

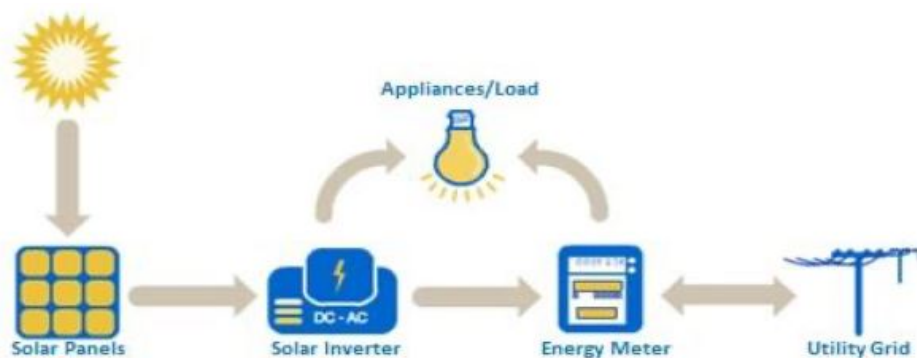
Prelim Bits 13-02-2024 | UPSC Daily Current Affairs

Working of Rooftop Solar System

Recently, the Parliamentary Standing Committee asked the Ministry of New and Renewable Energy (MNRE) to ensure wider adoption of grid-connected rooftop solar photovoltaic projects (RSPV).

India aims install 175 gigawatts (GW) of renewable energy from solar, wind, biomass and hydro resources by 2022 with a target of 40GW from solar alone. Now, the revised deadline is March 2026.

- **RSPV - Rooftop solar photovoltaic system** is the one where solar photovoltaic panels are placed on top of the buildings, which can **convert the sunlight into solar power**.
- Along with rooftops of houses and commercial and industrial (C&I) buildings, vacant spaces on the ground can also be used.
- It can be either grid-connected or a standalone unit known as an off-grid solar system.
- **Off-grid solar system** - It is *self-sustaining* by using storage devices like battery and is not connected to any wider electric supply system.
- **Grid-connected solar system** - It *feeds* solar energy into the utility grid.
- **Components** - It includes solar PV modules, an inverter, a module mounting structure, monitoring and safety equipment and meters.
- **Working** - An *inverter converts the DC power* generated from solar panels to AC power, which is then *fed to the grid*, while meters keep track of the electricity injected and drawn from the utility grid.
- If the plant produces more solar energy than the installer uses, the surplus is exported to the grid.
- On cloudy days when solar energy is unavailable, power is drawn from the grid.



Grid connected rooftop solar PV system

- **Net-metering** - A *bi-directional or net meter* installed on the premises of a consumer

records the energy flow in both directions.

- A consumer has to pay for the net energy units used, which is the difference between total imported units and exported solar units.
- **Advantages** - It reduces the electricity demand from corporate or state power suppliers, saves on electricity costs and also enable RSPV owner to get paid for power supplied to grid.

Pradhan Mantri Suryodaya Yojana (PMSY), launched in 2024 to tap into the vast potential of rooftop projects in residential areas. As per Interim Budget of 2024, it would help 1 crore families get up to 300 units of free electricity per month with savings of up to Rs 18,000 annually.

Reference

[The Hindu| Rooftop Solar Photovoltaic System in India](#)

Convention of Migratory Species (CMS)

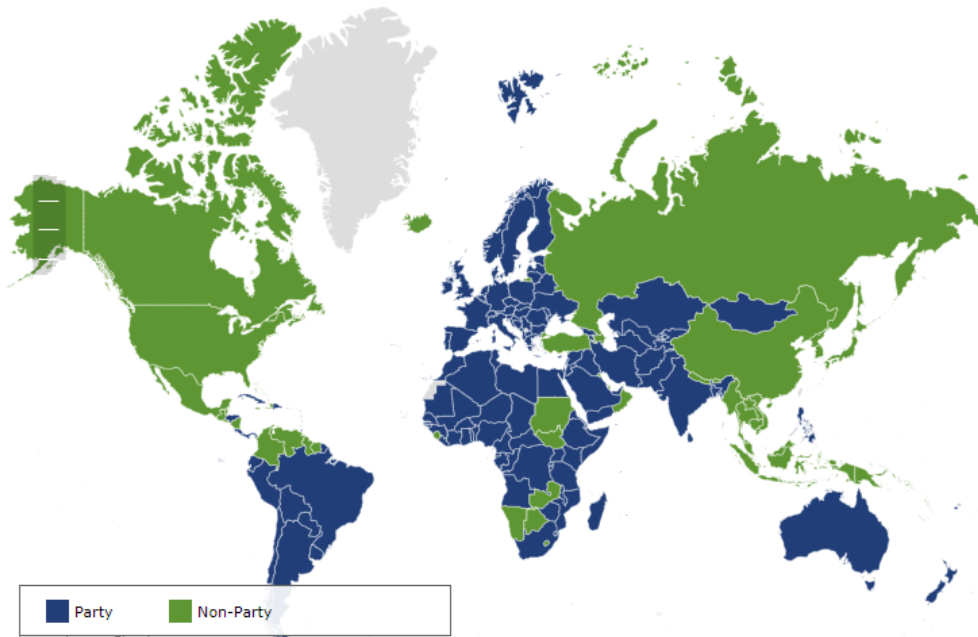
The 14th Conference of Parties (COP14) to the Convention on the Conservation of Migratory Species (CMS) of Wild Animals held recently in Samarkand, Uzbekistan in 2024.

- **CMS** - Convention on the Conservation of Migratory Species of Wild Animals, also called as **Bonn Convention**.
- **Conception** - It began at the 1972 Stockholm Conference on the Human Environment.
- **Launched in** - **1979 in Bonn**, Germany while it entered into force in 1983.
- **Secretariat** - Provided by UNEP, based in Bonn in Germany.
- **Depository** - Germany
- **Aim** - To provide a global platform for the conservation and sustainable use of migratory animals and their habitats.
- To lay the legal foundation for internationally coordinated conservation measures throughout a migratory range.

Convention to Conservation of Migratory Species (CMS) is the only global convention specializing in the conservation of migratory species, their habitats and migration routes.

- **Parties**- **133** as of 2022, Jamaica has signed but not ratified to become a party yet.
- **Organisation** - Conference of Parties (COP) is the decision making body.
- **CMS Trust Fund** - Each Party shall contribute to this budget according to a scale to be agreed upon by the COP.
- **Listed Species** - It has about 1,200 species listed in 2 Appendix.
 - **Appendix I** - Endangered migratory species.
 - **Appendix II** - Migratory species conserved through Agreements.

- Birds occupies the 1st place followed by terrestrial mammals.



References

1. [Down To Earth| Inauguration of CMS COP-14](#)
2. [CMS.INT| Convention on the Conservation of Migratory Species](#)

State of the World's Migratory Species

The 1st ever report on the 'State of the World's Migratory Species' was launched at CMS COP14 that held in 2024 at Samarkand, Uzbekistan.

- **Prepared by** - UNEP-WCMC.

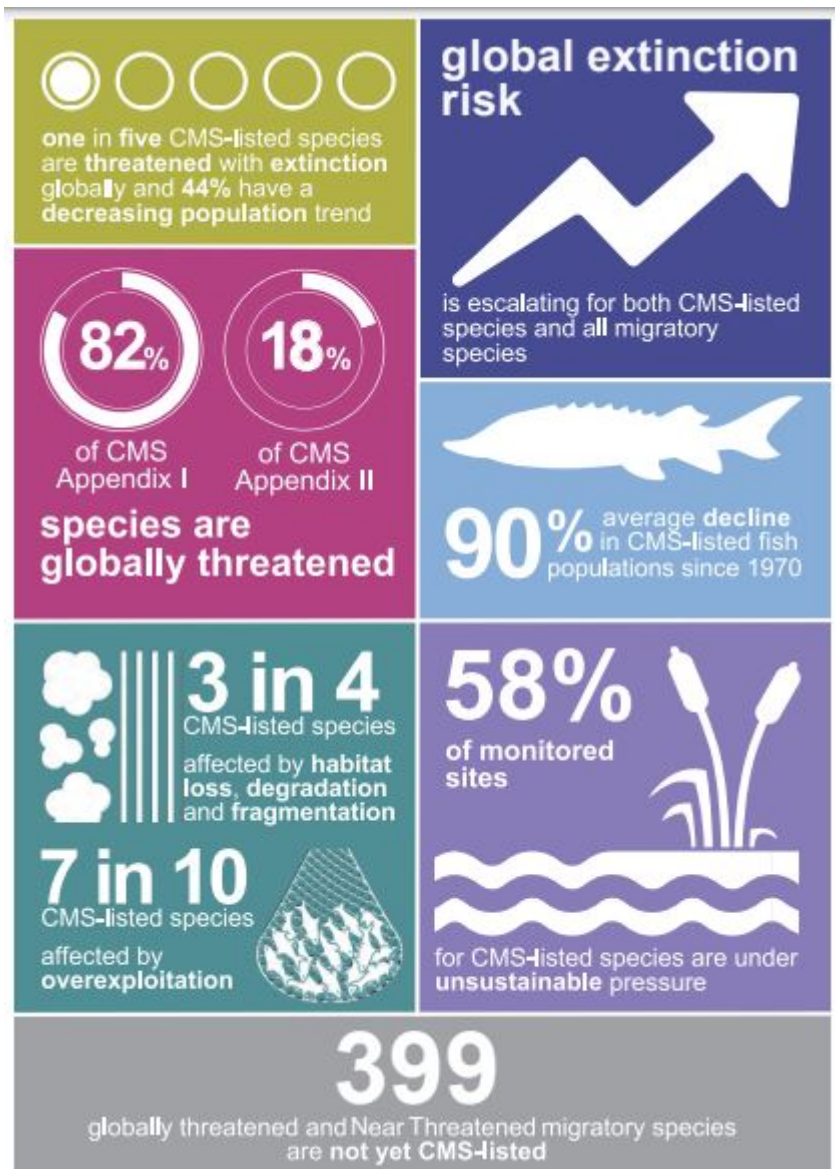
UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) is a global Centre of excellence on biodiversity. It operates as a collaboration between the UN Environment Programme and the UK-registered charity WCMC.

- **Need** - To develop the preliminary review of conservation status submitted to COP13 of CMS.
- **Aim** - To *improve conservation outcomes* for migratory species, by providing support for evidence-based decision-making.
 - Summarizes current status and trends
 - Identifies the key pressures they face
 - Highlights illustrative examples of the efforts underway to conserve and promote their recovery.
- **Focus** - On those *species listed in the CMS Appendices*, yet it also provides information on the wider group of all migratory species.

- **Data source** - IUCN Red List assessment and Living Planet Index among others.

Living Planet Index is managed by the Zoological Society of London, in collaboration with World Wildlife Fund for Nature.

- **Findings** - 4,508 Migratory species have had a global IUCN Red List assessment, where 74% are not currently listed in the CMS.
- Of these non-CMS species, 8% are 'Globally Threatened' and 4% are 'Near Threatened'.



Migratory species are species that traverse 1000's of miles throughout the world for feeding, breeding and resting. They are found all over the world on land, in the water and in the skies and play an essential role in the maintenance of healthy and functional ecosystems.

References

1. [Down To Earth| Launch of Migratory Species Report](#)
2. [CMS.INT| State of the World's Migratory Species Report](#)

Nazool Land

Recently, violence erupted in Uttarakhand's Haldwani district after the administration conducted a demolition drive at the site of a mosque and madrasa, allegedly on Nazool land.

- **Nazool land** - A land ***owned by the government*** but most often *not directly administered as state property*.

Emergence of Nazool Land in India

- **During British rule** - British, after defeating the opposing kings and kingdoms would *take their land* away from them.
- **After Independence** - The *British vacated* these lands but with kings and royals often lacking proper documentation to prove prior ownership, these lands were marked as Nazool land to be *owned by the respective state governments*.

- **Administration** - Several states passed government orders for the purpose of framing rules but the ***Nazool Lands (Transfer) Rules, 1956*** is the law mostly used for Nazool land adjudication.
- **Usage** - For public purposes like building schools, hospitals, Gram Panchayat buildings, etc. and also leasing it to any entity.
- **Property lease** - It is for a *fixed period*, generally between 15 and 99 years.
- **Renewal** - It is done by submitting a written application to the *Revenue Department* of the local development authority.
- The government is free to *either renew the lease or cancel it* taking back the land.

Reference

[The Indian Express| Dispute in Nazool Land](#)

Atlantic Meridional Overturning Circulation (AMOC)

A recent research paper reports that, Atlantic Meridional Overturning Circulation (AMOC) could collapse between 2025 and 2095 due to the impact of anthropogenic emissions.

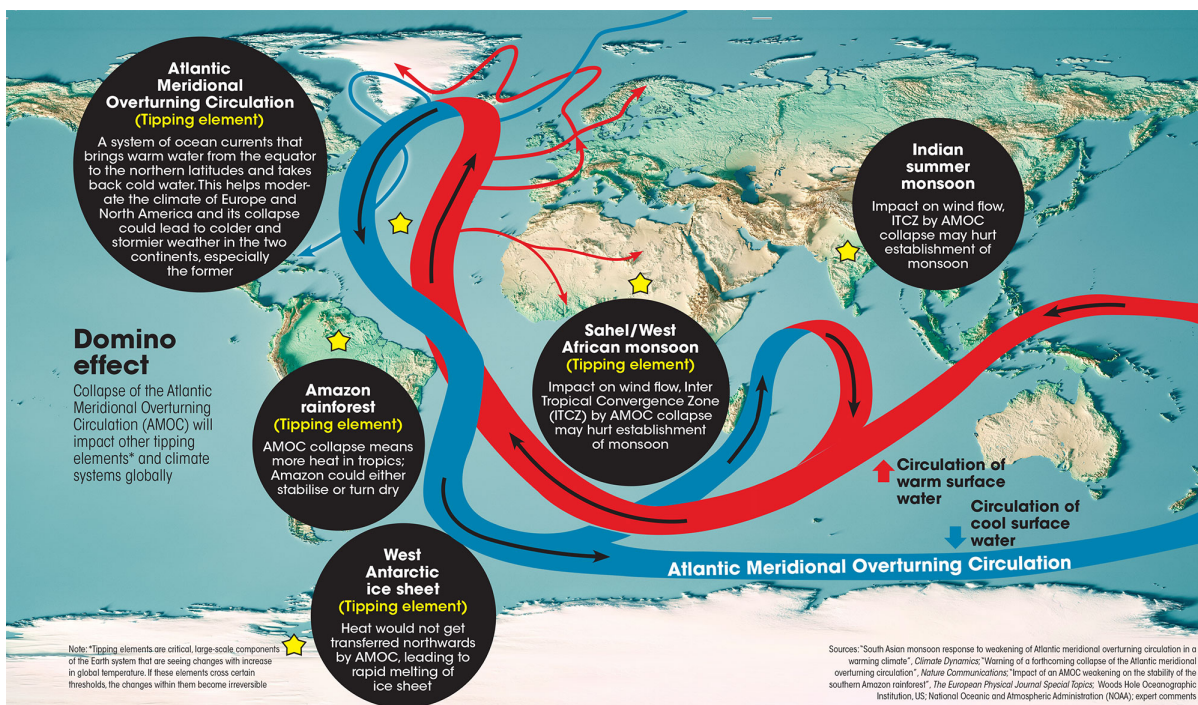
- **AMOC** - The Atlantic Meridional Overturning Circulation is a major ocean current system.
- **Working** - It transports *warm salty surface waters from the tropics* to the northern regions.
- The waters then cool down, increase in density and *sink in the North Atlantic Ocean* due to down welling or overturning.
- Cold, fresh water from the melting ice of the Arctic is added to the cooler ocean that *moves towards the equator*.
- Eventually, it gets pulled back to surface and warms again as it reach near the tropics

and thus, the circulation is complete and it keeps on continuing as AMOC.

- **As a Heat conveyor belt** - It warms the northern latitudes and cools the southern latitudes.
- **Slowing down AMOC** - For the past few decades, more fresh cold water is added to the North Atlantic Ocean which is reducing salinity and density of the water.
- Thus, the *colder layer of the ocean is expanding* and the *warmer layer is contracting* which might lead to collapse.
- **Impact of collapse** - It may be the 1st of the 16 climate tipping elements to be breached.

Tipping elements are large-scale systems that influence the planet's climate and ecology, which are undergoing changes due to global warming. If these elements cross certain thresholds changes in them will become irreversible.

- It would cause widespread *cooling across the northern hemisphere* and *less precipitation* in places such as Europe, North America, China and some parts of Russia in Asia and even India.



Reference

[Down To Earth| Collapse of AMOC](#)

Israeli scientists find new underwater canyon near Cyprus.

- The canyon dates back to the Messinian Event that transpired about 5.5 million years ago, is near an underwater mountain.
- It was created when the level of the Mediterranean Sea decreased at the same time there was a rise in the salinity of the water.
- The Messinian salinity crisis or the Messinian event was a geological event during which the Mediterranean Sea went into a cycle of partial or nearly complete desiccation.



Mankur Mango (or) Malcorado

Goa's most popular mangoes going for Rs 5,000 a dozen.

- Mangoes known in Goa as mankurad, was originally called malcorado, meaning poor colour in Portuguese.
- Usually, mankurad mangoes arrive by the end of February or March.
- Goa mankurad mango, or mankurad, got the geographical indication (GI) tag in 2023.



Cuscuta Dodder

Parasitic creeper preys on Chengalpet forests, Vedanthangal Bird Sanctuary.

- It is a parasitic vine without roots, and is an invasive weed, native to North America.
- It poses a serious problem in oilseeds, pulses and fodder crops in the states of Andhra Pradesh, Chhattisgarh, Gujarat, Orissa, West Bengal and parts of Madhya Pradesh.
- In United States, it is the only weed seed whose movement is prohibited in every state.
- The seeds of Cuscuta are spheroid and have a hard coat, which aids them to survive up to 50 years in dry storage and at least 10 years in the field.
- Unlike root parasites, Cuscuta seeds do not require a specific stimulant to induce germination.



Nalgonda Lamppost

Telugu-Tamil Inscription on 17th Century Lamppost Unearths Trade Links.

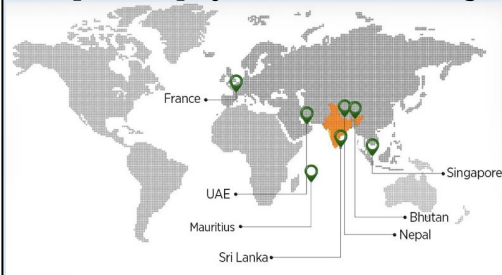
- A 390-year-old towering lamppost with an inscription dedicated to Kasi Visvanatha found in Mudimanikyam of Adavidevulapally mandal in Nalgonda district in Telangana revealed trade links.
- The inscription is engraved on a deepasthabham, near the ruined Siva temple on the banks of Krishna River in the village Mudimanikyam.
- It is written in Telugu mixed with Tamil language and Telugu characters and dated to 1635 C.E.
- The inscription begins with obeisance to the god Kasi Visvanatha and records the erection of a pillar for the god Kasi Visvanatha by Polinedu, son of Vali Munulayya.



List of countries that use UPI

Government releases list of countries where UPI Payments are accepted.

- France, UAE, Mauritius, Sri Lanka, Singapore, Bhutan, and Nepal are the countries that accept UPI payments, according to the government.



Gupteswar Forest

Gupteswar forest in Odisha declared as Bio-Diversity Heritage site (BHS).

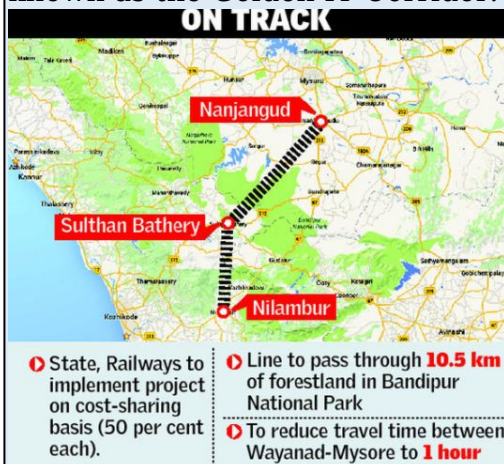
- The forest, has been declared as the 4th BHS.
- The other 3 are Mandasaru BHS, Mahendragiri BHS, and Gandhamardan BHS.
- The limestone caves of Gupteswar are adorned with eight species of bats out of the total 16 species found in southern Odisha.
- Among them, two species *Hipposideros galeritus* and *Rhinolophus rouxii* are under the near-threatened category of the International Union for Conservation of Nature.



Golden IT Corridor

Railway line to connect Nilambur in Kerala to Nanjangudi in Karnataka on Golden IT Corridor.

- The proposed railway line is a 236 kilometre broad-gauge railway line that will run through Bandipur National Park.
- The railway line will connect Nilambur in Kerala to Nanjangudi in Karnataka, which is known as the Golden IT Corridor.



White Paper

The government has come out with a white paper on the Indian economy.

- A white paper typically provides information about a specific issue.
- It is an informational report that highlights policies, achievements and issues of the government.
- Government papers are colour-coded for distribution and white is designated for public access.
- A government may present a white paper, to make people aware of the nature and scope of the problem and the possible ways to resolve it.

Obelisks

A new virus-like entity has just been discovered.

- Biological entities called obelisks have been hiding, in large numbers, inside the human mouth and gut.
- They are circular bits of genetic material that contain one or two genes and self-organise into a rod-like shape.
- Like viroids, Obelisks have a circular single-stranded RNA genome and no protein coat.
- However, like viruses, their genomes contain genes that are predicted to code for proteins.
- All obelisks so far described encode a single major protein known as obulin, and many encode a second, smaller obulin.

Performance Assessment, Review, and Analysis of Knowledge for Holistic Development (PARAKH)

Department of School Education & Literacy, chaired a review meeting on PARAKH.

- It is the National Assessment Center established in the National Education Policy 2020.
- It serves as a standard-setting body, and it assists states in supplying high-quality, standardized exams as well as regular data for quality improvement.
- All recognized school boards in India will observe, teach, and evaluate as per the PARAKH guidelines.