Prelim Bits 16-01-2022 & 17-01-2022 | UPSC Daily Current Affairs

Indian State of Forest Report 2021

India State of Forest Report (ISFR) 2021 was released by the Union Minister for Environment, Forest and Climate Change.

- ISFR is a biennial (every two years) report on India's forest and tree cover prepared by the Forest Survey of India (FSI).
- The ISFR 2021 is the 17th edition in the series since 1987.
- This is the increase recorded during 2019 and 2021. The last such report was published in 2019.
- The ISFR-2021 provides information on forest cover, tree cover, mangrove cover, growing stock, carbon stock in India's forests, forest fire monitoring, above ground estimates of biomass using SAR data & climate change hotspots in Indian forests.
- It also provides for the first time the forest cover in tiger reserve areas, tiger corridors and the Gir forest that houses the Asiatic lion.

Definitions

- The FSI defines 'forest cover' as all lands of a hectare or more with tree patches with canopy density of more than 10%.
- This covers all lands, irrespective of legal ownership and land use.
- 'Recorded forest area' includes only those areas recorded as forests in government records and includes pristine forests.
- The Forest Cover of the country has been classified and mapped into three canopy density classes viz.
    1. Very Dense Forest (VDF),
    2. Moderately Dense Forest (MDF) and
    3. Open Forest (OF).
- In addition to the three density classes, scrub areas, which are not part of Forest Cover, have also been classified and mapped.

Forest Classes of India	Canopy Density	Category-wise Forest %
Very Dense Forest	70-100%	3.04%
Moderately Dense Forest	40-70%	9.33%
Open Forest	10-40%	9.34%
Scrub	<10%	1.41%
Non-forest	Not covered in the above class	76.87%

Highlights of ISFR 2021

- **India's forest cover** - 21.7% in 2020 and 21.6% in 2019.

- Increase in forest cover has been observed in open forest followed by very dense forest.
- There is a decline in the moderately dense forests or “natural forests”.
- Area-wise Madhya Pradesh has the largest forest cover in the country followed by Arunachal Pradesh and Chhattisgarh.
- In terms of forest cover as percentage of total geographical area, the top 3 States are Mizoram, Arunachal Pradesh and Meghalaya.
- Top 3 states showing increase in forest cover are Andhra Pradesh followed by Telangana and Odisha.
- But the Northeast reported the biggest losses in forest cover.
- The decline is due to
    1. a spate of natural calamities, particularly landslides and heavy rains
    2. anthropogenic activities such as shifting agriculture, pressure of developmental activities and felling of trees.

The present assessment reveals that 17 states/UT’s have above 33% of the geographical area (target % of forests) under forest cover.

- **Total forest and tree cover** of the country is 80.9 million hectare (24.62% of the geographical area of the country).
- As compared to the assessment of 2019, there is an increase of 2,261 sq km in the total forest and tree cover of the country.
- Out of this, the increase in the forest cover has been observed as 1,540 sq km and that in tree cover is 721 sq km.
- **Total mangrove cover** in the country is 4,992 sq km. (0.15% of the geographical area of the country).
- An increase of 17 sq km in mangrove cover has been observed as compared to the previous assessment of 2019.
- Top 3 states showing mangrove cover increase - Odisha, Maharashtra and Karnataka.
- **Bamboo forests** have grown from 39,454 million culms (stems) in 2019 to 53,336 million culms in 2021.
- **Total carbon stock** in India’s forest is estimated to be 7,204 million tones, an increase of 79.4 million tonnes since 2019.
- There is an increase of 79.4 million tonnes in the carbon stock of country as compared to the last assessment of 2019.
- The annual increase in the carbon stock is 39.7 million tonnes. It also identifies 35.46% of the forest cover as prone to forest fires.
- **Climate Change Hotspots** - Hotspot maps are particularly useful for climate change adaptation planning by identifying forest areas likely to be impacted by climate change and showing them in maps.

Type of Climate Change Hotspot	**Definition**
Temperature Hotspot	Any forested grid that is projected to experience a temperature rise over 1.5°C compared to 1860-1900 scenario.
Precipitation Hotspot	Any forested grid that is projected to experience a change of rainfall greater or less than 20% with respect to the scenario.

- The report has also mapped the climate change hotspots in Indian forests, based on projections for 2030, 2050 and 2080.

- It predicted that Himalayan states and UTs (Uttarakhand, Himachal Pradesh, J&K and Ladakh) will record the maximum increase in temperature and may experience decrease in rainfall.
- Extreme rainfall may also increase in the states of the North East.

Other Findings

- Jammu and Kashmir has lost very dense forests but gained open forests. Increase in open forests is led by commercial plantations.
- Total forest area of Himachal Pradesh has increased by 9 sq km.
- But there has been loss of open and Moderately Dense Forest.
- Moderately dense forests are usually close to human habitations.
- Loss of forest cover in the Himalayas and North East is attributed to an increase in developmental activities as well as agriculture.

New features

- For the first time, in ISFR 2021, the forest cover in tiger reserves, tiger corridors and the Gir forest which houses the Asiatic lion has been assessed
- Between 2011-2021,
    1. Forest cover in tiger corridors has increased by 37.15 sq km (0.32%),
    2. Forest cover in tiger reserves has decreased by 26 sq km (0.04%).
- Forest cover has increased in 20 tiger reserves in these 10 years, and decreased in 32.
- Pakke Tiger Reserve in Arunachal Pradesh has the highest forest cover (nearly 97%).
- Buxa, Anamalai and Indravati reserves have shown an increase in forest cover while the highest losses have been found in Kawal, Bhadra and the Sunderbans reserves.

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National Education Alliance for Technology

Ministry of Education has announced a new National Educational Alliance for Technology (NEAT 3.0) to use technology for better learning outcomes in Higher Education.

- The National Education Alliance for Technology (NEAT) is a Public-Private Partnership model between the Government of India and the Education Technology companies of India.
- The initiative was taken after a Ministry of Education review noted that learning tools developed by edtech platforms that can supplement classroom teaching need to be made more accessible.
- NEAT aims to act as a bridge between edtech companies, academic institutions and students.
- Objectives of NEAT - To bring the best technological solutions in education pedagogy on a single platform for the convenience of Economically and Socially weaker sections of society.
- Implementing agency - All India Council for Technical Education (AICTE)

Reference

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Design Linked Incentive Scheme

Ministry of Electronics and Information (MeitY) is seeking applications from 100 domestic companies, start-ups and MSMEs under its Design Linked Incentive (DLI) Scheme.

- The DLI Scheme was announced by MeitY in December 2021.
- Under the DLI Scheme, financial incentives and design infrastructure support will be extended for over a period of 5 years.
- This will be extended to domestic companies, startups and MSMEs across various stages of development and deployment of semiconductor design for Integrated Circuits, Chipsets, System on Chips, Systems & IP Cores and semiconductor linked design.
- The scheme aims to nurture at least 20 domestic companies involved in semiconductor design and facilitating them to achieve turnover of more than Rs. 1500 Crore in the next 5 years.
- Implementing agency - Centre for Development of Advanced Computing (C-DAC), a scientific society operating under MeitY.

Components of the scheme	**Purpose**
Chip Design infrastructure support	C-DAC will setup the **India Chip Centre** to host the state-of-the-art design infrastructure and support for Multi Project Wafer (MPW) fabrication) & post-silicon validation and facilitate its access to supported companies.
Product Design Linked Incentive component	A reimbursement of up to 50% of the eligible expenditure subject to a ceiling of Rs. 15 Crore per application will be provided as fiscal support to the approved applicants who are engaged in semiconductor design.
Deployment Linked Incentive component	An incentive of 6% to 4% of net sales turnover over 5 years subject to a ceiling of Rs. 30 Crore per application will be provided to approved applicants whose semiconductor design are deployed in electronic products.

- The approved applicants that claim incentives will be encouraged to retain their domestic status for a period of 3 years after claiming incentives under the scheme.
- [Domestic status - More than 50% of the capital in it is beneficially owned by resident Indian citizens and/ or companies, which are ultimately owned and controlled by resident Indian citizens]
- An applicant must meet the Threshold and Ceiling Limits to be eligible for disbursement of incentives under the Scheme.
- A dedicated portal has been made available for inviting Online applications from January 1, 2022 to December 31, 2024.
- The DLI Scheme will also take a **graded and pre-emptive approach** to Identify the Products of national priorities and implement strategies for their complete or near complete indigenisation & deployment thereby taking steps towards the import substitution & value addition in strategic & societal sectors.

Reference

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Purple Revolution

A Union Minister said that the "Purple Revolution" is Jammu & Kashmir's contribution to "Start-ups India".

- The "Purple Revolution" in India is a result of the Aroma Mission launched by the Union Ministry of Science & Technology through the Council of Scientific & Industrial Research (CSIR).
- 'Purple Revolution' involves **cultivation of Lavender as a new aroma crop** in the Kashmir Himalayas.
- The CSIR introduced high-value essential oil bearing lavender crop for cultivation in several districts through its Jammu based laboratory, Indian Institute of Integrative Medicines (IIIM).
- [Districts - Doda, Kishtwar, Rajouri, Ramban, Pulwama, etc.]
- First-time farmers were given free lavender saplings and those who have cultivated lavender before were charged Rs. 5-6 per sapling.
- The aromatic oil extracted from the flowers can sell for more than Rs 10,000 per kg.
- The farmers will get help from IIIM-Jammu to sell their produce.
- At present, large-scale lavender cultivation is limited to J&K but governments in Himachal Pradesh, Arunahal Pradesh and Uttarakhand are encouraging their farmers to take up lavender.
- To know more about Purple Revolution, Purple Economy and Aroma Mission click here.

Reference

https://pib.gov.in/PressReleasePage.aspx?PRID=1790341

Volcano Eruption in Tonga

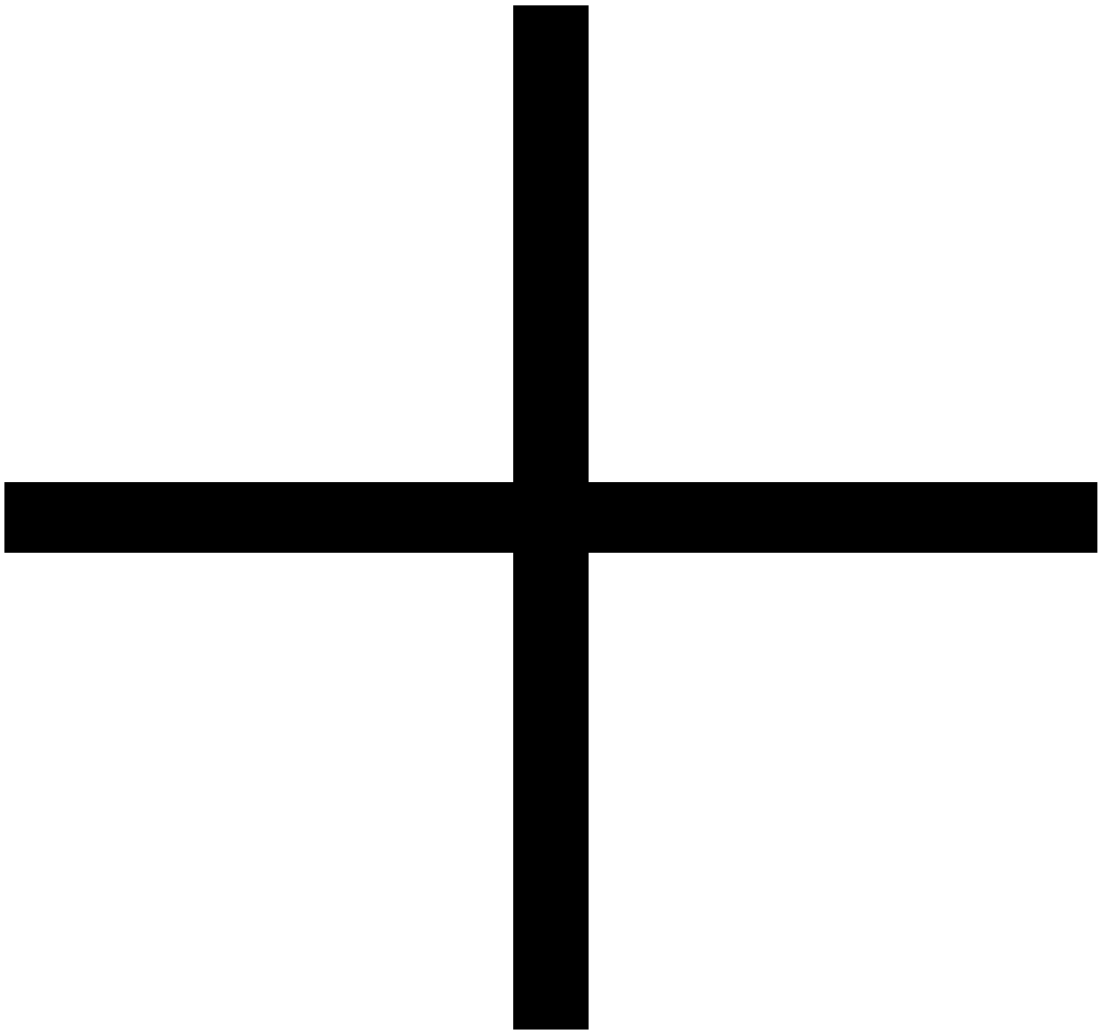
A violent eruption of an underwater volcano on the Kingdom of Tonga has spread shock waves, quite literally, around half the world.

- The volcano consists of two small uninhabited islands, Hunga-Ha'apai and Hunga-Tonga.
- Hiding below the waves is a massive volcano, around 1800m high and 20 kms wide.
- The Hunga-Tonga-Hunga-Ha'apai volcano has erupted regularly over the past few decades - 2009, 2014/15, etc.
- But these eruptions were small, dwarfed in scale by the January 2022 events.
- **Reason** - If magma rises into sea water slowly, a thin film of steam forms between the magma and water.
- This provides a layer of insulation to allow the outer surface of the magma to cool.
- But this process doesn't work when magma is blasted out of the ground full of volcanic gas.
- When magma enters the water rapidly, any steam layers are quickly disrupted, bringing hot magma in direct contact with cold water.
- This is called as **'fuel-coolant interaction'** and it is akin to weapons-grade chemical explosions.
- Extremely violent blasts tear the magma apart.
- A chain reaction begins, with new magma fragments exposing fresh hot interior surfaces to water, and the explosions repeat.
- This ultimately jets out volcanic particles and causes blasts with supersonic speeds.

Severity

- The 2014/15 eruption created a volcanic cone, joining the two old Hunga islands to create a combined island about 5km long.
- Mapping the sea floor, a ‘caldera’ 150m below the waves was discovered.
- The caldera is a crater-like depression around 5km across.
- Small eruptions (such as in 2009 and 2014/15) occur mainly at the edge of the caldera, but very big ones come from the caldera itself.
- These big eruptions are so large the top of the erupting magma collapses inward, deepening the caldera.

Big caldera eruptions occur about every 1000 years, with the last one at AD1100. With this knowledge, the eruption on January 15 seems to be right on schedule for a ‘big one’.



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