue to be governed by the provisions of Indian Forest Act, 1927**.
- A **major objective** of the amendment is to **promote cultivation of bamboo in non-forest areas** to achieve twin objectives of increasing the income of farmers and also increasing the green cover of the country.
- **What necessitated this move?**
 - Bamboo, though, taxonomically a grass, was legally defined as a tree under the Indian Forest Act, 1927.
 - The felling and transit of bamboo grown on forest as well non-forest land attracted the provisions of the Indian Forest Act, 1927.
 - This was a major impediment for bamboo cultivation by farmers on non-forest land.

29. INSPIRE 2017

- The first edition of the **International Symposium to Promote Innovation & Research in Energy Efficiency (INSPIRE 2017)** was kicked off in Jaipur recently.
- The five-day symposium was organized by **Energy Efficiency Services Limited (EESL) in partnership with The World Bank, and Alliance for an Energy Efficient Economy (AEEE)**.
- INSPIRE 2017 is an **International Conference** that brings together various stakeholders such as policy makers, innovators, financiers, influencers to showcase best practices in the sector.
- It provides a platform to discuss energy efficiency policies, market transformation strategies, emerging technologies, delivery and business-model driven transformations.
- Policy makers and experts from Bureau of Energy Efficiency (BEE), The World Bank Group, The Energy Institute (TERI), International Energy Agency (IEA), Rocky Mountain Institute (RMI), USA and representatives of the Clean Energy Ministerial (CEM) also took part in the event.

30. Strategy on Resource Efficiency (RE)

- NITI Aayog in collaboration with the European Union delegation to India has released the Strategy on Resource Efficiency.
- The strategy aims to **promote resource efficiency** in India.
- This strategy is the **first policy document to emphasize resource productivity** in the country.
- The Strategy emphasizes on **Sustainable Public Procurement (SSP)** for a

resource efficient economy.

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- The document is developed with the recommendations from the **Indian Resource Efficiency Programme (IREP)**, launched by the Indian Ministry of Environment, Forests and Climate Change (MoEFCC) and **Indian Resource Panel (InRP)** in April 2017.
- Resource efficiency very simply put is **making more with fewer materials**.
- In practice it leads to **minimizing impact on environment**, transforming ‘waste’ into ‘resources’, fostering circular economy, and strengthening resource security.
- **UNEP** established the **International Resource Panel (IRP)** in 2007 as a central institution to provide independent scientific assessments on sustainable use of natural resources
- **About InRP:**
 - The new Indian Resource Panel (InRP) was officially unveiled in 2016, **making India one of the first emerging economies to set up a national advisory body on resource efficiency**.
 - The InRP will issue recommendations to Indian businesses and policy-makers on improving the general conditions for resource efficiency.

31. ECO-NIWAS

- On the **Energy Conservation Day** celebrated on **December 14th**, the government unveiled the **interactive online portal**, ECO-NIWAS (Energy Conservation – New Indian Way for Affordable & Sustainable homes) for increasing awareness to build sustainable and energy efficient homes in the country.
- **Energy Conservation Day:**
 - The Energy Conservation Day is organized on 14th December each year by **Bureau of Energy Efficiency (BEE)**, under **Ministry of Power**, with an aim to demonstrate India’s achievements in energy efficiency and conservation.
 - BEE recognizes and encourages endeavours of industries in reducing energy consumption by felicitating them with **National Energy Conservation Awards**.
 - BEE also awards prizes to the national winners of the annual National Painting Competition on Energy Conservation.

32. Blue Flag for Beach Clean-up

- The **environment ministry** has launched a pilot project named ‘Blue Flag’ for beach clean-up and development.
- The prime objective of the project is to **enhance standards of cleanliness**, upkeep and basic amenities at beaches.
- Under the project, **each state or union territory has been asked to nominate a beach** which will be funded through the ongoing **Integrated Coastal Management Programme**.

33. Regional Project to Tackle Stubble Burning

- In a significant step to **combat climate change**, the **Ministry of Environment**,

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Forest and Climate Change has approved a regional project on '**Climate Resilience Building among Farmers through Crop Residue Management'** under the **National Adaptation Fund for Climate Change (NAFCC)**.

- The first phase of the project has been approved at a cost of approximately Rs. 100 Crore for the States of **Punjab, Haryana, Uttar Pradesh and Rajasthan**.
- The project will leverage approximately three times the approved amount with contribution from the States as well as farmers.

34. Protocol for Star Rating of Garbage-Free Cities

- The **Union Ministry of Housing and Urban Affairs** (MoHUA) launched the '**Protocol for Star Rating of Garbage-Free Cities**'.
- It has been developed under **Swachh Bharat Mission**.
- It is different from the Swachh Survekshan ranking survey.
- Rating cities on **7-star rating system** based on multiple **cleanliness indicators for solid waste management**.
- **Vision statement of the star-rating protocol states that:**
 - "All cities achieve "**Garbage Free**" status wherein at any point of time in the day, no garbage or litter is found in any public, commercial or residential locations in the city;
 - **100% of waste generated is scientifically managed**;
 - All legacy waste has been remediated and city is **scientifically managing its municipal solid waste**, plastic waste and construction & demolition waste.
 - There must be a **steady reduction in the waste generated by the city** and visible **beautification of the city** to achieve a clean & aesthetically pleasing city".

35. Zero Budget Natural Farming project

- Himachal Pradesh has launched **Zero Budget Natural Farming** project to promote **organic farming**.
- Zero Budget Natural Farming, is a method of farming where the **cost of growing and harvesting plants is zero**.
- This means that **farmers need not purchase fertilizers and pesticides** in order to ensure the healthy growth of crops.
- It is, basically, a **natural farming technique** that uses biological pesticides instead of chemical-based fertilizers.
- Farmers use earthworms, cow dung, urine, plants, human excreta and such biological fertilizers for crop protection.
- It **reduces farmers' investment**. It also protects the soil from degradation.

36. Territorial Army battalion of ex-Army men to clean Ganga

- As part of its mission to **clean the Ganga by 2020**, the Central government has sanctioned the raising of a **Territorial Army (TA) battalion** comprising ex-servicemen of the Army.
- The battalion will be raised in Allahabad, Uttar Pradesh as a **Composite Ecological Task Force (CETF) battalion** of TA for National Mission for Clean

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Ganga (NMCG).

- **Territorial army battalion:**

- The CETF TA battalion, to be commanded by a Colonel-rank officer, who will be ex-servicemen.
- The battalion will be responsible for **monitoring ecological and environmental projects related to the river**, and also raise public awareness through campaigns.
- The government has allocated Rs 167 crore for the battalion under NMCG with funding provided from the budget of the Ministry of Water Resources, River Development and Ganga Rejuvenation.

- **About the territorial army:**

- India's first Governor General Shri C Rajagopalachari formally inaugurated the Indian Territorial Army on October 9 in 1949.
- It is an organization where volunteers apply for a short period of training every year, so as to be ready to tackle any emergent situation or to serve for the defence of India.
- The Territorial Army is considered the **second line of national defence** after the regular Army.
- The Territorial Army **assist civil administration in dealing with natural calamities and maintenance of essential services** and provide units for Regulars Army as and when required.
- Territorial Army comes under the **Defence Ministry**.
- Nine Ecological Task Force (ETF) battalions of TA have been raised to execute specific environment-related projects.

37. Sikkim allows people to forge fraternal ties with trees

- Under **Sikkim Forest Tree (Amity & Reverence) Rules 2017**, the Government of Sikkim has come up with a unique way of preserving trees by encouraging people to **forge a relationship of brotherhood or sisterhood with trees** through a practice locally known as **Mith/Mit or Mitini**.
- With this, Sikkim is keen to not just preserve its forest cover but also forge amity between people and trees.

38. Automated moorings

- It is the **new ocean data acquisition system** which will do away with the present practice of collecting water samples from sea and studying their pollution levels thereafter.
- It is an **automated ocean pollution observation system** which will help keep a tab on ocean pollution levels apart from offering **insights on how the marine system is changing**.

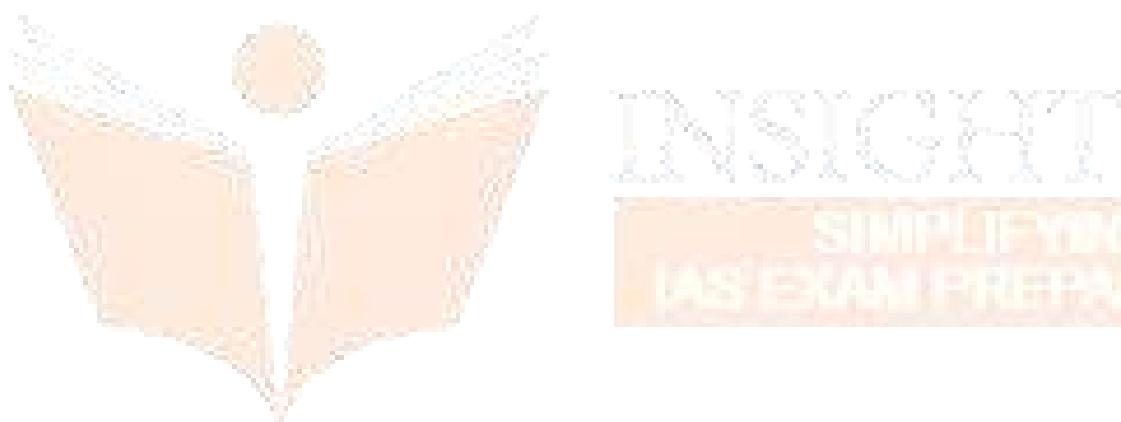
39. Himalayan Research Fellowships scheme

- The union environment ministry has decided to start a '**Himalayan Research Fellowships scheme**'.
- This is among the series of programmes that MoEFCC is running **for conservation and protection of Himalayas**.
- The scheme aims to create a **young pool of trained environmental**

managers, ecologists and socio-economists.

- This pool will help generate information on physical, biological, managerial and human aspects of Himalayan environment and development.
- The fellowship scheme will be executed through various universities and Institutions working in the Indian Himalayan Region (IHR) and preference will be given to the Institutions from north-eastern states.
- The financial support will be provided under the **National Mission on Himalayan Studies (NMHS)** and the fellowships will be awarded for a maximum period of three years.
- The research may be undertaken in **water resource management, ecotourism opportunities, biodiversity management, etc.**

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Animal / Wildlife Protection

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1. Orang Tiger Reserve

- According to a survey, **Orang tiger reserve in Assam** is host to 28 big cats, thus **having the highest density nationally**.
- It was revealed during phase IV of the **all-India tiger estimation programme of the National Tiger Conservation Authority (NTCA)**.
- **Orang tiger reserve:**
 - Orang Tiger Reserve is the **49th in the country**. It has the smallest core of 78.28 sq. km.
 - **Kamlang Tiger Reserve** in Arunachal is the 50th and latest to be notified.
 - It is located on the **north bank of the Brahmaputra River**.
 - It is also known as the **mini Kaziranga National Park (IUCN site)** since the two parks have a similar landscape made up of marshes, streams and grasslands.
 - The park has a **rich flora and fauna**, including **great Indian one-horned rhinoceros, pigmy hog, elephants, wild buffalo and tigers**.
 - It is the only stronghold of rhinoceros on the north bank of the Brahmaputra River.

2. Three new sites recognised as biodiversity hotspots in Goa

- **BirdLife International**, a conservation organisation, has recognized **three new sites in Goa as hotspots for protection**.
- The sites have been added to their list of "**Important Bird and Biodiversity Areas (IBAs)**".
- The inclusion comes after systematic data collection by the **Goa Bird Conservation Network (GBCN)**.
- **Goa earlier had four recognised biodiversity areas:**
 - Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park,
 - Carambolim Wetlands,
 - Cotigao Wildlife Sanctuary and
 - Mhadei Wildlife Sanctuary.
- **The list has now added:**
 - Bondla Wildlife Sanctuary,
 - Navelim Wetlands and
 - Netravali Wildlife Sanctuary.
- **Significance of this move:**
 - The IBAs are "**places of international significance** for the conservation of birds and other biodiversity".
 - Declaring a site **as an Important Bird and Biodiversity Area does not ensure that the site gets legal protection or becomes inaccessible to people**.
 - Instead BirdLife International encourages national and State governments to recognise the areas as sites of **vital importance for conservation** of wildlife and to empower local community-based

conservation initiatives.

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3. Nine more bird, biodiversity areas in Kerala

- Nine more locations in Kerala have been identified as **Important Bird and Biodiversity Areas (IBAs)**.
- The new list was released by the **Bombay Natural History Society, a partner of BirdLife International**.
- With the latest addition, **Kerala now has 33 IBAs**. Kerala IBAs are home to **three critically endangered species**:
 - Whiterumped Vulture,
 - Indian Vulture, and
 - Red-headed Vulture.
- The **newly identified IBAs of Kerala are**:
 - Achencoil Forest Division;
 - Anamudi Shola National Park;
 - Camel's Hump Mountain, Wayanad;
 - Kurinjimala Wildlife Sanctuary;
 - Malayattoor Reserve Forest;
 - Mankulam Forest Division;
 - Mathikettan Shola National Park;
 - Muthikulam-Siruvani; and
 - Pampadum Shola National Park.

4. Sangai Deer

- A workshop on how people and brow-antlered deer (Sangai) can co-exist was held in Manipur.
- The sangai is an **endemic, rare and endangered subspecies of brow-antlered deer**.
- It is also **state animal of Manipur**.
- The Sangai is now restricted to the **Keibul Lamjao National Park (KLN)** in the Southeastern fringe of Loktak Lake in Manipur.
- **Phumdis**, floating vegetation occupy about two-third of the surface area of the lake.
- They feed, live and breed on this 9 km area of Phumdis.
- It is classified as “**Endangered**” by the IUCN.



5. Nilgiri Tahr

- The **first ever State wide population estimation of Nilgiri tahrs** conducted by the **Kerala Forests and Wildlife Department**.
- It has put the total population of the endangered species at 1,420, which include 664 at the Eravikulam National Park in Munnar.
- Nilgiri Tahr (*Nilgiritragus hylocrius*) or Nilgiri Ibex is a stocky goat **endemic to the Nilgiri Hills and the southern portion of the Western Ghats in the states of Tamil Nadu and Kerala**.

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- Nilgiri Tahr is the **state animal of Tamil Nadu**.
- Largest population of Nilgiri Tahr is found within the **Eravikulam National Park**.
- IUCN has put them in **endangered species**.
- Protected under **Schedule I of Wildlife (Protection) Act of 1972**.



- According to IUCN, the species faces competition from domestic livestock.

6. Eco-bridges for the movement of tigers

- In a first of its kind, **Telangana State** will have **eco-friendly bridges** over a canal cutting across the **tiger corridor** linking the **Tadoba-Andhari Tiger Reserve (TATR)** in the Chandrapur district of Maharashtra with the forests in Telangana's Kumram Bheem Asifabad district.
- The 'eco-bridges' will be constructed at **key spots along the 72 km-long**, with laying of fertile soil to grow grass and plants over the structure, so that fragmentation of the reserve forest is camouflaged.
- **National Board of Wildlife** will be the nodal agency for recommending the size and location of eco-bridge.

7. White Tiger

- Recently a Wild-Life photographer captured a rare '**white tiger**' spotted for the first time in the **Nilgiris**.
- The **white tiger** is a pigmentation variant of the Bengal tiger, which is reported in the wild in the states of **Assam, West Bengal and Bihar**.
- It is predominantly found in **Rewa, Madhya Pradesh**.
- **Bandhavgarh** in Madhya Pradesh has the **world's first white tiger sanctuary**.
- It is listed in **Schedule 1 of Wild Life (Protection) Act 1972**.



8. One-Horned Rhinos

- The **Assam government** is going to raise a new **Special Rhino Protection Force (SRPF)** for better protection of the one-horned rhinos in Assam.



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- One-horned rhinoceros is the **largest of the Asian Rhinos**.
- Today they are found in **parts of Uttar Pradesh, West Bengal and Assam**.
- They are found in **Kaziranga, Orang, Pobitora, Jaldapara (in Assam), Dudhwa (UP) National Park**.
- Kaziranga National Park hosts two-thirds of the world's Great One-horned rhinoceros.
- It has been listed as **Vulnerable on the IUCN Red List of Threatened Species**.
- **Indian Rhino Vision (IRV) 2020:**
 - Launched in 2005, Indian Rhino Vision 2020 is an ambitious effort to **attain a wild population of at least 3,000** greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020.
 - Indian Rhino Vision 2020 is a partnership among the Government of Assam, the International Rhino Foundation, and the World Wide Fund for Nature, the Bodoland Territorial Council, and the U.S. Fish & Wildlife foundation.
 - **It aims to:**
 - **Improving the protection and security** of rhinos in all rhino areas in Assam.
 - **Translocating Rhinos** from Kaziranga National Park and Pobitora Wildlife Sanctuary to five other protected areas namely Manas, Laokhowa, Buracharpori-Kochmora, Dibrusaihowa and Orang.

9. Mouse Deer

- **Telangana State Forest Department** has re-introduced the **endangered 'mouse deer'** into the forests of **Nallamalla in Amrabad Tiger Reserve**.
- The release of these mouse deer into the protected enclosure of 2.4 hectares is aimed at **improving the biodiversity**.
- The Amrabad Tiger Reserve was chosen because these animals were earlier wandering in this area.
- Mouse deer also called '**spotted Chevrotain**', it is one of the endangered species usually found in deciduous and evergreen forests of the country.
- **These animals are nocturnal** in habitat and because of their small size they are called '**smallest ungulates**' too.
- Also called "Jarini Pandi" in Telugu, their number has been decreasing at an alarming rate in recent years because of **destruction of habitat and poaching**.



10. Snow leopard

- The conservation status of snow leopard has been improved from "**endangered**" to "**vulnerable**".
- The decision was announced by the **International Union for Conservation of Nature (IUCN)**.
- They were first listed as endangered by the IUCN in 1972.
- **Endangered Vs Vulnerable:**

- To be considered ‘endangered,’ there must be **fewer than 2,500** mature snow leopards and they must be experiencing a high rate of decline.
- Being classed as “vulnerable” means a species has **under 10,000** breeding animals left, with a population decline of at least 10% over three generations.
- **Snow leopard stats:**
 - The rarely-sighted cats live in the craggy peaks of **central Asia** – including the **Himalayas, and Russia’s remote Altai mountains**.
 - **Threatened by poaching for their fur**, infrastructure developments, and climate change.
 - Usually found at **elevations of 3,000-4,500m**.
 - Mostly **feed on wild animals**, but will also prey on livestock.
 - **Their spotted coats change with the seasons** – from a thick, white fur to keep them warm and camouflaged in winter, to a fine yellow-grey coat in summer.
 - Categorised under **Appendix I of the Convention on International Trade of Endangered Species (CITES)**, which makes trading of animal body parts illegal in signatory countries.
 - Under **Schedule I of Wildlife (Protection) Act 1972**.
 - Under **Appendix I Convention on Migratory Species (CMS)**.
 - In India, they are found in **Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh**.
 - It is National Heritage Animal of Pakistan and Afghanistan.
- **Snow leopard photographed in Arunachal:**
 - Scientists have obtained the **first evidence of the elusive snow leopard in Arunachal Pradesh**.
 - Camera traps have captured images of the big cat at **Thembang village’s Community Conserved Area**, a community-owned reserve, in West Kameng district.
 - The presence of the species outside protected areas highlights the importance of community support for conservation as well as landscape-scale planning.
 - Arunachal Pradesh is one of the 22 priority landscapes of the **Global Snow Leopard Ecosystem Protection Programme**.
- **Community Conserved Area (CCA):**
 - In 2004, **WWF-India introduced the concept of CCAs** in the State to empower local communities to become active decision-makers and implement conservation initiatives.
 - Local communities in these CCAs form committees to undertake wildlife monitoring, patrolling and community-based tourism activities.



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11. Buxa Tiger Reserve

- **Buxa Tiger Reserve in West Bengal** has been identified for the **tiger augmentation programme** by the **National Tiger Conservation Authority**

(NTCA).

- Tigers from the forest reserves of Assam, which have a similar flora and fauna, will be introduced in Buxa.
- **About Buxa Tiger reserve:**
 - Notified as a tiger reserve in 1983, Buxa consists of **moist, deciduous and evergreen forests**.
 - **Northern boundary of Buxa Tiger Reserve runs along the international border with Bhutan.**
 - **The Sinchula hill range lies all along the northern side of BTR and the eastern boundary touches that of the Assam state.**
 - **The Phipsu Wildlife Sanctuary of Bhutan is contiguous to the north of BTR.**
 - **Manas National Park lies on east of BTR.**
 - BTR, thus, serves as **international corridor for Asian elephant migration between India and Bhutan.**

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12. Pondicherry Shark, Red Sea Torpedo and Tentacled Butterfly Ray

may have become extinct, fear scientists

- Three marine species, the **Pondicherry Shark**, the **Red Sea Torpedo** and the **Tentacled Butterfly Ray** might have become possibly extinct in the oceanic waters of the **Arabian Seas Region (ASR)** since no evidence of its existence has surfaced in the last three decades.
- The **Guitar fish** found in coastal waters of Kerala and Tamil Nadu and the **Ganges Shark** found in Arabian Sea were classified as **Critically Endangered**.
- **ASR:**
 - The ASR covers the waters of the **Red Sea, Gulf of Aden, Arabian Sea, Sea of Oman, and the Gulf**.
 - The region is also bordered by 20 countries including India, Bahrain, Egypt, Iraq, Iran, Israel and Pakistan.

13. Sawfish

- **World Sawfish day was observed on October 17th.**
- The sawfish have been sighted off the Indian coast less than 10 times in over a decade and they **appear to be more threatened than tigers and elephants**, as per the scientists.
- The sawfish today may be the **most endangered fish species** in India.
- Anecdotal evidence suggested they were once common along the Indian coast.
- The sawfish has been included in **Schedule I of the Indian Wildlife (Protection) Act 1972**.
- **Sawfish are elasmobranchs**, meaning their skeleton is made of cartilage.
- They are closely related to sharks and have **shark-shaped bodies** and, hence, are also called flat sharks.
- The sawfish family has been assessed either '**Endangered**' or '**Critically Endangered**' in the International Union for Conservation of Nature (IUCN)



Global Red List.

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14. M-STRIPES

- In the **All-India Tiger Estimation, 2018** exercise, the authorities are planning to use an app named **M-STRIPES (Monitoring System For Tigers-Intensive Protection and Ecological Status)** developed by the **Wildlife Institute of India, Dehradun**.
- Though the app has already been in place in some national parks, its **usage and application has been made mandatory** only now, for the fourth All-India Tiger Estimation.
- All these years, data pertaining to carnivore signs, pellets and status of habitat was manually recorded in the prescribed format on a paper by the field staff, but this exercise was prone to errors.
- With the availability of M-STRIPES, **human error will be eliminated**.
- **Tiger estimates:**
 - The **national tiger estimates are conducted once in four years**, with the first conducted in **2006**.
 - The last nationwide assessment, held in 2014, pegged the tiger figures across the country at 2,226. **Karnataka** alone was home to 400 tigers, a bulk of them in Bandipur and Nagarhole.

15. Blackbuck conservation

- A **wildlife conservation reserve dedicated exclusively to the blackbuck** is coming up over 126 hectares in the **trans-Yamuna region of Allahabad** in Uttar Pradesh.
- The State cabinet has approved a Blackbuck Conservation Reserve in the **Meja forest division** that is known for its rocky, undulating and arid terrain.
- There are a few national parks and **sanctuaries inhabited by blackbuck** in the country, like the **Velavadar Wildlife Sanctuary in Gujarat** and the **Ranibennur Blackbuck Sanctuary in Karnataka**.
- However, there are not many conservation reserves exclusively dedicated to the antelope.
- Blackbucks, known for their majestic **spiral horns** and coat colour contrasts, are found in **grasslands and open forests**.
- They once ruled the open savannahs of north and central India, but are now restricted to just a few patches and habitats, primarily due to **human population growth, ecosystem degradation and hunting**.



16. Olive Ridley Sea Turtle

- The Olive ridley turtles are the **smallest and most abundant of all sea turtles found in the world**, inhabiting **warm waters of the Pacific, Atlantic and Indian oceans**.
- These turtles, along with their cousin the **Kemps ridley turtle**, are best known for their unique



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mass nesting called Arribada, where thousands of females come together on the same beach to lay eggs.

- Though found in abundance, their numbers have been declining over the past few years, and the species is recognized as **Vulnerable by the IUCN Red list**.
- In India, it is protected under the **Wildlife (Protection) Act**.
- They are **carnivores**, and feed mainly on jellyfish, shrimp, snails, crabs, molluscs and a variety of fish and their eggs.
- The destination for majority of the turtles for laying egg is **Gahirmatha in Odisha**.
- The sandy stretches of **Hope Island of the Coringa Wildlife Sanctuary in Andhra Pradesh** also have turned into a breeding area.
- **International trade** in these turtles and their products is **banned** under **CITES Appendix I**.
- The **Convention on Migratory Species** and the **Inter-American Convention for the Protection and Conservation of Sea Turtles** have also provided olive ridleys with protection.
- Olive-ridleys face serious threats due to human activities such as turtle unfriendly fishing practices, development and exploitation of nesting beaches for ports, and tourist centres.

17. Certificate of Commendation to WCCB

- India has been awarded with the **Certificate of Commendation** for its exemplary enforcement action in its regional and global effort to **combat illegal wildlife trade**.
- The award has been given to **Wildlife Crime Control Bureau** by the Secretary General of Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- India was the **only recipient** of the Certificate of Commendation at the recently held 69th Standing Committee meeting of CITES at Geneva.
- **Operation Save Kurma:**
 - The award has been presented to WCCB for **species specific wildlife enforcement Operation**, codenamed “Operation Save Kurma”.
 - “Operation Save Kurma” was conducted to combat the proliferating illegal trade in live turtles and its parts from the country to destinations abroad.
- **WCCB:**
 - The Government of India constituted a **statutory body**, the Wildlife Crime Control Bureau (WCCB) on 6 June 2007, by amending the Wildlife (Protection) Act, 1972.
 - It was established to **combat organized wildlife crime** in the country.
 - Under the Wild Life (Protection) Act, 1972, it is mandated to **collect and collate intelligence related to organized wildlife crime activities** and to disseminate the same to State and other enforcement agencies for immediate action;
 - Establish a **centralized wildlife crime data bank**;
 - It also assists and advises the Customs authorities in inspection of the consignments of flora & fauna as per the provisions of Wild Life

Protection Act, CITES and EXIM Policy.

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18. Alien Invasive Animal Species

- The **Zoological Survey of India (ZSI)** has for the first time **compiled a list of alien invasive animal species**, totalling 157.
- This compilation was announced on the sidelines of the **National Conference on the Status of Invasive Alien Species** in India, organised by the ZSI and the Botanical Survey of India (BSI).
- What are invasive animal species?
 - Alien species become ‘invasive’ when they are **introduced deliberately or accidentally outside their natural areas**, where they out-compete the native species and upset the ecological balance.
 - Invasive animal species pose a **threat to biodiversity** and human well-being.
 - Common characteristics of invasive species include:
 - Rapid reproduction and growth,
 - High dispersal ability,
 - Phenotypic plasticity (ability to adapt physiologically to new conditions), and
 - Ability to survive on various food types and in a wide range of environmental conditions.
- **What is being done?**
 - In 2010 almost all of the world’s governments adopted the Convention on Biological Diversity **Strategic Plan for Biodiversity**, which included **20 headline ‘targets’** referred to as the **Aichi Targets**.
 - One of these targets (#9) is specifically related to Invasive animal species.
 - “**Target 9:** By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment”.
 - One of the **SDGs #15: Life on land**, has a target focusing specifically on Invasive animal species.

19. Flamingo festival

- The **three-day annual Flamingo Festival** was held at **Pulicat Lake and Nelapattu Bird Sanctuary**.
- Flamingo Festival is held every year to **promote tourism** in Pulicat and Nellapattu.
- **Migratory birds from Siberia** visit this place during winter season for breeding.
- Usually around 80 different avian species migrate to Pulicat for breeding.
- **Nelapattu Bird Sanctuary:**
 - Nelapattu Bird Sanctuary is **one of the biggest habitats** for some hundreds of **pelicans** and other birds.
 - It is located about 20 km north of the Pulicat Lake on the Andhra Pradesh-Tamil Nadu border.

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- It plays an important role in **nesting of various birds** especially migratory birds.
- **Pulicat lake:**
 - Pulicat Lake is the **second largest brackish water lake or lagoon in India after Chilika Lake.**
 - It is located on border of Andhra Pradesh and Tamil Nadu with over 96% of it in Andhra Pradesh and 4% in Tamil Nadu situated on Coromandal Coast.
 - The **barrier island of Sriharikota** separates the lake from the Bay of Bengal and is home to Satish Dhawan Space Centre.
 - **Arani and Kalangi** are two rivers which feed the lagoon.
 - The **Buckingham Canal**, a navigation channel, is part of the lagoon.

20. Chiru Goat

- India's environment ministry has ruled out the possibility of conservation breeding of the Chiru goat.
- Chiru goat has long been hunted for its **underfur (Shahtoosh)**, which is renowned for its quality.
- **Why the government is not in favour of conservation breeding of Chiru goat?**
 - Chiru inhabits the **high-altitude Tibetan plateau** and requires large expanse of land for its movement and ranging patterns to fulfil its feeding and breeding requirements.
 - **Rearing the goat in captivity is extremely difficult.**
 - Besides, any attempt to do conservation breeding of Chiru at very high altitude regions of Ladakh (more than 3,800m) may **neither be economical nor feasible** as humans cannot be posted continuously for more than 2-3 months.
- Chiru, or Tibetan antelope, is assessed as '**Near Threatened**' by the International Union for Conservation of Nature 2017.
- Listen under **Schedule I of Wildlife Protection Act, 1972**
- Prime habitats: **Karakorum Wildlife Sanctuary** and **Changthang Cold Desert Wildlife Sanctuary**.
- The Tibetan antelope is the **sole species in the genus Pantholops**.
- **Endemic to the Tibetan Plateau**, the Tibetan antelope inhabits open alpine and cold steppe environments between 3,250 and 5,500 m elevation.



21. Nilgiri Marten

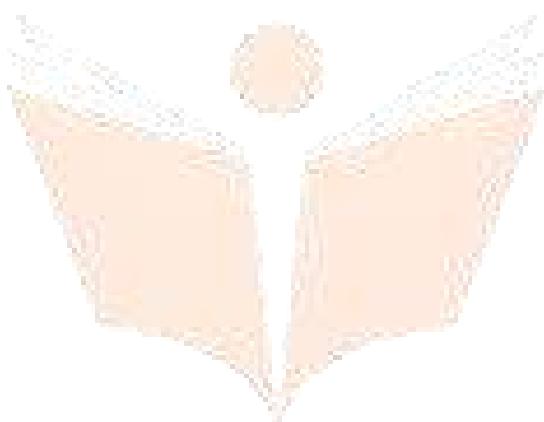
- A recent study has found that **Pampadum Shola National Park** located on the southern portion of Western Ghats is a safe haven of rare and most elusive **Nilgiri Marten**.
- **Endemic to the Western Ghats**, Nilgiri Marten looks like a civet or a mongoose and it most prefers higher altitudes.
- The species is listed as **Vulnerable** in the IUCN Red List of Threatened Species



and **Schedule II, Part 2 of the Indian Wildlife (Protection) Act 1972.**

- Coming under **Munnar Wildlife Division**, Pampadum Shola enjoys proximity of Kurunjimala Wildlife Sanctuary and Palani hills of Tamil Nadu.
- It is the smallest national park in Kerala state.

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Environment Conservation

NOTES

1. Sunderbans Mangrove

- Remote sensing and GIS-enabled data show that **the mangrove forest cover in the Sunderbans has been depleting alarmingly.**
- In the western part of sunderban delta, **there is less fresh water flow and sediment supply.** This has led to the starvation of sediment.
- **The rate of sea level rise is higher than sediment supply.** This has led to the erosion of Islands.
- The Sundarbans is a **natural region in West Bengal and Bangladesh.** It is the **largest single block of tidal halophytic mangrove forest in the world.**
- The Sundarbans covers approximately 10,000 square kilometres of which 60% is in Bangladesh with the remainder in India.
- It is located in the **delta region of Padma, Meghna and Brahmaputra river basins.**
- It is the **world's largest delta.**
- It is a **UNESCO World Heritage Site.**
- The region is known to contain numerous wildlife species, birds and reptiles, including **Bengal tiger, chital, crocodile, and snakes.**
- **It is the largest and only mangrove reserve in the world inhabited by tigers**
- Since 21 May 1992, the Sundarbans is recognized as a **Ramsar Site of ecological importance.**

2. Chilika Lake

- Lakhs of migratory birds have made their way to the **Chilika Lake, Asia's largest brackish water lagoon.**
- Major bird congregations have been spotted in the wetlands of the **Nalabana Bird Sanctuary** inside Chilika and **Mangalajodi**, a major village on the banks of the lake.
- Migratory birds fly across continents from Caspian Sea, Baikal Lake and remote parts of Russia, Mongolia and Siberia and flock to the marshy lands of the Nalabana Bird Sanctuary inside the Chilika Lake.
- Chilika Lagoon is the second largest lagoon in the world after The **New Caledonian barrier reef in New Caledonia.**
- It is one of the **hotspot of biodiversity** in the country, and some rare, vulnerable and endangered species listed in the IUCN Red List of threatened Animals inhabit in the lagoon for atleast part of their life cycle.
- Chilika was designated as the **1st "Ramsar Site" of India.**
- Around 152 rare and endangered **Irrawaddy dolphins** have also been reported.
- The **Nalaban Island** within the lagoon is notified as a **Bird Sanctuary** under Wildlife (Protection) Act.
- The National Wetlands, mangroves and coral reefs Committee of Ministry of Environment & Forests, Government of India, have also identified the lagoon as a **priority site for conservation and management.**

3. Loktak Lake

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- Loktak Lake is the **largest freshwater lake in Northeast India**, and is famous for the **phumdis** (heterogeneous mass of vegetation, soil, and organic matter at various stages of decomposition) **floating over it**.
- **Keibul Lamjao National Park** is also one of Phumdis in the lake. It is the last natural refuge of **endangered Sangai deer**.
- Keibul Lamjao is the **only floating national park in the world**. It is located near Moirang in **Manipur**.
- Considering the ecological status and its biodiversity values, the lake was designated as a **wetland of international importance under the Ramsar Convention** on 23 March 1990.
- It was also listed under the **Montreux Record** on 16 June 1993, "a record of Ramsar sites where changes in ecological character have occurred, are occurring or are likely to occur".
- **Floating Elementary School:**
 - **India's first floating elementary school** named Loktak Elementary Floating School was inaugurated at Loktak Lake in Manipur.
 - It was opened under the initiative of **All Loktak Lake Fisherman's Union** with the support of an **NGO People Resources Development Association (PRDA)**.

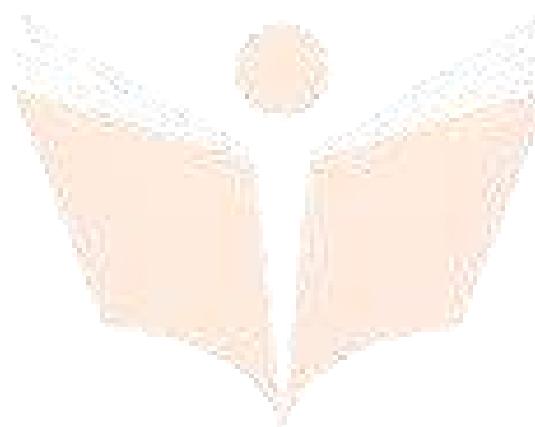
4. Sambhar Salt Lake

- The **Sambhar Salt Lake, India's largest inland salt lake**, is located south west of the city of Jaipur and north east of Ajmer in Rajasthan.
- It is **not part of the Ganga river basin** area and is geographically a separate land locked river basin.
- The lake is actually an **extensive saline wetland**. It has been designated as a **Ramsar site**.
- It is source of most of **Rajasthan's salt production**.
- It is a key wintering area for thousands of **flamingos and other birds that migrate** from northern Asia.
- There is wildlife in the nearby forests, where **Nilgai** move freely along with deer and foxes.

5. Mangalajodi Ecotourism Trust (MET)

- **Mangalajodi Ecotourism Trust in Odisha** has won the **United Nations World Tourism Organisation (UNWTO) Award** for Innovation in Tourism Enterprise.
- Mangalajodi Ecotourism Trust is community owned and managed venture promoted by RBS Foundation India and Indian Grameen Services on banks of Chilika Lake in Odisha.
- The villagers of Mangalajodi stand as true defenders of wildlife in the region.
- The region hosts more than 3,00,000 birds in its marshy waters, especially in winters.
- **World Tourism Organization (UNWTO):**
 - UNWTO is **United Nations agency** responsible for **promotion of responsible, sustainable and universally accessible tourism**.
 - It promotes tourism as driver of economic growth, inclusive

- development and environmental sustainability.
- It is headquartered in **Madrid, Spain**.
 - **India is a member of UNWTO since 1975**.
 - UNWTO Awards for Innovation in Tourism are given to innovative tourism initiatives which are both competitive and sustainable in their character.

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DISCERN
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Species Discovery / Species Sighted

1. India's biodiversity riches grow by 499 species

- As per the latest **reports by ZSI and BSI**, 499 new species have been discovered in last one year in the country.
- Of these, 313 species are animal species and 186 are plants species.
- Most of the new species were from the four biological hotspots of the country — the Himalayas, the northeast, the Western Ghats and the Andaman and Nicobar Islands.**
- For the first time, the number of animal species in the country, including protozoa, has crossed one lakh.
- India is one of the 17 mega diversity countries and it has about 6.42% of the global fauna.
- The geographical distribution of the new plant species reveals that most discoveries were made in the **Western Ghats (17%)**, followed by the Eastern Himalayas (15%), the Western Himalayas (13%), the Eastern Ghats (12%) and the west coast (8%).

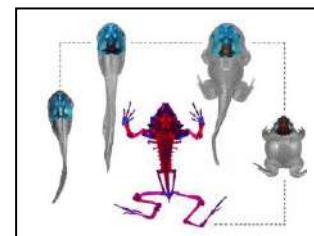
2 New Earthworm Species Found In Kerala

- Scientists have discovered two new **primitive species of earthworm in the Western Ghats mountain ranges in Kerala**.
- They have named the new earthworm species **Drawida polydiverticulata** and **Drawida thomasi**.
- To date, there are 73 species of the genus Drawida confirmed to be living in the Indian subcontinent.
- However, the greatest concentration (43 species) is found in the Western Ghats.
- The genus has an important centre of speciation in Kerala.



3. New species of the genus Nasikabatrachus

- A new species of the **endemic frog genus Nasikabatrachus** has been discovered from the **eastern slopes of the Western Ghats**.
- The newly discovered frog is named **Nasikabatrachus bhupathi**.
- The discovery is significant as it constitutes additional **evidence in favour of the theory of continental drift**.
- The frog is an inhabitant of Seychelles**, and the discovery of this frog species in India suggests that the Indian subcontinent was part of the ancient landmass of Gondwana before splitting from Seychelles 65 million years ago.



4. Western Ghats throw up a new snake

- Scientists have described a **new species of non-venomous endemic snake, Aquatic Rhabdops**, from the northern Western Ghats.

- The adults are mostly associated with **freshwater forest streams** and juveniles are seen in water-logged areas, mostly on rocky plateaus. The nocturnal snake hunts for prey underwater.
- The Aquatic Rhabdops is **found only in the laterite plateaus of the northern Western Ghats** in Goa, southern Maharashtra and northern Karnataka, in areas facing severe human pressures.



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5. New species of large gecko discovered from Eastern Ghats

- Scientists have discovered new species of **large gecko from Eastern Ghats**.
- The **Kanger valley rock gecko Hemidactylus kangerensis** is the newest addition to India's lizard species.
- The gecko was discovered from **Chhattisgarh's Kanger Ghati National Park**.
- Though named after this park, the species is also found in Jagdalpur and Sukma in Chhattisgarh and in Khamman in the adjoining State of Telangana.



6. New ant species discovered in the Western Ghats

- Researchers have discovered a **new species of ant in the Western Ghats**, recognised as one of the world's 'hottest hotspots' of biological diversity.
- **The new species is named Tyrrannomyrmex alii (or T. alii)**. The ant is named after eminent myrmecologist Musthak Ali, who is regarded as the country's 'ant man'.
- The new species was found in the **Periyar Tiger Reserve**. It belongs to Tyrrannomyrmex, a rare tropical genus of ants.

7. Musa paramjitiana

- It is a species of **wild banana** discovered recently in the **Andaman and Nicobar Islands**.
- The plant grows to a height of nine metres and bears an edible, sweet-and-sour tasting fruit that is boat-shaped and has numerous bulb-shaped seeds.
- Its conservation status has been declared **as 'Critically Endangered'** as it has so far been spotted in only two locations on the islands.
- The fruits and seeds have **ethno-medicinal importance**.
- Pseudo-stem and leaves of these species are also used during religious and cultural ceremonies.



8. Gleadowia konyakianorum

- Scientists have discovered a new species of **parasitic flowering plant**. The species is named Gleadowia konyakianorum, in honour of the **Konyak tribe of Nagas**.

- The plant is a holoparasite [complete parasite] that derives its entire nutritional requirement from the host plant, which is a Strobilanthes species.
- Though it has **no chlorophyll**, the plant has a vascular system and extracts its nutrition from the host plant with the help of a **haustorium**.
- *A haustorium is a specialised structure with which plant parasites attach themselves to the tissue of host plants and derive nutrition.*



NOTES

9. Retrotransposons

- They are the recently identified **special genes which could help Symbiodinium adapt more rapidly to heat stress.**
- **Symbiodinium:**
 - Symbiodinium is a **unicellular algae** that provides its coral host with photosynthetic products in return for nutrients and shelter.
- **Coral bleach:**
 - High sea temperatures can cause the breakdown of the symbiotic relationship between the algae and corals and lead to the widespread expulsion of Symbiodinium from host tissues, an event known as coral bleaching.
 - If bleached corals do not recover, they starve to death, leaving only their white, calcium-carbonate exoskeleton.
 - Corals can recover if the water temperature drops and the algae are able to recolonise them.

10. New night frog species

- Scientists have discovered a **new frog species** from **Kozhikode's Malabar Wildlife Sanctuary**.
- The frog species, named **Mewa Singh's Night frog**, belongs to a genus **endemic to the Western Ghats**.
- The frog has been named after wildlife scientist Mewa Singh, in honour of his contributions to behavioural ecology and primate studies.

11. Zygaenid

- It is a **newly discovered species of moth**. This discovery represents the first record of Elcysma from **Arunachal Pradesh**.
- The new species is named **Apatani Glory**, named after a local tribe called Apatani.
- The species was discovered from the **Talle Wildlife Sanctuary in Arunachal Pradesh**.
- This species has only been **seen during autumn**, notably in the month of September, indicating that it is a **univoltine species**, meaning it has one brood of young in a year.

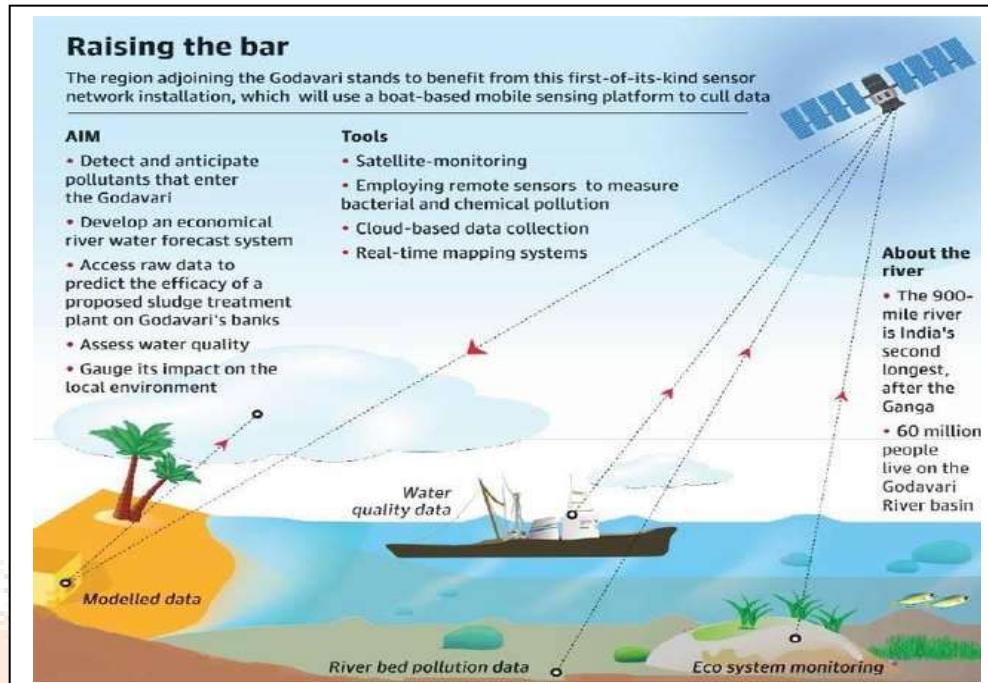


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Pollution

1. Sensor network to map and predict pollution, effluents in Godavari

- A group of U.S. researchers is working on a system to map undulating pollution trends in the Godavari.



- The exercise is part of a Bill and Melinda Gates Foundation project** to support the programme of the Administrative Staff College of India (ASCI) to provide city-wide sanitation improvements in urban Andhra Pradesh.
- The objective is to inform State officials and citizens of a probable spike in levels of dangerous microbes or effluents, similar to weather and air pollution forecasts.
- Godavari River:**
 - The Godavari is **the second longest river** in India after the river Ganges having its source at **Tryambakeshwar, Maharashtra**.
 - It starts in Maharashtra and flows east for emptying into Bay of Bengal draining the states **Maharashtra (48.6%)**, **Telangana(18.8%)**, **Andhra Pradesh (4.5%)**, **Chhattisgarh (10.9%)**, **Madhya Pradesh (10.0%)**, **Odisha (5.7%)**, **Karnataka (1.4%)** and **Puducherry**.
 - It forms **one of the largest river basins** in the Indian subcontinent, with only the Ganges and Indus rivers having a drainage basin larger than it in India.
 - Important tributaries include **Pravara, Purna, Manjira, Pranhita, Indravati and Sabari**.

2. Methanol

- Methanol is a **clean-burning fuel** that produces **fewer smog-causing emissions** — such as **sulphur oxides (SO_x)**, **nitrogen oxides (NO_x)** and **particulate matter**.
- Methanol is most commonly produced on a commercial scale **from natural**

gas.

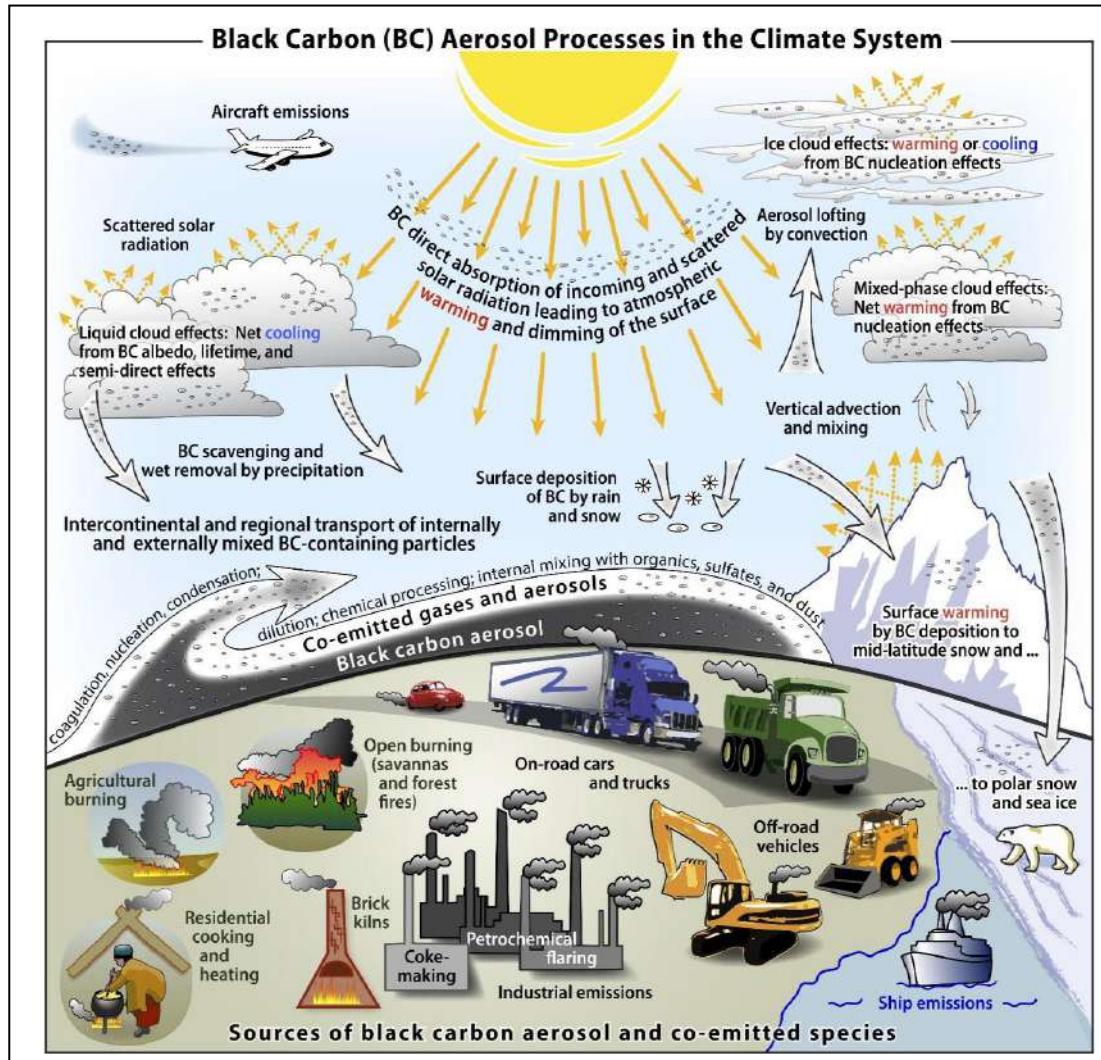
- It can also be produced from **renewable sources such as biomass and recycled carbon dioxide**.
- As a **high-octane vehicle fuel**, methanol offers excellent acceleration and power.
- It also improves **vehicle efficiency**.
- **Niti Aayog** is planning to set up a **Methanol Economy Fund** worth Rs 4,000-5,000 crore to promote production and use of the clean fuel.
- **Methanol as an alternative fuel:**
 - Methanol is a promising fuel for **waterways** as it is clean, cheaper than fossil fuels and a good substitute for heavy fuels.
 - India imports methanol from **Saudi Arabia and Iran** at present.
 - Across the world, methanol is emerging as a clean, sustainable transportation fuel of the future.
 - Methanol can be **blended with gasoline** in low-quantities and used in existing road vehicles.
 - Technology is also being commercialized to use **methanol as a diesel substitute**.

NOTES

3. Black Carbon

- According to a study by researchers, **Aeroplanes may be ejecting significant amounts of black carbon (BC)** and this may be **depleting the ozone layer**.
- Black carbon consists of **pure carbon** in several linked forms.
- It is formed through the **incomplete combustion of fossil fuels, biofuel, and biomass**, and is emitted in both **anthropogenic and naturally occurring soot**.
- Black carbon (BC) is a pollutant known to aggravate **breathing disorders**.
- It is emitted directly into the atmosphere in the form of **fine particles (PM2.5)**.
- It's known to be **one-fourth as potent as carbon dioxide** in whetting global warming.
- Because BC particles **strongly absorb solar and terrestrial radiation** and heats up the atmosphere it can **upset the monsoon system**.
- If deposited on snow, it could accelerate the **heating of snow** and quicken the melting of glaciers.

NOTES



4. Moss serves as a cheap pollution monitor

- As per the latest research by scientists from Japan, delicate **mosses found on rocks and trees** in cities around the world can be used to **measure the impact of atmospheric change** and could prove a **low-cost way to monitor urban pollution**.
- Moss- the “**bioindicator**”- responds to pollution or drought-stress by **changing shape, density or disappearing**, allowing scientists to calculate atmospheric alterations.
- Mosses are a **common plant in all cities** so this method can be used in many countries.
- Mosses – which generally absorb water and nutrients from their immediate environments – are often cheaper to use than other methods of environmental evaluation
- Mosses are small **flowerless plants** that typically grow in dense green clumps or mats, often **in damp or shady locations**.



5. Chemicals in Firecrackers

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- Recently the Supreme Court imposed a ban on the use of **antimony, lithium, mercury, arsenic and lead** in the manufacture of firecrackers to prevent air pollution.
- The court entrusted the **Petroleum and Explosive Safety Organisation (PESO)** with the responsibility of ensuring compliance.
- There are no standards laid down by the Central Pollution Control Board (CPCB) with regard to air pollution caused by the bursting of firecrackers.
- **Petroleum and Explosives Safety Organisation (PESO):**
 - PESO is the **apex department** to control and administer manufacture, storage, transport and handling of explosives, petroleum, compressed gases and other hazardous substances in the country.
 - It functions under the **Department of Industrial Policy and Promotion (DIPP)**, Ministry of Commerce and Industry.

6. Carbon Capture Utilization Storage (CCUS)

- As part of its **climate change commitments** in the aftermath of signing the Paris agreement India is now exploring the possibility of **carbon capture utilization storage or CCUS**.
- Carbon capture utilization storage is the process of **capturing waste carbon dioxide (CO₂)** from large point sources, such as fossil fuel power plants, and either transporting it to a storage site where it will not enter the atmosphere, normally an underground geological formation , or reusing it.
- In Carbon Capture and Storage (CCS), emissions are forced into underground rocks at great cost and no economic benefit while CCUS aims at using CO₂ emissions by exploiting the resource itself and creating new markets around it.

7. India tops list of pollution-linked deaths: Study

- **India has topped the list of countries with pollution-related deaths in 2015**, with 2.51 million people dying prematurely in the country due to diseases linked to air, water and other forms of pollution, according to a new study published in the medical journal, **The Lancet**.
- The study is part of a two-year project that involved more than 40 international health and environmental authors, and the secretariat of the **Global Alliance on Health and Pollution**.
- Most of the pollution-related deaths — 92% — were reported in low and middle income countries, and in rapidly industrialising nations such as India, China, Pakistan, Bangladesh, Madagascar and Kenya.

8. Bharat Stage Norms

- Taking into account the serious pollution levels in Delhi and adjoining areas, Petroleum Ministry in consultation with Public Oil Marketing Companies has decided for **preponement of BS-VI grade auto fuels in NCT of Delhi w.e.f 01.04.2018** instead of 01.04.2020.
- Introduced in the year 2000, the Bharat norms are **emission control standards** put in place by the government to keep a **check on air pollution**.

- The standards and the timeline for implementation are set by **Central Pollution Control Board (CPCB)** under Ministry of Environment & Forests and climate change.
- Based on the **European regulations (Euro norms)**, these standards set specifications/limits for the release of air pollutants from equipment using internal combustion engines, including vehicles.
- Typically, the higher the stage, the more stringent the norms.
- **BS-VI Norms:**
 - The Union Government in October 2016 had decided to skip one stage and **migrate to BS-VI directly from BS-IV** from April 2020.
 - By switching to BS-VI, **India will join league of US, Japan and European Union**, which follow Euro Stage VI emission norms
 - BS-IV fuels contain 50 parts per million (ppm) sulphur, while **BS-VI grade fuel will have 10 ppm sulphur**.
 - It will also **bring down NOx emissions** from diesel cars by 68% and 25% from petrol engine cars.
 - **Particulate matter emissions** from diesel engine cars will also come down by 80%.

NOTES

9. Arunachal's Siang river turns black

- The waters of the **Siang river**, considered the **lifeline of northern Arunachal Pradesh** for centuries, has suddenly turned dark black triggering panic in the frontier state.
- The water from the river is no longer considered fit for consumption.
- **China is being blamed** for these changes.
- China has been planning to dig the world's longest tunnel to change the course of Yarlung Tsangpo from Tibet towards Taklimakan desert in Xinjiang but has been denying the same at public platforms.
- **About Siang river:**
 - **Siang originates in China and then enters India** through Arunachal Pradesh, it is then joined by two other rivers—Dibang and Lohit—as it enters Assam where it is called the Brahmaputra.

10. National Air Quality Index (AQI)

- Recently, NCR experienced “**severe**” **levels of pollution on Air Quality Index**.
- PM2.5 concentrations in New Delhi reached more than 1,200 micrograms per cubic meter, 48 times the guideline value established by the World Health Organization.
- The **Minister for Environment, Forests & Climate Change** launched The National Air Quality Index (AQI) in 2014 under the **Swachh Bharat Abhiyan**.
- It is outlined as ‘**One Number- One Colour-One Description**’ for the common man to judge the air quality within his vicinity.
- The National AQI is published by **Central Pollution Control Board (CPCB)** along with a numerical value and a colour code which helps in comparing air pollution levels in cities.
- It is determined on the basis of concentration of **8 pollutants**, including Particulate Matter (PM 2.5, PM 10), sulphur dioxide (SO₂), nitrogen dioxide

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- (NO₂), carbon monoxide (CO), ozone (O₃), ammonia (NH₃) and lead (Pb).
- The colour categories are classified into **6 categories** depending upon numerical value as Good (0-50), Satisfactory (51-100), moderately polluted (101-200), Poor (201-300), Very poor (301-400) and Severe (401-500).

11. Furnace oil and pet coke

- Recently, **Supreme Court banned the use of furnace oil and pet-coke** in Haryana, Rajasthan and Uttar Pradesh to reduce air pollution in Delhi and National Capital Region (NCR).
- Pet coke and furnace oil has been **already banned in Delhi since 1996** as they release **sulphur dioxide (SO₂) and nitrogen oxide (NO)** fumes into air.
- SC order comes in response to recommendations of **Environment Pollution Control Authority (EPCA)**.
- **Pet Coke:**
 - **Petroleum coke or petcoke**, is a final carbon-rich solid material that derives from oil refining.
 - It is the **bottom-of-the-barrel** leftover.
 - It contains more planet-warming **carbon** and far more heart- and lung-damaging **sulphur**.
 - Petcoke is over **90 percent carbon** and emits 5 to 10 percent more carbon dioxide (CO₂) than coal on a per-unit-of-energy basis when it is burned.
 - It has **high calorific value, lower cost and lower handling cost** per unit of heat content.
 - **India is the world's biggest consumer of petroleum coke.**
 - It is an approved fuel in many states such as Andhra Pradesh, Telangana, Gujarat and Karnataka.
- **Furnace oil being the last grade produced by refineries** is extremely polluting and pet coke is even more polluting.

12. Bio-CNG

- To promote the use of clean fuel, the oil ministry plans to set up **bio-CNG** (compressed natural gas) plants and allied infrastructure at a cost of Rs7,000 crore.
- The government's plan is to **make India a gas-based economy**.
- Bio-CNG is a **purified form of biogas** with over **95% pure methane gas**.
- It is **similar to natural gas in its composition** (97% methane) and energy potential.
- While natural gas is a fossil fuel, **bio-CNG is a renewable form of energy** produced from **agricultural and food waste**.
- Bio-CNG is being looked at as an **environment-friendly alternative to diesel**.
- The process of generating CNG from agricultural waste involves **treating the waste matter with a special bacterial solution**, and then the gas which is generated is cleaned and compressed so that it can be used in vehicles.
- The **cost of production** of 1kg of bio-CNG could be Rs15-20, **cheaper than CNG, petrol and diesel**.
- **India** –the world's third-largest crude oil importer is **targeting halving its**

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energy import bill by 2030.

- The government aims to increase the contribution of gas in India's energy mix to 15% from the current 6.5%.

13. UNICEF report on air pollution

- The UNICEF has released the report on air pollution titled- '**Danger in the air: How air pollution can affect brain development in young children**'.
- The report has once again set alarm bells ringing about **high levels of air pollution** and its likely **impact on brain development among infants**.

14. Anti-Smog Gun

- The **Delhi government** tested **anti-smog guns** in the capital to deal with the winter smog.
- Anti-smog gun is a device that sprays **atomised water** into the atmosphere to reduce air pollution.
- Connected to a water tank and mounted on a vehicle, the device could be taken across the city to spray water to settle dust and other suspended particles.
- The sprayed water will cling on to the pollutants — particularly particulate matter PM2.5 and PM10 — and wash it down creating the effect of rain.



15. LiDAR devices to monitor air pollution

- The **Central Pollution Control Board** is planning to use advanced LiDAR (Light Detection and Ranging) devices to vertically **monitor the air quality of Delhi-NCR**.
- LIDAR, which stands for **Light Detection and Ranging**, is a **remote sensing method** that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.
- These light pulses—combined with other data recorded by the airborne system—**generate precise, three-dimensional information** about the shape of the Earth and its surface characteristics.
- Two types of LIDAR are **topographic** and **bathymetric**.
- Topographic LIDAR** typically uses a near-infrared laser to **map the land**, while **bathymetric lidar** uses **water-penetrating green light** to also **measure seafloor and riverbed elevations**.
- LIDAR systems allow scientists and mapping professionals to **examine both natural and manmade environments** with accuracy, precision, and flexibility.
- Scientists are using LIDAR also to produce more accurate shoreline maps, make digital elevation models for use in geographic information systems, to assist in emergency response operations, and in many other applications.

16. Microbeads

- A **UK-wide ban** on the manufacture of products containing microbeads has come into force.
- Microbeads are **tiny pieces of plastic** found in many beauty products, such as

exfoliating scrubs, toothpastes and more.

- They are mainly made up of **Polyethylene (PE)**. It may also contain polypropylene (PP), polyethylene terephthalate (PET), polymethyl methacrylate (PMMA) and nylon.
- Because of the **very small size (less than 1mm in size)**, they cannot be trapped by the water filtration systems.
- These microbeads **escape filtration and treatment** and finally end up in drains, rivers and water bodies.
- **Where else are they banned?**
 - The United States, Canada, New Zealand and several countries in European Union.

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Events / Celebrations

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1. World Environment Day

- Every **June 5th** is **World Environment Day**.
- Communities and individuals around the world work to increase **awareness of the importance of conserving the environment**, and engage in activities that serve to educate and improve their environment locally.
- The World Environment Day is a part of the United Nations Environmental Program (**UNEP**) for creating awareness and action worldwide for the environment. The first World Environment Day was celebrated in 1973.
- The **theme for 2017: 'Connecting People to Nature'**. Every World Environment Day has a different global host country, where the official celebrations take place.
- This year it is **Canada**.

2. United Nations Ocean Conference

- The United Nations had hosted the **first large-scale ocean conference** in New York.
- It is devoted for **protecting and saving the oceans**.
- The **theme** of the Conference: '**Our oceans, our future: partnering for the implementation of Sustainable Development Goal 14**'.
- The conference served as a platform for the world community to discuss innovative ways to sustainably use the oceans, seas and marine resources for sustainable development.

3. Van Mahotsav

- Van Mahotsav began in **1950**, with a **tree plantation drive**, in which national leaders participated.
- The festival of tree plantation was started by **Dr. K.M. Munshi**, the then Union Minister for Agriculture and Food to create enthusiasm among masses for **forest conservation and planting trees**.
- Van Mahotsav is usually observed in the **first week of July every year** and is celebrated on different days in different parts of India.
- The objective is **to keep local people involved in plantation drives and spread environmental awareness**.
- Programmes like screening of short films and documentaries, seminars and exhibition, painting and poster competitions are organised.

4. World Honey Bee Day (WHBD)

- **Tribal Cooperative Marketing Development Federation of India Limited (TRIFED)** celebrated **World Honey Bee Day (WHBD)** on **August 19** across the Country.
- The **main theme** of celebrating WHBD is to **save Indian honey bee**.
- Beekeeping has been useful in **pollination of crops**, thereby, increasing income of the farmers/beekeepers by way of **increasing crop yield** and providing honey.

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- Honey is an important **Minor Forest Produce**.
- **TRIFED:**
 - TRIFED is **an apex organisation at National Level and functioning under the administrative control of Ministry of Tribal Affairs**.
 - TRIFED is serving the interests of Tribals, who are engaged in collection of Non-timber forest products (**NTFPs**) and making of Tribal Art & Handicraft Products.
 - This ensures better remunerative price for their products as well as for the socio-economic betterment.

5. World Bio Fuel Day 2017

- **Ministry of Petroleum and Natural Gas** celebrated **the World Biofuel Day 2017 on 10th August**.
- It aims is to sensitize youths, farmers and other stakeholders about the **benefits of biofuel** and seek their involvement in **Biofuel programme** run by the Government.
- The government will also be coming out with the **BioFuel Policy** soon.
- Recently **Ministry of Petroleum and Natural Gas has been made responsible for BioFuel Policy**.
- Both the Ministry of New and Renewable Energy and Ministry of Petroleum and Natural Gas will be working towards more utilisation of biofuels.

6. 'Gaj Yatra'

- 'Gaj Yatra', a **nationwide campaign to protect elephants**, was launched on the occasion of **World Elephant Day**.
- The campaign is planned to cover 12 elephant range states.
- The 15 months campaign will be led by **the Wildlife Trust of India (WTI)**.
- The campaign aims to create awareness about elephant corridors to encourage free movement in their habitat.

7. World Elephant Day

- World Elephant Day is an annual global event celebrated across the world on August 12, dedicated to the **preservation and protection of elephants**.
- The goal of World Elephant Day is to **create awareness about the plight of elephants** and to share knowledge and positive solutions for the **better care and management of captive and wild elephants**.
- **African elephants are listed as "vulnerable" and Asian elephants as "endangered"** in the IUCN Red List of threatened species.
- As per the available population estimates, there are about 400,000 African elephants and 40,000 Asian elephants.
- Focus on improving enforcement policies to **prevent illegal poaching and trade in ivory**, conserving elephant habitats, providing better treatment for captive elephants and reintroducing captive elephants into sanctuaries.

8. World Day to Combat Desertification and Drought

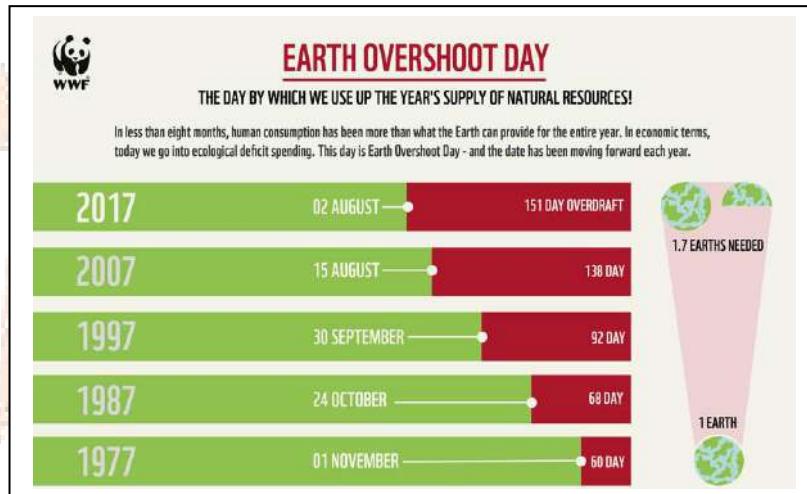
- The World Day to Combat Desertification and Drought is observed every year on June 17 to promote **public awareness to combat desertification**.

- Theme: “Our Land. Our Home. Our Future”.
- The **United Nations General Assembly (UNGA)** had designated June 17 as the World Day to Combat Desertification and Drought in 1994.
- The day is observed globally to promote the **implementation of the United Nations Convention to Combat Desertification (UNCCD)** in those countries experiencing serious desertification or drought, particularly in Africa.
- UNCCD is the only internationally **legally binding** framework set up to address the problem of desertification
- **Goal 15 of the 2030 Agenda for Sustainable Development** emphasises the need to halt and reverse land degradation.
- UNGA declared 2010 to 2020 the **United Nations Decade for Deserts and the Fight against Desertification**.
- Kubuqi Desert in Ordos, Inner Mongolia, became the **first desert** in the world to achieve large-scale desertification control.

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9. Earth Overshoot Day

- In 2017, Earth Overshoot Day fell on August 2, the earliest date since ecological overshoot began in the early 1970s.
- Earth Overshoot Day marks the date when humanity has exhausted nature's budget for the year.
- For the rest of the year, we are maintaining our ecological deficit by drawing down local resource stocks and accumulating carbon dioxide in the atmosphere. We are operating in overshoot.
- It is calculated by **World Wide Fund for Nature (WWF)** and **Global Footprint Network**.



10. 30th Anniversary of Montreal protocol

- 30th Anniversary of Montreal protocol and **23rd World Ozone Day** was celebrated on September 16th across the country.
- **Theme** – “Caring for all life under the Sun”.
- **World Ozone Day**:
 - Every year, on September 16, the World celebrates the **International day for the preservation of Ozone layer** as the World Ozone Day.
 - During the United Nations convention in Vienna for the Montreal Protocol, the General Assembly declared September 16 as the World Ozone day in order to remind the world of the depleting ozone layer.

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- The first ozone hole was discovered 30 years ago in May 1985 over Antarctica.
- **Ozone layer:**
 - The ozone layer absorbs most of the Sun's ultraviolet light which is harmful to human life and other life forms.
 - The layer absorbs about 97 to 99% of ultraviolet rays and maintains the ozone-oxygen cycle.
 - Dobson unit is a unit which is used to measure the ozone in the atmosphere at a standard temperature and pressure.
- **Montreal Protocol on Substances that Deplete the Ozone Layer:**
 - The Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an **international treaty** designed to protect the ozone layer by **phasing out** the production of numerous substances that are responsible for ozone depletion.
 - It was agreed on 26 August 1987 in Montreal, Canada and entered into force on 26 August 1989. It was followed by a first meeting in Helsinki, May 1989.
 - Under it production and consumption of **key Ozone Depleting Substances** like chlorofluorocarbon (CFCs), Methyl Chloroform, CTC halons and Methyl Bromide have been phased-out globally.
 - The Montreal Protocol is the only environmental treaty which enjoys universal ratification of 197 UN member countries.

11. India Water Week 2017

- The India Water Week 2017 was held between October 10 – 14, 2017.
- **Theme: "Water and Energy for Inclusive Growth".**
- India Water Week-2017 is a platform to elicit **ideas and opinions from global-level decision makers**, politicians, researchers and entrepreneurs in the field of **water resources development and management** for mutual benefit and goodwill.
- India water week is a unique platform created by the **Ministry of Water Resources, River Development and Ganga Rejuvenation**.
- The first event was organised in New Delhi in 2012 and the theme was 'Water, Energy and Food Security: Call for Solutions'.

12. UNFCCC Climate Change Conference (COP23)

- The **UNFCCC Climate Change Conference (COP23)** was held in **Bonn, Germany**.
- It was presided over by **Government of Fiji**.
- '**Talanoa Dialogue**', a year-long process to assess countries' progress on climate actions was concluded.
- The Conference also made progress on **framing rules for implementing 2015 Paris Agreement** on climate change and brought **rich nations on board on their pre-2020 commitments** as demanded by developing nations.
- A decision was taken to deal with **climate actions in agriculture**.
- The first ever **Gender Action Plan** to the UNFCCC was adopted at COP23.

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- **Local communities and indigenous people's platform** to include indigenous people's voices in the implementation of the Paris Agreement.
- **Conference of Parties (COP):**
 - COP is the **supreme decision-making body** of United Nations Framework Convention on Climate Change (**UNFCCC**).
 - All States that are Parties to UNFCCC are represented at COP.
 - At COP, all parties **review implementation of Convention** and take decisions necessary to promote the effective implementation of Convention.

13. World Fisheries Day

- Every year **21st November** is celebrated all over the world as World Fisheries Day.
- On **21st November 1997**, the World Forum of Fish Harvesters & Fish Workers from 18 countries met at New Delhi and established the **World Fisheries Forum (WFF)** advocating for a global mandate of sustainable fishing practices and policies.
- To commemorate this occasion, every year 21st November is celebrated all over the world as World Fisheries Day.
- A recent United Nations study reported that **more than two-thirds of the world's fisheries have been overfished** or are fully harvested and more than one third are in a state of decline because of factors such as the **loss of essential fish habitats, pollution, and global warming**.
- The World Fisheries Day helps to highlight these problems, and moves towards finding solutions to the increasingly inter-connected problems.

14. National Milk Day

- **November 26** was observed as National Milk Day across the country to mark the **birth anniversary of Father of the White Revolution Dr. Verghese Kurien**.
- The idea of observing National Milk Day was first mooted by **Indian Dairy Association in 2014** on the lines of **World Milk Day observed on June 1 under the aegis of UN Food and Agriculture Organization**.
- **India ranks first in milk production**, accounting for 18.5 % of world production, achieving an annual output of 146.3 million tonnes during 2014-15 as compared to 137.69 million tonnes during 2013-14.
- **The per capita availability of milk in India has increased** from 176 grams per day in 1990-91 to 322 grams per day by 2014-15. It is **more than the world average** of 294 grams per day during 2013.

15. Clean Sea-2017

- The **Regional Level Marine Oil Pollution Response Exercise** titled '**Clean Sea – 2017**', was recently conducted at sea off Port Blair.
- **The objective of the exercise** was to ascertain **preparedness of the Indian Coast Guard**, resource agencies and other stakeholders in responding to a major oil spill in line with the provisions of **NOS-DCP (National Oil Spill Disaster Contingency Plan)**.
- India promulgated National oil spill Disaster contingency plan (**NOS-DCP**) in

the year 1996. Coast guard was designated as central coordination authority.

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16. World Energy and Environment Conference

- The **World Energy and Environment Council** organised the 5th Series **World Energy and Environment Conference and Exhibition 2018** at Bahrain.
- **Theme:** "Shifting to Clean, Renewable Energy in Time of Transition".
- **ABOUT WEEC:**
 - WEEC is a world platform that **addresses serious issues about environment** and the **challenges to turn to clean, renewable energy**.
 - The focus is into the **development of energy policy**, sustainable strategies, sustainable resource developments and sustainable economic development.
 - WEEC **aim for commitment from governments**, its leaders, for lawmakers to do intelligent thinking; get brilliant ideas in directing laws and regulations.
 - With the **private sectors cooperation and participation**, creating a roadmap toward sustainability for the benefit of all.

17. Goa bird festival

- The **second edition of the Goa Bird Festival** was held at **Cotigao Wildlife Sanctuary**, Canacona.
- The **State Forest department** is organising the event with the support of Goa Tourism, the Goa Bird Conservation Network (GBCN) and Birderpics.com.
- Cotigao Wildlife Sanctuary was established in 1968 as the second largest National Park in Goa.

18. International Tiger Day

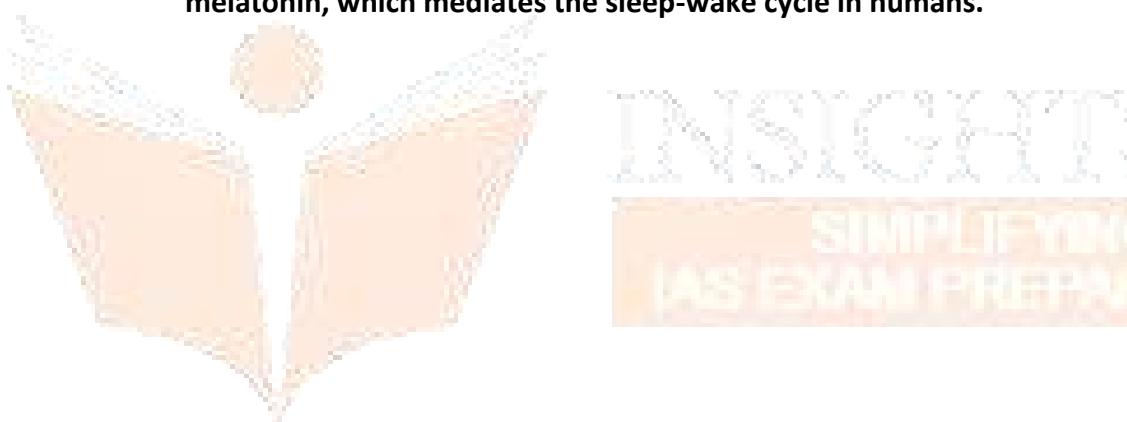
- The **International Tiger Day** also known as **Global Tiger Day** is observed annually on **29 July to raise awareness for tiger conservation**.
- The goal is to **promote the protection and expansion of the wild tiger's habitats** and to gain support through **awareness for tiger conservation**.
- Many international organisations are involved in the celebration of this day, including the **WWF (World Wide Fund for Nature)**, the **IFAW (International Fund for Animal Welfare)** etc.
- The International Tiger Day was **founded in 2010 at the St. Petersburg Tiger Summit**.
- The summit had issued **St. Petersburg Declaration on Tiger Conservation** with an **aim to double the big cat population by 2022**.

19. Earth Hour

- The **11th edition of the Earth Hour** was observed across the world on **25 March 2017** to take a **global call on climate change**.
- To mark this day, **cities all over the world turned their lights off from 8:30 pm to 9:30 pm local time**.
- Environmental activists focused to raise awareness on another problem that gets far less attention that is **Light Pollution**.
- Earth Hour is an annual international event **organised by the World Wide**

Fund for Nature (WWF).

- The first Earth Hour was held on March 31, 2007 in Sydney, Australia.
- Its goal is to **raise awareness for sustainable energy use** and create a more environmentally sustainable lifestyle.
- **Light Pollution:**
 - Light pollution is an **artificial brightening of the night sky** caused by manmade lightening sources. It is also known as **photo pollution or luminous pollution**.
 - This has a **disruptive effect on natural cycles** and inhibits the observation of stars and planets.
 - More than 80% of humanity lives under skies saturated with artificial light.
 - Light Pollution **disturbs the reproductive cycles of some animals** and **disturbs migration of birds** that navigate using stars.
 - In humans, it **disturbs circadian rhythms** that regulate hormones and other bodily functions.
 - Excessive blue light emitted from LEDs directly **affect the sleep pattern in Human** by suppressing the production of the **hormone melatonin, which mediates the sleep-wake cycle in humans**.

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Reports / Releases

1. Environmental Impact Survey

- India has been placed at a lowly 75th rank in the environmental impact survey.
- The study by **UK-based MoneySuperMarket** highlights the individual contribution to the world's climate while also highlighting areas for improvement for each country.
- The rankings were based on different measurements that make up the average individual human impact in each country, including energy consumption, air pollution, waste production and reliance on non-renewable energy.
- **Mozambique** rated as one of the poorest, has **topped** because almost all its energy use comes from green sources.
- **Africa as a continent topped** the charts and featured strongly in its use of green energy, low CO2 emissions and low levels of air pollution and waste production.

2. Green Growth Indicators 2017

- OECD released "**Green Growth Indicators 2017**" highlighting the **slow progress in achieving the Green Growth**.
- The report shows that **no country is performing well** on all green growth dimensions.
- Green Growth Indicators 2017 uses a range of indicators covering everything from **land use to CO2 productivity and innovation**.

3. Greenhouse Gas Bulletin

- According to the **World Meteorological Organization's (WMO) Greenhouse Gas Bulletin**, the concentration of carbon dioxide (CO2) in the atmosphere has hit a new high.
- Greenhouse Gas Bulletin will report the latest trends and atmospheric burdens of the most influential, long-lived greenhouse gases; carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), as well as a summary of the contributions of the lesser gases.
- **World Meteorological Organization (WMO):**
 - The World Meteorological Organization (**WMO**) is an **intergovernmental organization** with a membership of 191 Member States and Territories.
 - It originated from the **International Meteorological Organization (IMO)**, which was founded in 1873.
 - Established in 1950, WMO became the **specialised agency of the United Nations** for meteorology (weather and climate), operational hydrology and related geophysical sciences.
 - It has its **headquarters in Geneva, Switzerland**, and is a member of the **United Nations Development Group**.
 - The WMO and United Nations Environment Programme (UNEP) jointly

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- created the **Intergovernmental Panel on Climate Change (IPCC)**.
- It is also directly responsible for the creation of the **Global Atmosphere Watch (GAW)**.

4. Climate Change Performance Index

- Climate Change Performance Index (CCPI) 2018 has been released by **Germanwatch, an independent German NGO and Climate Action Network Europe**.
- The Climate Change Performance Index (CCPI) is an instrument **covering 58 countries** and supposed to enhance **transparency in international climate politics**.
- It ranks countries across **four categories** — **Greenhouse Gas Emissions, Renewable Energy, Energy Use, and Climate Policy**.
- Its aim is to encourage **political and social pressure** on those countries which have, up to now, **failed to take ambitious actions on climate protection** as well as to **highlight** countries with **best-practice** climate policies.
- These 58 countries are together responsible for more than 90% of global energy-related CO₂ emissions.

5. Climate change and ill-health

- A new research published by **The Lancet** medical journal talks of the various ways in which **climate change has started affecting the health of people across the planet**.
- **Report name:** 'The Lancet Countdown: Tracking Progress on Health and Climate Change'.
- Report says China, Bangladesh, India, and Indonesia are the countries that have registered the highest number of deaths linked to air pollution.

6. UN Environment Emissions Gap Report 2017

- Eighth edition of **UN Environment's Emissions Gap report** was unveiled.
- It is prepared by **United Nations Environment Programme (UNEP)**.
- The UN Environment Emissions Gap Report 2017 presents an assessment of current national mitigation efforts and the ambitions countries have presented in their Nationally Determined Contributions.

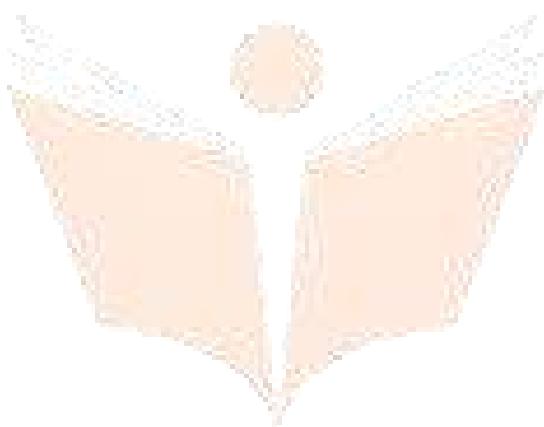
7. Environmental Performance Index

- The **2018 Environmental Performance Index (EPI)** — the green ranking is the biennial index prepared by **Yale and Columbia Universities** in collaboration with the **World Economic Forum (WEF)** and the **Joint Research Centre of the European Commission**.
- The 10th EPI report ranks 180 countries on 24 performance indicators across 10 categories covering **environmental health and ecosystem vitality**.
- India is among the bottom five countries on the Index.
- **India's overall low ranking—177** among 180 countries—was linked to **poor performance in the environment health policy and deaths due to air pollution categories**.

8. Other Reports

- **Indian Nitrogen Assessment Report** - NGO Society for Conservation of Nature (SCN).
- **Global E-waste Monitor 2017 Report** - United Nations University (UNU), the International Telecommunication Union (ITU), and the International Solid Waste Association (ISWA).

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International Efforts

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1. Mission Innovation Ministerial and Clean Energy Ministerial

- World's Energy Leaders gathered in **Beijing** for second Mission Innovation Ministerial and 8th Clean Energy Ministerial.
- **Mission Innovation:**
 - MI was announced on November 30, 2015 by the **leaders of 20 countries** that have a shared desire to **accelerate global clean energy innovation** during COPE 21 in Paris.
 - The 'Mission Innovation' (MI) is an effort to **accelerate public and private global clean energy innovation**, including through participating countries **doubling their respective clean energy research and development investment**.
 - **India is Founding Member** of the Steering Committee and also a Member of the two sub-groups: Joint research and Capacity Building and Private Sector Engagement.
- **Clean Energy Ministerial:**
 - The Clean Energy Ministerial (CEM) is a high-level **global forum to share lessons learnt and best practices**, and to encourage the **transition to a global clean energy economy**.
 - Its Initiatives are based on areas of common interest among participating Governments and other stakeholders.
 - The CEM is the **initiative of the USA**. It was launched in 2010.
 - Presently, **23 countries** are members of CEM. There are 13 initiatives under CEM covering **energy efficiency, clean energy supply** and cross cutting areas.

2. Floating Solar Farm

- **China** has launched the **world's largest floating solar farm**.
- The 40-megawatt power plant has 1,60,000 panels resting on a lake that emerged after the collapse of a coal mine in central Anhui province.
- It is part of Beijing's effort to wean itself off a fossil fuel dependency that has made it the world's top carbon emitter, with **two-thirds of its electricity still fuelled by coal**.

3. Green Climate Fund (GCF)

- India's National Bank for Agriculture and Rural Development (**NABARD**) has signed an Accreditation Master Agreement (AMA) with the Green Climate Fund.
- With the signing of the AMA, NABARD becomes the **first Indian organisation to get Direct Access Entity status** and is the first step for the body to access GCF resources.
- The GCF was set up in 2010 under the UNFCCC's financial mechanism to channel funding from developed countries to developing countries to allow them to mitigate climate change and also adapt to disruptions arising from a changing climate.
- The Green Climate Fund will support projects, programmes, policies and other

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activities in developing country Parties using thematic funding windows.

- It is intended to raise **Climate Finance of \$100 billion a year by 2020**.
- The GCF is based in **Incheon, South Korea**.
- GCF was **central to the Paris climate agreement** signed in 2015.

4. SUNRISE

- A consortium of 12 Indian and British universities, including Oxford and Cambridge, has received a £7 million grant from the U.K. government to build self-sufficient solar-powered buildings in remote Indian villages.
- The grant is part of a **new solar project called 'SUNRISE'**.
- **The programme is aimed at developing printed photovoltaic cells and new manufacturing processes which can be used to make solar energy products in India.** These will then be integrated into buildings in at least five villages of India, allowing them to harness solar power to provide their own energy and go off-grid.
- The project is in line with the Indian government's plans to turn the country into a solar energy leader, leap-frogging fossil fuels.

5. International Solar Alliance (ISA)

- India is going to host first International Solar Alliance (ISA) summit in March 2018 in New Delhi.
- The International Solar Alliance is **India's first international organization** comprising of more than 121 countries, most of them being sunshine countries, which come either **completely or partly between the Tropic of Cancer and the Tropic of Capricorn**.
- The ISA was one of **key takeaways at Paris Climate summit, 2015**.
- The alliance's primary objective is **work for efficient exploitation of solar energy** to reduce dependence on fossil fuels.
- The alliance is a **treaty-based inter-governmental organization**.
- The institutional structure of ISA consists of an Assembly, a Council and a Secretariat. **The secretariat of the ISA is to be located in Gurugram, India**.
- Its members will take coordinated actions through programmes and activities that will aggregate demands for solar finance, solar technologies, innovation, R&D and capacity building.
- International Solar Alliance (ISA) hosted '**International Solar Alliance Forum**' at the **World Future Energy Summit (WFES) 2018** in Abu Dhabi (UAE).

6. Clean Ganga Mission

- **UK-based Indian-origin businessmen** have committed to projects worth nearly Rs 500 crore associated with the Clean Ganga mission.
- **Riverfront regeneration and development of ghats** in the towns of Patna, Kanpur, Haridwar and Kolkata have been taken on by four leading industrialists from the UK.
- The businessmen will take on the projects as part of their **corporate social responsibility (CSR)** agenda and work with the Indian government on finalising the plans for each of the cities.

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7. Garbage Emergency

- The Indonesian island of **Bali** recently declared a “garbage emergency” in response to the overwhelming amount of **plastic waste** that has **floated ashore and spoiled pristine beaches**.
- A 3.6-mile stretch of beach on the island’s western coast was declared an emergency zone.
- **Indonesia is the world’s second largest contributor to marine debris**, outdone only by China, the most populous country in the world.

8. Forest Carbon Partnership Facility

- Developing and industrialized countries have requested the **World Bank** to explore a framework for piloting activities that would reduce emissions from deforestation and degradation using a system of **policy approaches and performance-based payments**.
- The proposed framework is called the **Forest Carbon Partnership Facility**.
- The Forest Carbon Partnership Facility is a global partnership of governments, businesses, civil society, and Indigenous Peoples focused on **reducing emissions from deforestation and forest degradation**, forest carbon stock conservation, the sustainable management of forests, and the enhancement of forest carbon stocks in developing countries (activities commonly referred to as REDD+).
- **The four strategic objectives of the FCPF:**
 - To assist countries in their REDD+ efforts by providing them with financial and technical assistance.
 - To pilot a **performance-based payment system** for REDD+ activities.
 - To test ways to sustain or **enhance livelihoods of local communities** and to conserve biodiversity.
 - To disseminate broadly the knowledge gained in the development of the Facility and the implementation of Readiness Preparation Proposals (RPPs) and Emission Reductions Programs (ERPs).

9. BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)

- The **BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)** is a multilateral fund, supported by donor governments and managed by the **World Bank**.
- It promotes **reducing greenhouse gas emissions** from the land sector, from deforestation and forest degradation in developing countries (REDD+), and from sustainable agriculture, as well as smarter land-use planning, policies and practices.
- ISFL can **transform rural areas** by protecting forests, restoring degraded lands, enhancing agricultural productivity, and by improving livelihoods and local environments.
- The ISFL supports programs in Colombia, Ethiopia, and Zambia.

10. Carbon Initiative for Development (Ci-Dev)

- The Carbon Initiative for Development (Ci-Dev) was launched in 2011 by

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World Bank to build capacity and develop tools and methodologies to help the world's **poorest countries access carbon finance**, mainly in the area of energy access.

- It is set up to use **performance payments based on reduced emissions** to support projects that use clean and efficient technologies in low-income countries.
- **Focus areas:**
 - **Increasing Energy Access:** The Ci-Dev will provide financing for projects that support access to energy in low-income countries, in collaboration with other parts of the World Bank Group.
 - **Building on the CDM:** The Ci-Dev will build on the infrastructure that has been created by the Clean Development Mechanism (CDM).
 - **Carbon Finance:** The Ci-Dev will use results-based payments as its vehicle for financing energy access projects.

11. TRAFFIC

- TRAFFIC, the **wildlife trade monitoring network**, is the leading **non-governmental organization** working globally on **trade in wild animals and plants** in the context of both biodiversity conservation and sustainable development.
- TRAFFIC's **mission** is to ensure that trade in wild plants and animals is not a threat to the conservation of nature.
- TRAFFIC's **vision** is of a world where wildlife trade is:
 - Managed in a way that maintains healthy wildlife populations and ecosystems;
 - Contributes to meeting human needs;
 - Supports local and national economies; and
 - Helps motivate commitments to conserve wild species and habitats.
- TRAFFIC's **2020 goal** is:
 - Help **reduce the pressure of illegal and unsustainable wildlife trade on biodiversity**, and
 - Enhance the benefits to wildlife conservation and human well-being that derive from trade at sustainable levels.

12. Campaign to save Reef from starfish

- In a push to **preserve the World Heritage-listed ecosystem**, a multimillion-dollar campaign has been launched by **Australia** to stop the predatory crown-of-thorns starfish devouring the Great Barrier Reef.
- The **coral-eating starfish** are naturally occurring but have proliferated due to pollution and agricultural run-off.
- The reef is also reeling from significant **coral bleaching** due to warming sea temperatures linked to climate change.
- **Great barrier reef:**
 - The Great Barrier Reef is the **world's largest coral reef system** composed of over 2,900 individual reefs and 900 islands stretching for over 2,300 kilometres.
 - The reef is located in the **Coral Sea, off the coast of Queensland**,

Australia.

- The Great Barrier Reef can be seen from outer space and is the world's biggest single structure made by living organisms.
- This reef structure is composed of and built by billions of tiny organisms, known as coral polyps.
- It was selected as a **World Heritage Site in 1981**.

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13.China starts collecting environment tax

- China has started collecting an environment tax to better protect the environment and cut pollutant discharge, as the country's **Environmental Protection Tax Law** took effect on Jan. 1, 2018.
- This is China's first tax clearly designed for environmental protection.

14.Leadership in Energy and Environmental Design (LEED)

- Leadership in Energy and Environmental Design (LEED) is the **green building certification programs** used worldwide.
- Developed by the non-profit **U.S. Green Building Council (USGBC)**, it includes a set of **rating systems** for the design, construction, operation, and maintenance of green buildings.
- It aims to **evaluate the environmental performance of a building** and encourage **market transformation towards sustainable design** of a building
- **LEED for Cities and LEED for Communities:**
 - These are expansion of LEED designed to be applicable to cities, communities, neighbourhoods, districts, townships and counties.
 - These will track performance on energy use, waste management, water, transport and even quality of life.
 - The **LEED for Cities** and **LEED for Communities** frameworks completed one year in December, 2017.

Climate Change

NOTES

1. Earth facing sixth mass extinction

- The **sixth mass extinction** of life on Earth is unfolding more quickly than feared, scientists have warned.
- **National academy of Science** has contended that the sixth mass extinction is already underway.
- **Tropical regions have seen the highest number of declining species.**
- In South and Southeast Asia, large-bodied species of mammals have lost more than four-fifths of their historical ranges.
- While fewer species are disappearing in temperate zones.
- **Factors behind the loss?**
 - Habitat loss,
 - Overconsumption,
 - Pollution,
 - Invasive species,
 - Disease,
 - Poaching in the case of tigers, elephants, rhinos and other large animals prized for their body parts.
 - Climate change is poised to become a major threat in the coming decades.
- **Earlier Mass Extinctions:**
 - **Ordovician–Silurian extinction**
 - 450–440 Million Years Ago (MYA).
 - First mass extinction.
 - **Late Devonian extinction**
 - 375–360 MYA.
 - **Permian–Triassic extinction**
 - 251 MYA.
 - It is called **Earth's largest extinction**.
 - It ended the primacy of mammal-like reptiles on land.
 - The recovery of vertebrates took 30 million years.
 - **Triassic–Jurassic extinction**
 - 200 MYA.
 - Eliminated most of the non-dinosaurian archosaurs, most therapsids, and most of the large amphibians.
 - Thus dinosaurs were left with little terrestrial competition.
 - **Cretaceous–Paleogene extinction**
 - 65.5 MYA.
 - Majority of non-avian dinosaurs became extinct during that time.
 - Mammals and birds emerged as dominant land vertebrates in the age of new life.

2. Parali I island

- A new study has revealed that one of Lakshadweep's bio-diversity rich islands **Parali I has vanished**.

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- Parali I island, part of **Bangaram atoll**, which was 0.032 km² in 1968 has been eroded to an extent of 100%, resulting in its inundation.

3. El Nino caused record CO2 spike in 2015-16: NASA

- Scientists have found that **the impact of the 2015-16 El Nino-related heat and drought occurring in tropical regions of South America, Africa and Indonesia was responsible for the largest annual increases in atmospheric carbon dioxide (CO2) concentration seen in at least 2,000 years.**
- The findings are based on analysis of the first 28 months of data from **NASA's Orbiting Carbon Observatory-2 (OCO-2) satellite.**
- In 2015 and 2016, OCO-2 recorded atmospheric carbon dioxide increases that were 50% larger than the average increase seen in recent years preceding these observations.
- That increase was about 6.3 gigatonnes of carbon.
- These findings imply that **if future climate brings more or longer droughts**, as the last El Nino did, **more carbon dioxide may remain in the atmosphere**, leading to a tendency to further warm Earth.

4. Urban heat island

- Every winter, the whole of north India is covered by dense fog. But a phenomenon called **urban heat island** is burning holes in this grey shroud over New Delhi and other cities on the Indo-Gangetic Plain, says a new study.
- The urban heat island is a phenomenon when the **heat gets trapped near the earth's surface** as a result of a **decline in green cover, rapid urbanisation, energy-intensive activities, and concrete structures.**
- The urban heat island effect is so strong in Delhi, that it saw **50% less fog than surrounding areas**. In Delhi, the heat island effect also appears to be **suppressing the very formation of fog.**
- The analysis found a **correlation between the size of the urban population and that of the fog hole.**
- Population size has been shown to be related to the intensity of urban heat islands since they are an indicator of urban growth.

Organisations

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1. National Tiger Conservation Authority (NTCA)

- The National Tiger Conservation Authority is a **statutory body under the Ministry of Environment, Forests and Climate Change** constituted under **enabling provisions of the Wildlife (Protection) Act, 1972**, as amended in 2006.
- **Strengthening tiger conservation** in the country by retaining an oversight through advisories/normative guidelines, based on appraisal of tiger status, ongoing conservation initiatives and recommendations of specially constituted Committees.
- It addresses the **administrative as well as ecological concerns** for conserving tigers, by providing a **statutory basis for protection of tiger reserves**.

2. Zoological Survey of India (ZSI)

- The Zoological Survey of India (ZSI) was established on 1st July, **1916** to promote **survey, exploration and research on various aspects of animal taxonomy** in the Indian subcontinent.
- Its genesis began as Museum of the Asiatic Society of Bengal (**1814-1875**) and **Zoological Section of the Indian Museum (1875-1916)** in Kolkata.
- ZSI is a **premier Indian organisation in zoological research and studies**.
- The activities of the ZSI are coordinated by **the Ministry of Environment, Forest and Climate Change**, Government of India.
- It has been declared as the **designated repository for the National Zoological Collection** as per section 39 of the National Biodiversity Act, 2002.
- **Primary objectives:**
 - Exploring, Surveying, Inventorying and Monitoring of faunal diversity.
 - **Preparation of Red Data Book, Fauna of India and Fauna of States.**
 - Maintenance and Development of **National Zoological Collections**.
 - Training, Capacity Building and Human Resource Development.
- **Secondary objectives:**
 - **GIS and Remote Sensing studies** on recorded animal diversity as well as on threatened species.
 - **Environmental Impact Studies.**
 - Maintenance of Museum at Headquarters and Regional Centres.
 - Development of Environmental Information System (**ENVIS**) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**) Centres.
 - Collaborative research programmes on Biodiversity with other Organizations in India and abroad.

3. Botanical Survey of India (BSI)

- The **Botanical Survey of India (BSI)** is an institution **set up by the Government of India in 1890** to survey the plant resources of the Indian empire.
- The **British East India Company had already established botanical gardens** at Sibpur, Poona, Saharanpur and Madras as centres for improving botanical

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knowledge and experimentation under the local Governments.

- The Botanical Survey was **formally instituted on 13 February 1890 under the direction of Sir George King**, who had been superintendent of **Royal Botanic Garden**, Calcutta.
- In 1954, the Government reorganised the BSI with the objectives of:
 - **Undertaking intensive floristic surveys.**
 - **Collecting, identifying and distributing materials** that may be of use to educational and research institutions.
 - Acting as the **custodian of authentic collections** in well planned herbaria and **documenting plant resources** in the form of local, district, state and national flora.

4. Birdlife international

- BirdLife International (formerly the International Council for Bird Preservation) is a **UK based global partnership of conservation organisations** that strives to conserve birds, their habitats and global biodiversity.
- It is **the world's largest partnership of conservation organisations, with over 120 partner organisations.**
- BirdLife International publishes a **quarterly magazine, World Birdwatch**, which contains recent news and articles about birds, their habitats, and their conservation around the world.
- BirdLife International is **the official Red List authority for birds**, for the International Union for Conservation of Nature.
- It publishes a quarterly magazine – **World Birdwatch**.

5. Rating Systems for Green Buildings in India

- Green Buildings are structures that ensure **efficient use of natural resources** like building materials, water, energy and other resources with minimal generation of non-degradable waste.
- There are **three primary Rating systems** in India.
- **Green Rating for Integrated Habitat Assessment (GRIHA):**
 - GRIHA is jointly developed by TERI (The Energy and Resources Institute) and the Ministry of New and Renewable Energy.
- **Indian Green Building Council (IGBC):**
 - IGBC has developed green building rating systems for different types of building in line and conformity with US Green Building Council.
- **Bureau of Energy Efficiency (BEE):**
 - BEE developed rating system for the buildings based on a 1 to 5 star scale.
 - BEE has developed the **Energy Performance Index (EPI)**.
 - BEE is a **statutory body under the Ministry of Power**.

6. Islands Development Agency (IDA)

- **Ten islands from Andaman and Nicobar and Lakshadweep** has been identified by the government for improving maritime economy, preserving the eco-system and addressing security concerns.
- The decision was taken at the first meeting of the **newly- constituted Islands**

NOTES**Development Agency (IDA).**

- The islands include **Smith, Ross, Aves, Long and Little Andaman** in Andaman and Nicobar and **Minicoy, Bangaram, Suheli, Cherum and Tinnakara** in Lakshadweep.
- The IDA was set up on June 1, 2017 following Prime Minister Narendra Modi's review meeting for the development of islands.
- The meetings of the agency are **chaired by the Union Home Minister**.
- **Members of the IDA include** cabinet secretary, home secretary, secretary (environment, forests and climate change), secretary (tourism) and secretary (tribal welfare).

7. National Green Tribunal (NGT)

- The National Green Tribunal has been established under the **National Green Tribunal Act 2010**.
- It provides effective and expeditious disposal of **cases relating to environmental protection and conservation of forests and other natural resources**.
- Enforcement of any **legal right** relating to environment and giving **relief and compensation for damages** to persons and property.
- The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of **natural justice**.
- The Tribunal is mandated to make and endeavour for **disposal of applications or appeals finally within 6 months of filing of the same**.
- Any person aggrieved by an award, decision, or order of the Tribunal may **appeal to the Supreme Court within 90 days** of commencement of award but Supreme Court can entertain appeal even after 90 days if appellant satisfied SC by giving sufficient reasons.
- **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 is a 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"**.
 - The powers of tribunal related to an award are **equivalent to civil court**.
 - **New Delhi is the Principal Place of Sitting** of the Tribunal and Bhopal, Pune, Kolkata and Chennai shall be the other 4 place of sitting of the Tribunal.

8. The Energy Resources Institute (TERI)

- **International Centre for Climate Governance (ICCG)**, an international body which focuses on climate policies, has **ranked The Energy Resources Institute (TERI) second among the top think tanks in the world**

- **ICCG** is an internationally-renowned body whose activities focus on **the design of climate policy and related governance issues**.
- **TERI** is a **non-profit policy research organisation** that conducts research work in the fields of energy, environment and sustainable development.
- TERI was established in 1974 as an **information centre on energy issues**.
- In 2013, it was ranked as the topmost global think-tank by the ICCG.

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9. Geological Survey of India (GSI)

- Scientists from the Geological Survey of India (GSI) have discovered the presence of millions of tonnes of precious metals and minerals deep under the waters within the **Exclusive Economic Zone (EEZ)** of peninsular India.
- GSI for first time had identified huge presence of marine resources off Mangaluru, Mannar Basin, Chennai, Andaman and Nicobar Islands and around Lakshadweep in early 2014.
- The GSI is a government organisation attached to the **Ministry of Mines** for conducting geological surveys and studies.
- It is one of the premier organisations of **earth science survey and research** in the world.
- The GSI was established in **1851** and is one of the oldest of such organisations in the world and the **second oldest survey institution in the country**.
- It provides **basic earth science information** to the government, industry and the general public.
- Its main functions are related to creation and updation of **national geo-scientific information and mineral resource assessment**.

The GSI project

- ▶ **High-resolution seabed mapping and natural resource evaluation**
- ▶ **Geologists** explored the waters on three state-of-the-art vessels, **Samudra Ratnakar**, **Samudra Kaustabh** and **Samudra Saudikama**, to identify **potential zones of favourable mineralization** and **evaluate marine mineral resources**
- ▶ Was carried out in India's **Exclusive Economic Zone**



G-10
Micro-manganese nodules from Lakshadweep Sea



Fe-Mn crust from the Andaman sea

Locations and find

- ▶ GSI confirmed presence of **phosphate sediment** off **Karwar, Mangaluru** and **Chennai coasts**, **gas hydrate** in the **channel-levee system of Mannar Basin** off Tamil Nadu coast, cobalt-bearing **ferro-manganese crust** from **Andaman sea** and **micro-manganese nodules** around **Lakshadweep Sea**

10. 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, under the **Environment Protection Act, 1986**'.
- The GEAC is also responsible for **approval of proposals relating to release of genetically engineered organisms** and products into the environment

including experimental field trials.

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11. National Mission for Clean Ganga (NMCG)

- National Mission for Clean Ganga (NMCG) acts as **implementation arm of National Council for Rejuvenation, Protection and Management of River Ganga** (referred as National Ganga Council).
- It works under the control of **Ministry of Water Resources, River Development and Ganga Rejuvenation**.
- The aim is to **clean Ganga and its tributaries** in a comprehensive manner.
- NMCG has a two tier management structure and comprises of **Governing Council and Executive Committee**. Both of them are headed by Director General, NMCG.
- **Executive Committee** has been authorized to accord **approval for all projects up to Rs.1000 crore**.
- Similar to structure at national level, **State Programme Management Groups (SPMGs)** acts as implementing arm of State Ganga Committees.

12. World Wide Fund for Nature (WWF)

- It is an **international non-governmental organization (NGO)** founded in 1961, working in the field of the **biodiversity conservation**, and the **reduction of humanity's footprint on the environment**.
- Its mission is to conserve nature and reduce the most pressing threats to the diversity of life on Earth.
- **Headquarters: Switzerland**.
- The **Living Planet Report** is published every two years by WWF since 1998.

13. International Rice Research Institute (IRRI)

- A 'rice field laboratory' named after **Prime Minister Modi** was recently inaugurated by Prime Minister himself at IRRI in **Los Banos in Philippines**.
- IRRI is an **international agricultural research and training organization** known for its work in **developing rice varieties** that contributed to the Green Revolution in the 1960s.
- The Institute, **established in 1960** aims to **reduce poverty and hunger**, improve the health of rice farmers and consumers, and ensure environmental sustainability of rice farming.
- IRRI is one of 15 agricultural research centres in the world that form the **Consortium of International Agricultural Research centres (CGIAR)**, a global partnership of organizations engaged in research on food security.
- It is also the **largest non-profit agricultural research centres in Asia**.
- **India and the IRRI:**
 - IRRI has successfully **collaborated with Indian Council for Agricultural Research (ICAR)** to introduce drought- tolerant, flood-tolerant and salt-tolerant varieties of rice in India.
 - The Indian government is also setting up a **regional centre of the IRRI in Varanasi**.
 - The Varanasi Centre would help increase farmers' income by enhancing and supporting rice productivity, reducing cost of

production, value addition, diversification and enhancement of farmers' skills.

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14. UN Environment Management Group

- The **Secretariat of the UN Environment Management Group (EMG)** is planning to hold a new series of 'Nexus Dialogues,' create two new Issue Management Groups and launch a campaign for **waste management** in the UN, among its activities in 2018.
- Upcoming dialogues will address sustainable consumption and production (SCP), biodiversity, and UN system support for SDG implementation at the national level.
- The EMG also will launch a waste management campaign dubbed '**Say yes to less**,' to raise awareness of waste reduction and management among UN staff.
- **About the UN Environment Management Group (EMG):**
 - The EMG is a UN system-wide coordination body on environment and human settlements.
 - It was established in 2001 pursuant to a **UN General Assembly resolution**.
 - Its members include the secretariats of the multilateral environmental agreements (MEAs) and other specialized agencies, programmes and organs of the UN.
 - Representatives of intergovernmental bodies, civil society and international non-governmental organizations can be invited to contribute.
 - The group is **chaired by the Executive Director of the UN Environment Programme** and supported by a secretariat provided by UNEP, located in Geneva, Switzerland.

15. Wildlife Institute of India (WII)

- The Wildlife Institute of India (WII) is an **autonomous institution under the Ministry of Environment Forest and Climate change**, Government of India.
- WII carries out **wildlife research** in areas of study like Biodiversity, Endangered Species, Wildlife Policy, Wildlife Management, Wildlife Forensics, Spatial Modeling, Eco-development, Habitat Ecology and Climate Change.
- It has contributed in **studying and protecting wildlife in India** and also has popularized wildlife studies and careers.
- The institute is based in **Dehradun, India**.

16. Animal Welfare Board of India (AWBI)

- The **Animal Welfare Board of India** is a **statutory advisory body** to the Government established in 1962 under Section 4 of **The Prevention of Cruelty to Animals Act, 1960**.
- Well-known humanitarian **Smt. Rukmini Devi Arundale** was instrumental in **setting up the board** and was its first chair.
- Initially it was within the jurisdiction of the Ministry of Food and Agriculture. Later in **1990**, the subject of **Prevention of Cruelty to Animals** was

NOTES**transferred to the MoEFCC.**

- Its headquarters is located at Chennai, Tamil Nadu.
- Several government organisations, along with animal rights activists and parliamentarians, are represented on the Board.
- **Functions:**
 - It **oversees Animal Welfare Organisations (AWOs)** by granting them recognition if they meet its guidelines.
 - It **appoints key people** to the positions of (Hon) **Animal Welfare Officers**, who serve as the key point of contact between the people, the government and law enforcement agencies.
 - It provides **financial assistance** to recognised AWOs, who submit applications to the Board.
 - It **suggests changes to laws and rules about animal welfare issues.**
 - It **issues publications to raise awareness** of various animal welfare issues.

17. Bombay Natural History Society (BHNS)

- The **Bombay Natural History Society**, founded on 15 September 1883, is **one of the largest non-governmental organisations in India engaged in conservation and biodiversity research.**
- It **supports many research efforts** through grants and **publishes the Journal of the Bombay Natural History Society.**
- Many prominent naturalists, including the **ornithologists Sálim Ali and S. Dillon Ripley**, have been associated with it.
- **BNHS is the partner of BirdLife International in India.**
- It has been designated as a '**Scientific and Industrial Research Organisation**' by the Department of Science and Technology.

Protocols / Conventions

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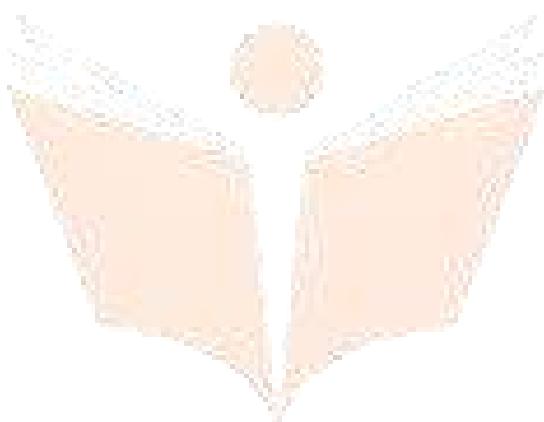
1. Convention on the Conservation of Migratory Species of Wild Animals (CMS)

- The **United Nations Environment Programme (UNEP)** has announced that **India will host next Convention** on the Conservation of Migratory Species of Wild Animals (CMS) Conference of Parties 13 (CMS COP13) **in year 2020**.
- The announcement was made during **12th Meeting of the Conference of the Parties (COP12)** to CMS held **in Manila, Philippines**.
- This was for first time the summit was held in Asia.
- CMS COP is also known as a **Global Wildlife Conference**.
- CMS is an **international treaty concluded under aegis of United Nations Environment Programme (UNEP)**, concerned with conservation of wildlife and habitats on a global scale.
- It is commonly abbreviated as Convention on Migratory Species (CMS) or the **Bonn Convention**.
- CMS aims to **conserve terrestrial, marine and avian migratory species** throughout their range.
- It was **signed in 1979 in Bonn**, Germany and entered into force in 1983.
- Its headquarters are in Bonn, Germany.
- CMS is **only global and UN-based intergovernmental organization** established exclusively for **conservation and management of terrestrial, aquatic and avian migratory species throughout their range**.
- It comes under the aegis of the **United Nations Environment Programme (UNEP)**.
- Appendix I of the Convention includes **Migratory species threatened with extinction**.
- Appendix II of the Convention includes **Migratory species that need or would significantly benefit from international co-operation**.

2. Stockholm Convention on Persistent Organic Pollutants

- **Stockholm Convention on Persistent Organic Pollutants** is a **United Nations treaty**, signed in 2001 and effective from May 2004, that **aims to eliminate or restrict the production and use of persistent organic pollutants (POPs)**.
- It aims to **protect human health and the environment** from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.
- **Exposure to Persistent Organic Pollutants (POPs) can lead to serious health effects** including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and damages to the central and peripheral nervous systems.
- The convention **listed twelve distinct chemicals** in three categories in the beginning.
- These include:

- **8 pesticides** (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex and toxaphene).
- **Two industrial chemicals** (poly chlorinated biphenyls and hexachlorobenzene)
- **Two unintended by-products** (poly chlorinated dibenzo-p-dioxins and dibenzo furans, commonly referred to as dioxins and furans).

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DISCIPLINE
SIMPLIFICATION
IAS EXAM PREPARATION

Miscellaneous

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1. Bosphorus Strait

- There was a sudden change in the colour of the Bosphorus Strait that divides the continents of Europe and Asia in Turkey's largest city Istanbul.
- The cause was a surge in numbers of the **micro-organism Emiliana huxleyi**.
- One of the most successful life-forms on the planet, *Emiliana huxleyi* is a single-celled organism visible only under a microscope.
- Its astonishing adaptability enables it to thrive in waters from the equator to the sub-Arctic.
- This has nothing to do with pollution.
- **Bosphorus Strait:**
 - It is a natural strait **connecting the Black Sea to the Sea of Marmara**, thus being a very strategic waterway.
 - Bosphorus strait separates the European part from the Asian part of Istanbul.



2. Ameenpur Lake

- Ameenpur Lake was declared a '**Biodiversity Heritage Site**' by Telangana government in 2016.
- It is the **first water body in the country to be declared a Biodiversity Heritage Site**.
- It is an **ancient man-made lake** which dates back to the time of Ibrahim Qutb Shah, who ruled the kingdom of Golconda between 1550 and 1580.
- The '**Biodiversity Heritage tag**' will enable **better conservation** of the lake.
- The lake will be managed by a locally constituted Biodiversity Management Committee and is eligible for funding for upkeep as well as its protection.
- Biodiversity Heritage Site:
 - Biodiversity Heritage Sites" (BHS) are well defined areas that are unique, **ecologically fragile ecosystems** - terrestrial, coastal and inland waters and, marine **having rich biodiversity**.

3. Vermin

- Vermin means wild mammals and birds which are **harmful to crops, farm animals or which carry disease**.
- **In India, wild animals can be declared as vermin** if they are:
 - **Dangerous to human life or property** (including standing crops on any

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land).

- Become diseased which is beyond recovery.
- Any animal listed in Schedule I to IV of **Wildlife Protection Act 1972** can be declared vermin by listing it in **Schedule V**.
- States can send a list of wild animals to the Centre requesting it to declare them vermin for selective slaughter.
- Wildlife Protection Act 1972 empowers every **State's Chief Wildlife Warden** for culling.
- Wild boars, Nilgai and rhesus monkeys are protected under Schedule II and III, but can be hunted under specific conditions.
- Animals like the common crow, fruit bats, mice and rats have been listed as vermin in Schedule V of WPA.

4. Coconut palm declared State tree of Goa

- The **Goa state government** has decided to include **coconut palm** as a tree in the Goa, Daman and Diu Preservation of Trees Act, 1984, to regulate felling of coconut trees under the act.
- The cabinet has also resolved to declare the coconut tree as the “**state tree**”.

5. Disaster Related Displacement

- According to an **UN Office for Disaster Risk Reduction (UNISDR)** report, **India has been ranked as the world's most disaster-prone country for displacement of residents**.
- According to report, on an average **13.9 million people each year** are displaced due to natural disaster with eight of the top ten most disaster prone countries being in South and South-east Asia.
- **UNISDR:**
 - The United Nations Office for Disaster Risk Reduction (UNISDR) was created in December 1999.
 - UNISDR is part of the **United Nations Secretariat**.
 - Headquarter: Geneva.
 - It publishes **Global Assessment Report on Disaster Risk Reduction**.
 - UNISDR supports the implementation, follow-up and review of the **Sendai Framework for Disaster Risk Reduction** adopted by the Third UN World Conference on Disaster Risk Reduction on 18 March 2015 in Sendai, Japan.

6. Creating and Sustaining Markets for Energy Efficiency Project

- **Energy Efficiency Services Limited (EESL)** launches \$454 million '**Creating and Sustaining Markets for Energy Efficiency**' project in partnership with the **Global Environment Facility (GEF)**.
- Currently around two-thirds of total power generation capacity in India is based on fossil fuels.
- **By 2030, India is committed to achieve 40% of the installed capacity based on clean energy sources**.
- Project will receive a composite funding of \$454 million comprised of the **GEF grant** of \$20 million and co-financing of \$434 million in the form of loans and

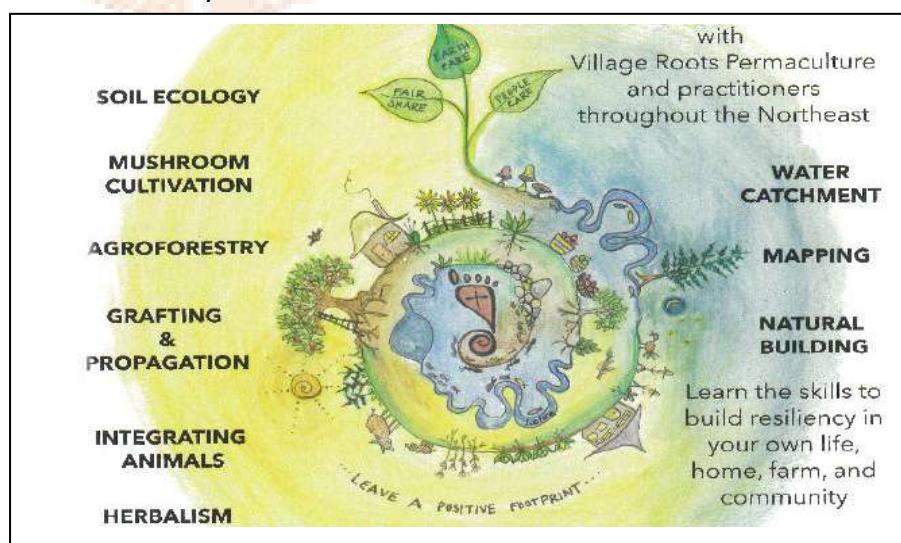
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equity, including a \$200 million loan from the **Asian Development Bank (ADB)**.

- EESL further proposes **Energy Efficiency Revolving Fund (EERF)** for sustainable funding mechanism of energy efficiency projects in the country.
- **Initiatives:**
 - **New technologies** of super-efficient ceiling fans, tri-generation technologies & smart grid-applications will be financed for proof testing.
 - **Energy efficiency programmes** like street lighting, domestic lighting, five-star rated ceiling fans and agricultural pumps will be undertaken.
 - EESL has partnered with **UN Environment's District Energy in Cities Initiative**, which has already identified \$600 million of projects across five cities in India.

7. Permaculture

- The **13th International Permaculture Convergence (IPC)** was held in Hyderabad.
- **Permaculture** is a system of **agricultural and social design principles** centered on simulating or directly **utilizing the patterns and features observed in natural ecosystems**.
- Permaculture is an innovative framework for creating **sustainable ways of living**.
- It is a practical method of developing ecologically harmonious, efficient and productive systems that can be used by anyone, anywhere.
- It is the harmonious **integration of landscape and people** — providing their food, energy, shelter, and other material and non-material needs in a sustainable way.



8. Cyclone Ockhi

- The deep depression which had formed in the **Bay of Bengal** near **Kanyakumari district in Tamil Nadu** intensified into a cyclonic storm named Ockhi.

- Ockhi name is coined by Bangladesh, which means 'eye' in Bengali.
- According to Indian Metrological Department, It was a '**very severe cyclonic storm**'.
- **How are cyclones named?**
 - The **World Meteorological Organisation (WMO)** and the **United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)** started the tropical cyclone naming system in 2000.
 - Tropical cyclones are named to provide ease of communication between forecasters and the general public regarding forecasts, watches, and warnings.
- **Eight north Indian Ocean countries** — Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand, gave eight names each which was combined into a list of 64 names.
- One name from each country is picked in an order to name the cyclones.
- The **previous storm Mora** that caused severe flooding across **Northeast India** in May 2017 was named by Thailand.
- Mora is the name of one of the healing stones and also means star of the sea.
- The next cyclone will be named **Sagar** — a name given by India.

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9. Bomb Cyclone

- A **massive winter storm** called a "bomb cyclone" hit the **eastern coast of the US, bringing snow, ice, flooding, and strong winds**.
- The term is used by meteorologists to indicate a **mid-latitude cyclone that intensifies rapidly**.
- A bomb cyclone happens when atmospheric pressure in the middle of the storm drops at least 24 millibars over 24 hours, quickly increasing in intensity.
- The lower the pressure, the stronger the storm.
- **How it works?**
 - **Deep drops in barometric pressure** occur when a region of warm air meets one of cold air.
 - The air starts to move and the rotation of the earth creates a cyclonic effect.
 - The direction is counter-clockwise in the Northern hemisphere leading to winds that come out of the northeast.
- **What's the difference between hurricanes, cyclones and typhoons?**
 - Hurricanes, cyclones and typhoons are all **tropical storms**.
 - They are all the same thing but are given different names depending on where they appear.
 - When they reach populated areas they usually bring very strong wind and rain which can cause a lot of damage.
 - **Hurricanes** are tropical storms that form over the **North Atlantic Ocean and Northeast Pacific**.
 - **Cyclones** are formed over the **South Pacific and Indian Ocean**.
 - **Typhoons** are formed over the **Northwest Pacific Ocean**.

10. Havre

- It is the **world's largest deep ocean volcanic eruption** happened in New

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Zealand. It was **recently confirmed** by the researchers.

- Named as Havre, the deep ocean volcanic eruption was **first discovered in 2002**.
- A solidified volcanic rock known as pumice raft found floating in the ocean near New Zealand in 2012 showed that underwater eruption had occurred.
- The eruption involved 14 aligned vents causing a “massive rupture”.

11. Coal Bed Methane (CBM)

- Coal Bed Methane is a **form of natural gas extracted from coal beds**.
- It is called '**sweet gas**' because of its **lack of hydrogen sulphide**.
- Its occurrence in **underground coal mining**, where it presents a serious safety risk.
- It **mainly consists of Methane (CH₄)** with minor amounts of nitrogen (N₂), carbon dioxide (CO₂) and heavier hydrocarbons like such as propane or butane.
- It is **environmentally safe and clean fuel** which on combustion emits only carbon dioxide and water.
- It is considered as an efficient fuel and also reduces emission of greenhouse gas from coal mining.

