Prelim Bits 10-10-2022 | UPSC Daily Current Affairs

Crimean Bridge Blast

The road-and-rail bridge linking Russia and the Crimean peninsula was damaged in a powerful blast recently, cutting the crucial supply route.

- The bridge is the only direct link between the transport network of Russia and the Russia-annexed Crimean peninsula.
- The 19-km (12-mile) Crimea Bridge is built over the **Kerch Strait**.

*The Kerch Strait connects the **Black Sea** and the **Sea of Azov** separating the Kerch Peninsula of Crimea from the Taman Peninsula of Russia.*

- The steel arches of the bridge gives way to a wider span, where ships pass between the Black Sea and the smaller Azov Sea.

The bridge was opened by Russian President in 2018 and *is the longest bridge in Europe.*

- **Significance** - The Bridge is logistically crucial for the supply of fuel, food and other products to Crimea.
- The **port of Sevastopol** is the historic home base of Russia's Black Sea Fleet.

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India's First Solar-Powered Village – Modhera

Recently, Prime Minister declared Modhera, in Gujarat as India's first round-the-clock solar-powered village involving a ground-mounted solar power plant and more than 1,300 rooftop solar systems.

Solarisation of Modhera

- Modhera village is in Mehsana district in Gujarat.
- The solarisation of Modhera happened through partnership between the Central and state governments.
- The day time power comes from the rooftop solar panels.
- The night time power comes from a Battery Energy Storage System (BESS) in Mehsana.
- Besides this, the village has a solar based modern electric vehicle charging station.

Solar power is major component of India's target of 500 GW of installed renewable energy by 2030 and net zero by 2070.

Modhera Sun Temple

- The Sun temple in Modhera is situated on the bank of the **Pushpavati River**.
- The temple was built after 1026-27 CE during the reign of Bhima I of the **Solanki or Chalukya dynasty**.
- The temple was attacked and invaded twice, first by Mehmood Ghazni during his raid of Gujarat and then by Allauddin Khilji.
- The magnificent temple is built in the Solanki type Maru-Gurjara Style of architecture.
- **Maru-Gurjara architecture** – It is a style of north Indian temple architecture that originated in Gujarat and Rajasthan from the 11^{th} to 13^{th} centuries, under the Chaulukya dynasty.
- The temple was completely built of **sandstone** and it consists of three main components –
  - The main temple consists of a Garbagriha and a mandapa called as Gudamandapa.
  - A Sabha Mandapa.
  - A kunda or a stepped water tank called Surya kund, which encompasses a number of miniature shrines on its smaller steps.

The famous Modheshwari Mata Temple is also located in Modhera near the Sun Temple.

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Manesar Anti-Terror Exercise 2022

The National Security Guard (NSG) is holding a multinational Joint Anti-Terror Exercise

(JATE) recently, under the Regional Anti-Terrorist Structure (RATS) of the Shanghai Cooperation Organisation (SCO) framework.

Joint Anti-Terror Exercise at Manesar

- The multinational Joint Anti-Terror Exercise (JATE) is an annual Counter Terrorist Exercise held within the framework of the SCO-RATS.
- This year's JATE titled '**Manesar-Antiterror-2022**' is held at NSG Manesar campus in Gurugram.
- Eight representatives from National Counter Terrorism Forces of Kazakhstan, Kyrgyz Republic, Uzbekistan, Russian Federation and NSG of India are participating.
- The exercise is aimed at exchanging expertise, best practices and build synergy between the Counter Terrorism forces of the SCO-RATS member countries.

Shanghai Cooperation Organisation

- Shanghai Cooperation Organisation (SCO) is an eight-member regional economic and security bloc.
- The SCO summit 2022 was held at Samarkand, Uzbekistan and SCO adopted the Samarkand Declaration.

India will be the Chair of Shanghai Cooperation Organisation (SCO) in 2023.

To know more about SCO, click here

Regional Anti-Terrorist Structure (RATS)

- It is one of the permanent organ of the SCO.
- It aims to facilitate cooperation and coordination to combat terrorism, separatism and extremism.

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Chandrayaan Found Sodium on Moon

Indian Space Research Organisation (ISRO) has mapped out the global distribution of sodium on the Moon's surface, using data from a payload aboard India's Chandrayaan-2 orbiter.

Chandrayaan-2 orbiter is orbiting the Moon since August 2019.

- In the past, Chandrayaan-1's X-ray Fluorescence Spectrometer (C1XS) detected sodium from its characteristic line in X-rays that opened up the possibility of mapping sodium on the Moon.
- Now, the ISRO used the CLASS instrument (Chandrayaan-2 large area soft X-ray spectrometer) carried by Chandrayaan-2 to map the abundance of sodium on moon.
- The new findings from Chandrayaan-2 provide an avenue to study surface-exosphere interaction on the Moon.
- This would aid the development of similar models for Mercury and other airless bodies in our Solar System and beyond.

X-ray Fluorescence

- X-ray fluorescence is commonly used to study the composition of materials in a non-destructive manner.
- When the sun gives out solar flares, a large amount of X-ray radiation falls on the moon, triggering X-ray fluorescence.
- The CLASS instrument of Chandrayaan-2 is a X-ray spectrometer.
- It measures the energy of the X-ray photons coming from the moon and counts the total number.
- The energy of the photons indicates the atom (for instance, sodium atoms emit X-ray photons of 1.04 keV) and the intensity is a measure of how many atoms are present.
- When compared to Earth, the moon is significantly depleted of volatile elements such as sodium.
- The amount of volatiles on the moon today can be used to test formation scenarios of the Earth-Moon system.
- Sodium can be used as a tracer of the volatile history of the moon.

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FAO Report on 'Mainstreaming Biodiversity in Forestry'

The UN report titled "Mainstreaming biodiversity in forestry" was released at the 8th World Forest Week on the sidelines of the 26th session of the Committee on Forestry (COFO26) taking place in Rome, Italy.

The Committee on Forestry (COFO) is FAO's forestry statutory body.

- This report was released by the UN body Food and Agriculture Organization (FAO).
- The report was produced through a partnership between FAO and the non-profit Center for International Forestry Research (CIFOR), the lead centre of the CGIAR Research Program on Forests, Trees and Agroforestry.

The CGIAR is a global partnership that unites international organisations engaged in research about food security.

- **Findings** - This report said that mainstreaming biodiversity in 'production forests' is paramount.
- 'Production forests' are the forests that are managed primarily for economic benefits are critical for biodiversity conservation.
- 'Mainstreaming biodiversity' means embedding biodiversity considerations into policies, strategies and practices of key public & private actors to promote the conservation and sustainable use of natural resources.
- The report found that weak governance and law enforcement are the biggest stumbling blocks behind biodiversity conservation in protected areas.
- The role of forests in maintaining biodiversity is explicitly recognised by the United Nations Strategic Plan for Forests 2017–2030.
- **Facts about forests** - The FAO said that forests cover 31% of the world's land surface, store an estimated 296 gigatonnes of carbon and are home to most of the world's terrestrial biodiversity.
- The world's forests provide habitats for about 80% of amphibian species, 75% of bird species and 68% of mammal species. In addition, about 60% of all vascular plants occur in tropical forests.
- But, the report said, forests and their biodiversity continue to be lost at an alarming rate.
- **Threats** - Deforestation is the greatest driver of the loss of valuable biodiversity, with around 10 million hectares lost to deforestation each year, mainly for agricultural expansion.
- Other threats include over-harvesting of timber, invasive species, climate change, desertification and forest fires.
- **Suggestions** - The report recommended various measures and actions that governments and development partners can take to facilitate the mainstreaming of biodiversity in forest management:
    1. Halting and reversing deforestation
    2. Combating illegal and unregulated forest activities
    3. Recognising the forest tenure of Indigenous Peoples and local communities
    4. Preventing the conversion of natural forests into monospecific forest plantations
    5. Ensuring the sustainable management of harvested species
    6. Managing and controlling invasive and overabundant species
    7. Leveraging global momentum on restoration to enhance biodiversity conservation
    8. Adopting a multisectoral perspective
    9. Providing economic incentives
    10. Facilitating market-based instruments

11. Investing in knowledge and capacity development

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