



India State of Forest Report-2021

For Prelims: India State of Forest Report-2021, Forest (Conservation) Act, 1980

For Mains: India State of Forest Report-2021, Need to improve the forest cover in the country, Related challenges, Initiatives taken to improve Forest Cover

Why in News

Recently, the **Union Ministry of Environment, Forests and Climate Change (MoEFCC)** released the India State of Forest Report-2021.

In October, 2021 an amendment was proposed by MoEFCC to the [**Forest \(Conservation\) Act, 1980**](#) to bring significant changes to forest governance in India.

II

Key Points

- **About:**

- It is an assessment of **India's forest and tree cover**, published every two years by the Forest Survey of India.
- The first survey was published in 1987, and ISFR 2021 is the 17th.
- India is **one of the few countries in the world** that brings out such a survey every two years, and this is widely **considered comprehensive and robust**.
- The ISFR is used in **planning and formulation of policies** in forest management as well as forestry and agroforestry sectors.
- Three categories of forests are surveyed – **very dense forests** (canopy density over 70%), **moderately dense forests** (40-70%) and **open forests** (10-40%).
- Scrubs (canopy density less than 10%) are also surveyed but not categorised as forests.

▪ **New Features of ISFR 2021:**

- It has for the **first time assessed forest cover in tiger reserves, tiger corridors** and the [**Gir forest**](#) which houses the [**Asiatic lion**](#).
- The forest cover in tiger corridors has increased by **37.15 sq km (0.32%) between 2011-2021**, but decreased by 22.6 sq km (0.04%) in tiger reserves.
- Forest cover has increased in 20 tiger reserves in these 10 years, and decreased in 32.
- **Buxa (West Bengal), Anamalai (Tamil Nadu) and Indravati reserves (Chhattisgarh)** have shown an **increase in forest cover** while the **highest losses** have been found in **Kawal (Telangana), Bhadra (Karnataka) and the Sunderbans reserves (West Bengal)**.
- [**Pakke Tiger Reserve**](#) in Arunachal Pradesh has the **highest forest cover**, at nearly 97%.

▪ **Findings of the Report:**

- **Increment in Area:**
 - The **forest and tree cover in the country continues to increase** with an additional cover of 1,540 square kilometres over the past two years.
 - India's forest cover is now **7,13,789 square kilometres, 21.71%** of the country's geographical area, an increase from **21.67% in 2019**.
 - Tree cover has increased by 721 sq km.
 - Tree cover is defined as all tree patches of size less than one hectare occurring outside the **recorded forest area**. This covers trees in all formations including scattered trees.
- **Increase/Decrease in Forests:**
 - The states that have shown the highest increase in forest cover are **Telangana (3.07%), Andhra Pradesh (2.22%) and Odisha (1.04%)**.
 - Five states in the Northeast – **Arunachal Pradesh, Manipur, Meghalaya, Mizoram and Nagaland** have all **shown loss in forest cover**.
- **States with Highest Forest Area/Cover:**
 - **Area-wise: Madhya Pradesh has the largest forest cover** in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
 - **In terms of forest cover as percentage of total geographical area, the top five States are** Mizoram, Arunachal Pradesh, Meghalaya, Manipur and Nagaland.
 - The term '**forest area**' denotes the **legal status of the land** as per the government records, whereas the term '**forest cover**' indicates **presence of trees over any land**.
- **Mangroves:**
 - [**Mangroves**](#) have shown an increase of 17 sq km. India's total mangrove cover is now 4,992 sq km.
- **Forest Prone to Fires:**
 - 35.46% of the forest cover is prone to [**forest fires**](#). Out of this, 2.81% is extremely prone, 7.85% is very highly prone and 11.51% is highly prone.
 - By 2030, **45-64% of forests** in India will experience the effects of [**climate change**](#) and rising temperatures.
 - Forests in all states (except Assam, Meghalaya, Tripura and Nagaland) will be highly vulnerable climate hot spots. Ladakh (forest cover 0.1-0.2%) is likely to be the most affected.
- **Total Carbon Stock:**
 - The total **carbon stock** in the country's forests is estimated at 7,204 million tonnes, an increase of 79.4 million tonnes since 2019.

- Forest carbon stock is the **amount of carbon that has been sequestered from the atmosphere** and is now stored within the forest ecosystem, mainly within living biomass and soil, and to a lesser extent also in dead wood and litter.

- **Bamboo Forests:**

- Bamboo forests have grown from 13,882 million culms (stems) in 2019 to 53,336 million culms in 2021.

- **Concerns:**

- **Decline in Natural Forests:**

- There is a **1,582 sq km decline in moderately dense forests**, or “natural forests”.
 - The decline, in conjunction with an increase of 2,621 sq km in open forest areas – shows a degradation of forests in the country.
 - Also, scrub area has increased by 5,320 sq km – indicating the complete degradation of forests in these areas.
 - Very dense forests have increased by 501 sq km.

- **Decline in Northeast Forest Cover:**

- The forest cover in the region has shown an overall decline of 1,020 sq km in forest cover.
- The Northeast states account for **7.98% of total geographical area but 23.75% of total forest cover**.
- The decline in the Northeastern states has been attributed to a spate of natural calamities, particularly **landslides and heavy rains**, in the region as well as to anthropogenic activities such as **shifting agriculture, pressure of developmental activities and felling of trees**.

Governments Initiatives

- **National Mission for a Green India:**

- It is one of the eight Missions under the [**National Action Plan on Climate Change \(NAPCC\)**](#).
- It was launched in February, 2014 with the objective to safeguard the biological resources of our nation and associated livelihoods against the peril of adverse [**climate change**](#) and to recognise the vital impact of forestry on ecological sustainability, biodiversity conservation and food-, water- and livelihood-security.

- [**National Afforestation Programme \(NAP\):**](#)

- It has been implemented since 2000 for the afforestation of degraded forest lands.
- It is being implemented by the MoEFCC.

- [**Compensatory Afforestation Fund Management and Planning Authority, \(CAMPA Funds\):**](#)

- Launched in 2016, 90% of the fund is to be given to the states while 10% is to be retained by the Centre.
- The funds can be used for treatment of catchment areas, assisted natural regeneration, forest management, wildlife protection and management, relocation of villages from protected areas, managing human-wildlife conflicts, training and awareness generation, supply of wood saving devices and allied activities.

- **National Action Programme to Combat Desertification:**

- It was prepared in 2001 to address issues of increasing [**desertification**](#) and to take appropriate actions.
- It is implemented by the Ministry of Environment, Forest and Climate Change.

- [**Forest Fire Prevention & Management Scheme \(FFPM\):**](#)

- It is the **only centrally funded program** specifically dedicated to assist the states in dealing with forest fires.

NATO-Russia Council Talks

For Prelims: NATO , NATO-Russia Council, European Union (EU), Rome Declaration.

For Mains: Russia-Ukraine Crisis, NATO, NATO-Russia Dynamics.

Why in News

Recently, the **North Atlantic Treaty Organisation (NATO)** and Russia discussed the ongoing **situation in Ukraine** and its implications for security in Europe at the **NATO-Russia Council (NRC)** in Brussels.

- Talks between representatives of NATO and Russia **concluded without a clear outcome.**

Key Points

- **NATO-Russia Council:**
 - NRC was established at the **NATO-Russia Summit in Rome (Rome Declaration) on 28 May 2002.**
 - It replaced the **Permanent Joint Council (PJC)**, a forum for consultation and cooperation **created by the 1997 NATO-Russia Founding Act** on Mutual Relations.
 - The NRC is a mechanism for **consultation, consensus-building, cooperation, joint decision and joint action, in which the individual NATO member states and Russia work as equal partners** on a wide spectrum of security issues of common interest.
- **Highlights of the Meet:**
 - NATO **rejected Russia's demand for a new security settlement** in Europe, challenging Russia to **withdraw troops deployed near Ukraine and join talks** on reducing the threat of open conflict.
 - For the US and EU, **Ukraine acts as a significant buffer with Russia**. Ukraine is also building a naval base in Ochakiv and another in Berdyansk, which Russia is not happy about.
 - The **Western allies received no promise that Russia will stand down its forces** — which Moscow insists pose no threat to its already partially occupied neighbour — despite the threat of economic sanctions.
 - Russia demanded not to admit any more members into NATO and to withdraw western forces from its Eastern Allies. It also warned that the **continued deterioration could lead to the "most unpredictable and most dire consequences for European security."**
 - There are significant **differences between NATO allies and Russia** which will not be easy to bridge.
- **India's Stance over Russia Ukraine Crisis:**
 - India did not join the **Western powers' condemnation of Russia's intervention in Crimea and kept a low profile** on the issue.
 - In November 2020, **India voted against a Ukraine-sponsored resolution** in the **United Nations (UN)** that condemned alleged human rights violations in Crimea thereby backing old ally Russia on the issue.

North Atlantic Treaty Organisation

- It is a **military alliance established by the North Atlantic Treaty (also called the Washington Treaty) of April, 1949**, by the United States, Canada, and several Western European nations to **provide collective security against the Soviet Union**.

- A key provision of the treaty, the **so-called Article 5, states that if one member of the alliance is attacked in Europe or North America, it is to be considered an attack on all members.** That effectively put Western Europe under the "nuclear umbrella" of the US.
- As of 2019, there **are 29 member states, with Montenegro becoming the latest member** to join the alliance in 2017.



Way Forward

- A practical solution for the situation is **to revive the Minsk peace process**. Therefore the **West (US and Other western Countries) should push both sides to resume talks and live up to their commitments** as per the Minsk agreement to restore relative peace on the border.
- The **US should also seek agreement from all parties** to engage more directly in an **OSCE-mediated process to stem the ongoing damage** to European security, the deepening human

and economic costs, and the threat to Ukraine's sovereignty.

Source: IE

NEAT Initiative

For Prelims: NEAT Scheme, All India Council for Technical Education (AICTE)

For Mains: Edtech, National Education Policy (NEP) 2020, Artificial Intelligence, Digital Divide

Why in News

Recently, the **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**.

Key Points

- **Model of NEAT Scheme:** It is based on a [**Public-Private Partnership model**](#) between the Government and the **Education Technology (Ed-Tech) companies of India**.
- **Objective:** The objectives of NEAT are to bring the best technological solutions in education pedagogy on **a single platform for the convenience of Economically and Socially weaker sections of society**.
- **Target Areas:** Technology solutions using [**Artificial Intelligence**](#) for customized learning or e-content in niche areas having highly employable skills are being identified for showcasing on the portal.
- **Modus Operandi:** Under this, the government plans to **distribute free coupons** for an array of courses offered by ed-tech companies.
- **Implementing Agency:** All India Council for Technical Education (AICTE).

All India Council for Technical Education (AICTE)

- It was set up in November 1945 as a **national-level apex advisory body**.
- Its purpose was to conduct a survey on the facilities available for technical education and to promote development in the country in a coordinated and integrated manner.
- According to the **National Policy of Education (1986)**, AICTE is vested with:
 - Statutory authority for planning, formulation, and maintenance of norms & standards,
 - Quality assurance through accreditation,
 - Funding in priority areas, monitoring, and evaluation,
 - Maintaining parity of certification & awards,
 - The management of technical education in the country.

Ed-Tech

- **About:** Edtech is the practice of introducing **IT tools into the classroom** to create a more engaging, inclusive and individualized learning experience.
- **Intended Benefits of Ed-Tech:** Technology holds promise and has incredible potential. It can help in:
 - Enabling greater personalisation of education

- Enhancing educational productivity by improving rates of learning,
 - Reducing costs of instructional material and service delivery at scale
 - Better utilisation of teacher/instructor time.
- **National Education Policy 2020:** India's new [**National Education Policy \(NEP\) 2020**](#) is responsive to the clarion call to integrate technology at every level of instruction.
 - It envisions the establishment of an autonomous body, the **National Education Technology Forum (NETF)**, to spearhead efforts towards providing a strategic thrust to the deployment and use of technology.
 - **Scope:** The Indian ed-tech ecosystem has a lot of potential for innovation.
 - With over 4,500 start-ups and a current valuation of around **USD 700 million**, the market is geared for exponential growth — estimates project an astounding market size of **USD 30 billion in the next 10 years**.
 - **Associated Issues With Ed-Tech:**
 - **Lack of Technology Access:** Not everyone who can afford to go to school can afford to have phones, computers, or even a quality internet connection for attending classes online.
 - According to National Sample Survey data for 2017-18, only **42% of urban and 15% of rural households** had internet access.
 - In this case, Ed-tech can increase the already existing digital divide.
 - **Contradiction with Right to Education:** Technology is not affordable to all, shifting towards online education completely is like taking away the [**Right to Education**](#) of those who cannot access the technology.
 - **Related Steps Taken:**
 - [**Digital Infrastructure for Knowledge Sharing**](#) (DIKSHA).
 - [**PM eVidya**](#).
 - Swayam Prabha TV Channel
 - [**SWAYAM portal**](#)

Way Forward

- **Comprehensive Ed-tech Policy:** A comprehensive **Ed-tech policy** architecture must focus on four key elements-
 - Providing **access to learning, especially to disadvantaged groups**.
 - Enabling **processes of teaching, learning, and evaluation**.
 - **Facilitating teacher training** and continuous professional development.
 - Improving governance systems including planning, management, and monitoring processes.
- **Technology is a Tool, Not a Panacea:** Public educational institutions play an exemplary role in social inclusion and relative equality.
 - It is the place where people of all genders, classes, castes, and communities can meet without one group being forced to bow to others.
 - Therefore, technology cannot substitute schools or replace teachers. Thus, it **should not be “teachers versus technology” rather “teachers and technology”**.
- **Providing Infrastructure for Ed-Tech:** In the immediate term, there must be a mechanism to thoroughly map the ed-tech landscape, especially their scale, reach, and impact.
 - The focus should be on access, equity, infrastructure, governance, and quality-related outcomes and challenges for teachers and students.
 - Special attention must be paid to address the digital divide at two levels — access and skills to effectively use technology and leverage its benefits.

[**Source: IE**](#)

New ISRO Chairman S. Somanath

For Prelims: Indian Space Research Organisation (ISRO), Gaganyaan Mission, Small Satellite Launch Vehicle (SSLV), National Space Transportation Policy (NSTP), IN-SPACE, NewSpace India Limited (NSIL), Indian Space Association (ISPA)

For Mains: ISRO and its achievements, current issues with ISRO, Need of the domestic space law, Steps taken for Space Revolution

Why in News

Recently, S. Somanath, an eminent rocket scientist has been appointed as the **Chairman of the Indian Space Research Organisation (ISRO)** and the Space Secretary.

Major Contribution of Dr. Somanath

- He has played a major role in the development of the **Polar Satellite Launch Vehicle (PSLV)** and the **Geosynchronous Satellite Launch Vehicle Mk-III (GSLV Mk-III)**.
- He joined the **GSLV Mk-III** project in 2003, and served as Project Director from 2010 to 2014.
 - He is an expert in the area of system engineering of launch vehicles.
- Later on, he contributed to the development of the indigenous **cryogenic stages for the GSLV**.

Key Points

- **ISRO:**
 - It is the pioneer space exploration agency of India, headquartered at Bengaluru.
 - ISRO was formed in 1969 with a vision to develop and harness space technology in national development, while pursuing planetary exploration and space science research.
 - ISRO replaced its predecessor, **INCOSPAR (Indian National Committee for Space Research)**, established in 1962 by India's first Prime Minister Pt. Jawaharlal Nehru and scientist Vikram Sarabhai, considered amongst the founding fathers of the Indian space program.
- **Achievements of ISRO:**
 - The **first Indian satellite, Aryabhata**, was built by the ISRO and launched with the help of the Soviet Union on 19th April **1975**.
 - The **year 1980** marked the **launch of Rohini**, which was the first satellite to be successfully placed in orbit by **SLV-3, an Indian made launch vehicle**.
 - Subsequently with more efforts, two other rockets were developed by ISRO: **the PSLV (Polar Satellite Launch Vehicle)** for placing satellites into polar orbits and the **GSLV (Geosynchronous Satellite Launch Vehicle)** for placing satellites into geostationary orbits.
 - Both the rockets have successfully launched several earth observation and communication satellites for India as well as other countries.
 - Indigenous satellite navigation systems like **IRNSS** and **GAGAN** have also been deployed.
 - **Indian Regional Navigation Satellite System** is designed to provide accurate position information service to assist in the navigation of ships in the Indian Ocean waters.
 - **GAGAN** is India's **first satellite-based global positioning system** that relies on ISRO's GSAT satellites.
 - In January 2014, ISRO used an **indigenously built cryogenic engine** for a GSLV-D5 launch of the GSAT-14 satellite making it one of the only six countries in the world to develop a cryogenic technology.
 - Some remarkable space probes of ISRO include **Chandrayaan-1** lunar orbiter, **Mars Orbiter Mission (Mangalyaan-1)** and **ASTROSAT space observatory**.
 - The success of the **Mars Orbiter Mission** made India **only the fourth country in**

the world to reach Martian orbit.

- India launched [**Chandrayaan-2**](#), its second lunar exploration mission after Chandrayaan-1 on 22nd July 2019.

- **Major ISRO achievements of 2021:**

- [**Amazonia-1:**](#)

- The 53rd flight of PSLV-C51 marked the first dedicated mission for [**New Space India Ltd \(NSIL\)**](#), the commercial arm of ISRO.
 - Amazonia-1, the optical [**earth observation satellite**](#) of National Institute for Space Research (INPE), would provide remote sensing data to users for monitoring deforestation in the Amazon region and analysis of diversified agriculture across the Brazilian territory.

- [**UNITYsat \(three satellites\):**](#)

- They have been deployed to provide **Radio relay services**.

- [**SDSAT:**](#)

- Satish Dhawan Satellite (SDSAT) is a **nano satellite** intended to study the radiation levels/space weather and demonstrate long range communication technologies.

- **Upcoming Missions:**

- [**Gaganyaan Mission**](#): India's maiden space mission, Gaganyaan, will be launched in 2023.

- [**Chandrayaan-3 Mission**](#): Chandrayaan-3 is likely to be launched during the third quarter of 2022.

- [**Three Earth Observation Satellites \(EOSSs\):**](#)

- **EOS-4 (Risat-1A) and EOS-6 (Oceansat-3)** — will be launched using Isro's workhorse PSLV, the third one, **EOS-2 (Microsat)**, will be launched in the first developmental flight of the [**Small Satellite Launch Vehicle \(SSLV\)**](#).
 - These satellites will be launched in the **first quarter of 2022**.

- [**Other:**](#)

- **Shukrayaan Mission**: The ISRO is also planning a mission to Venus, tentatively called Shukrayaan.
 - [**Own Space Station**](#): India is planning to **launch its own space station by 2030**, joining the league of US, Russia, and China to an elite space club.

- **Challenges for ISRO:**

- [**Mere contribution in Global Space Economy:**](#)

- India accounts for **only 2% of the global space economy**.
 - The two key reasons for the same are **lack of space specific laws and effective monopoly enjoyed by ISRO** over all space-related activities.

- [**International Treaties:**](#)

- India's current space activities are currently governed by a few international treaties along with two national policies which are **Satellite Communication Policy (SATCOM)** and **Remote Sensing Data Policy (RSDP)**.
 - SATCOM policy was introduced in 1997 and is aimed at developing the space and satellite communications industry within India.
 - In 2000, norms for the implementation of the 1997 policy were introduced.
 - The RSDP was introduced in 2001 and revised in 2011.
 - It lays down clear guidelines for the distribution of satellite remote sensing data within India and states that the GOI is the exclusive owner of all data received from Indian Remote Sensing Satellites (IRS) to which private entities can only acquire a license through the nodal agency.

- [**Not having Domestic Space Law:**](#)

- Up until recently, the **need for a domestic space law was not felt** as space was seen more of an international issue rather than a domestic one.
 - Furthermore, the **private sector has only recently shown willingness** to invest and play a bigger role in India's space sector after realising the potential of commercial space activity.

- **Steps taken for Space Revolution:**

- [**National Space Transportation Policy \(NSTP\)**](#)
 - [**IN-SPACE**](#)
 - [**NewSpace India Limited \(NSIL\)**](#)

- [Indian Space Association \(ISPA\)](#)

Way Forward

- Activities such as asteroid mining, Earth observation, space tourism, satellite launches, deep space exploration, and satellite internet will be the drivers of the new space economy.
- With its mixture of **cost-effective technology**, budding start-up culture, abundance of youth, technological know-how, and with ISRO already acting as a springboard, India has the potential to become a world leader in the global space economy.
- The government **need only be careful while framing the domestic space law** as it has the **potential to change India's future for better or for worse**.

[Source:TH](#)

India- UK Free Trade Agreement

For Prelims: Free Trade Agreement (FTA), G20 countries, Regional Comprehensive Economic Partnership deal, World Trade Organisation.

For Mains: India-UK Free Trade Agreement and its significance for India, Free Trade Agreements,

Why in News

Recently, India and the UK have launched the formal [Free Trade Agreement \(FTA\)](#) negotiations, that both countries envisage **concluding by the end of 2022**.

- Until then, both countries are contemplating an **interim free trade area**, which will result in **reducing tariffs on most of the items**.



Key Points

▪ About the Agreement:

- Both countries agreed to an **early harvest scheme or a limited trade agreement to lower tariffs** on a small set of goods apart from easing rules for select services.
- Further, they agreed to avoid "**sensitive issues**" and focus on areas where there is more complementarity.
 - The **agriculture and dairy sectors** are considered sensitive sectors for India in trade talks.
- Also, a target of **doubling the trade between India and the United Kingdom (UK) by 2030** has also been set.

▪ Free Trade Agreement (FTA):

- It is a **pact between two or more nations to reduce barriers to imports and exports** among them.
- Under a free trade policy, **goods and services can be bought and sold across international borders with little or no government tariffs**, quotas, subsidies, or prohibitions to inhibit their exchange.
- The concept of free trade is the opposite of trade protectionism or economic isolationism.
- FTAs can be categorised as Preferential Trade Agreement, [Comprehensive Economic Cooperation Agreement](#), [Comprehensive Economic Partnership Agreement \(CEPA\)](#).

India-UK Trade Relations

▪ About:

- India and the UK are vibrant democracies, with a **partnership built on our shared history and rich culture**.
- The diverse **Indian diaspora in the UK, which acts as a "Living Bridge"**, adds further dynamism to the relations between the two countries.

- The UK is one of the largest investors in India, among the [G20 countries](#).
- **Significance of FTA between India & the UK:**
 - **Increasing Exports of Goods:** Trade deals with the UK could boost exports for large job-creating sectors such as [textiles](#), leather goods, and footwear.
 - India is also expected to register a **quantum jump in the export of Marine Products** through the recognition of 56 marine units of India.
 - **Mutual Recognition Agreements (MRAs)** on Pharma could provide additional market access.
 - **Clarity on Services Trade:** The FTA is **expected to provide certainty, predictability and transparency** and will create a more liberal, facilitative and competitive services regime.
 - There is also great potential for increasing exports in service sectors like IT/ITES, Nursing, education, healthcare, including [AYUSH](#) and audio-visual services.
 - Visa restrictions have been a key issue for India to boost services trade.
 - **Exit from RCEP:** India opted out of the [Regional Comprehensive Economic Partnership deal](#) in November 2019.
 - Therefore, there is a renewed focus on trade deals with the US, the European Union and the UK, which are key markets for Indian exporters and are keen to diversify their sourcing.
 - **Strategic Advantage:** The UK is a permanent member of the UN Security Council, and one of the strategic partners of India.
 - Strengthening bonds with the trade would seek UKs support at global issues like [standoff with China](#) in the Ladakh sector of the [Line of Actual Control \(LAC\)](#) and [claim for permanent seat at UNSC](#).
- **Associated Challenges:**
 - **Delays in Signing FTAs:** **Interim agreements**, which reduce tariffs on some products, can however in some cases **lead to significant delays in achieving comprehensive FTAs**.
 - India, in 2004, signed an interim trade agreement with Thailand to reduce tariffs on 84 goods, but the agreement was never converted to a full-fledged FTA.
 - **WTO Challenges:** Interim FTA do not graduate into full FTAs can also face challenges from other countries at the [World Trade Organization\(WTO\)](#).
 - The **WTO rules only permit members to give preferential terms** to other countries if they have bilateral agreements that cover “substantially all the trade” between them.

Way Forward

- India is one of the **fastest-growing large economies** of the world and FTA with the UK has played a significant role in enhancing the trade volume of the country.
- However, according to policymakers, FTAs signed by India with the UK have not brought the expected tangible benefits and, on the contrary, have hurt the country's manufacturing sector due to liberal rules of origin.
- Therefore, there is a need for a **detailed assessment of FTAs in terms of goods, services and investment flows by all the stakeholders involved**.

[Source: IE](#)

Assam-Meghalaya Border Dispute

For Prelims: Assam-Meghalaya border dispute, Article 263 of the Constitution

For Mains: Interstate-border disputes and related issues and way ahead

Why in News

Ahead of [Meghalaya's 50th Statehood Day celebration on 21st January](#), the Home Minister is expected to seal the **final agreement to end the dispute** in six areas of the **Assam-Meghalaya boundary**.



Key Points

▪ About:

- Assam and Meghalaya share an **885-km-long border**. As of now, there are **12 points of dispute along their borders**.
- The Assam-Meghalaya border dispute areas are the areas of Upper Tarabari, Gazang reserve forest, Hahim, Langpih, Borduar, Boklapara, Nongwah, Matamur, Khanapara-Pilangkata, Deshdemoreah Block I and Block II, Khanduli and Retacherra.
- Meghalaya was carved out of Assam under the **Assam Reorganisation Act, 1971**, a law that it challenged, leading to disputes.

▪ Major Point of Contention:

- A major point of contention between Assam and Meghalaya is the **district of Langpih in West Garo Hills** bordering the Kamrup district of Assam.
- Langpih was part of the Kamrup district during the British colonial period but post-Independence, it became part of the **Garo Hills** and Meghalaya.
 - Assam considers it to be part of the **Mikir Hills in Assam**.
 - Meghalaya has questioned Blocks I and II of the Mikir Hills -now Karbi Anglong region - being part of Assam. Meghalaya says these were parts of erstwhile United Khasi and Jaintia Hills districts.

▪ Efforts to Resolve Disputes:

- Both Assam and Meghalaya have constituted **border dispute settlement committees**.
- It has been decided to set up **two regional committees to resolve the border disputes** in a phased manner and five aspects will be considered while resolving the border dispute.
 - They are historical facts, ethnicity, administrative convenience, mood and sentiments of the people concerned and the contiguity of the land.
- Six sites are in consideration in the first phase. These are Tarabari, Gijang, Hahim, Baklapara, Khanapara-Pilingkata and Ratacherra.
- These disputed areas are part of Cachar, Kamrup Metro and Kamrup Rural on Assam's side and West Khasi Hills, Ri Bhoi district and East Jaintia Hills on Meghalaya's side.

▪ Assam and Border Issues:

- The states of the **Northeast were largely carved out of Assam**, which has border

- disputes with several states.
- Assam's border disputes with **Arunachal Pradesh and Nagaland** are pending in the **Supreme Court**.
 - Assam's **border disputes with Mizoram** are currently in the phase of resolution through negotiations.
 - **Other Border Disputes between Different States:**
 - **Belagavi Border Dispute** (between Karnataka and Maharashtra)
 - **Odisha's Border Disputes**

Way Forward

- Boundary disputes between the states can be **settled by using satellite mapping of the actual border locations**.
- Reviving the **Inter-state council** can be an option for resolution of an Inter-state dispute.
 - Under **Article 263 of the Constitution**, the Inter-state council is expected to inquire and advise on disputes, discuss subjects common to all states and make recommendations for better policy coordination.
- Similarly, **Zonal councils need to be revived** to discuss the matters of common concern to states in each zone—matters relating to social and economic planning, border disputes, inter-state transport, etc.
- India is the epitome of unity in diversity. However, in order to strengthen this unity furthermore, **both the centre and state governments, need to imbibe the ethos of cooperative federalism**.

[Source: TH](#)

Fisheries Startup Grand Challenge

Why in News

Recently, the Department of Fisheries, Ministry of Fisheries, Animal Husbandry & Dairying In association with Startup India, the Ministry of Commerce and Industry inaugurated the **Fisheries Startup Grand Challenge**.

Key Points

- **About:**
 - The challenge has been **launched with an objective to provide a platform to start-ups** within the country to showcase their innovative solutions within the Fisheries and Aquaculture sector.
 - The **solutions should be devised for resolving issues across the fisheries value chain** for increasing aquaculture productivity from the **current national average of 3 tons to 5 tons per hectare**, doubling exports earnings and reducing post-harvest losses from 25% to 10%.
 - The challenge is **expected to foster start-up culture within the sector and to establish a strong foundation of the entrepreneurial model**, the Department of Fisheries has earmarked funds to the tune of Rs. 3.44 Crore for the challenge.
- **Related Initiatives:**
 - Establishment of **Fisheries and Aquaculture Infrastructure Development Fund (FIDF)** during 2018-19.
 - **Pradhan Mantri Matsya Sampada Yojana:** The programme aims to achieve 22 million

tonnes of fish production by 2024-25. Also, it is expected to create employment opportunities for 55 lakh people.

- **Blue Revolution:** Focuses on creating an enabling environment for integrated and holistic development and management of fisheries for the socio-economic development of the fishers and fish farmers.
- **Extension of Kisan Credit Card (KCC)** facilities to fishers and fish farmers to help them in meeting their working capital needs.
- **Marine Products Export Development Authority:** **MPEDA** is a nodal coordinating, state-owned agency engaged in fishery production and allied activities.
- **Marine Fisheries Bill:** The Bill proposes to only grant licenses to vessels registered under the Merchant Shipping Act, 1958, to fish in the **Exclusive Economic Zone (EEZ)**.
- **Seaweed Park:** Multipurpose **seaweed** park in Tamil Nadu would be the center of production for quality seaweed-based products, developed on a hub and spoke model.

Significance of the Fisheries Sector:

▪ About:

- The fisheries sector plays a **vital role in economic and overall development of the country**. Referred to as the **“sunrise sector”**, the fisheries sector is poised to bring in immense potential through equitable and inclusive growth.
- India is the **second major producer of fish through aquaculture in the world**.
- India is the **4th largest exporter of fish** in the world as it contributes **7.7% to the global fish production**.
- Currently, this sector **provides livelihood to more than 2.8 crore people** within the country. Nevertheless, this is a sector with untapped potential.
 - The **Economic Survey of India**, 2019-20 estimated that, only 58% of the country's inland potential has been tapped so far.

▪ Unrealised Potential:

- The unrealised potential of the fisheries sector **offers varied opportunities for bringing in scalable business solutions and maximizing the benefits** for the fishermen and fish farmers.
- Fisheries is **one of the fastest growing sectors amongst the primary producing sectors**.
- However, in order to realize the true potential of the fisheries sector, **technological breakthroughs are required** for enhancing production, productivity and efficiency of the fisheries' value chain.

Source: PIB

Solar Waste

For Prelims: Solar Waste and its examples , Related initiatives

For Mains: Management of Solar Waste in India and other parts of the World, Challenges Posed by Solar Waste, Suggestions, Related Initiatives.

Why in News

According to a report by the **National Solar Energy Federation of India (NSEFI)**, India could generate over 34,600 tonnes of cumulative **solar waste** in India by 2030.

- India does not have a solar waste management policy, but it does have ambitious **solar power installation targets**.
- NSEFI is an umbrella organisation of **all solar energy stakeholders of India**. Which works in the area of **policy advocacy and is a National Platform for addressing all issues connected with solar energy growth** in India.

Key Points

- **About:**
 - Solar wastes are the **electronic waste generated by discarded solar panels**. They are sold as scrap in the country.
 - It can increase **by at least four-five-fold by the next decade**. India should focus its attention on drafting comprehensive rules to deal with solar waste.
- **Report:**
 - It is likely that India will be faced **with solar waste problems by the end of this decade**, and solar waste will end up being the most prevalent form of waste in landfills soon.
 - Solar panels have a **life of 20-25 years, so the problem of waste seems distant**.
 - While **photovoltaics** generate only about **3 % of global electricity, they consume 40 % of the world's tellurium**, 15 % of the world's silver, a substantial chunk of **semiconductor**-grade quartz and lesser but still significant amounts of indium, zinc, tin and gallium.
 - The market value of raw materials recovered from solar panels **could reach USD 450 million by 2030**.
 - The value of **recoverable materials might surpass USD 15 billion by 2050**, which would be enough to power 630 GW with two billion solar panels.
 - Globally, it is expected that **End-of-Life (EoL) of solar panels will drive the solar panel recycling business** in the next 10-20 years.
- **Other Countries Handling Solar Waste:**
 - **European Union:**
 - The **Waste Electrical and Electronic Equipment (WEEE)** Directive of the [EU \(European Union\)](#) imposes responsibility for the **disposal of waste on the manufacturers or distributors** who introduce or install such equipment for the first time.
 - PV (Photovoltaic) **manufacturers are solely responsible for the collection, handling and treatment of modules** at the end of their lifecycle, according to the WEEE Directive.
 - **UK:**
 - The UK also has an **industry-managed “take-back and recycling scheme”**, where all PV producers will **need to register and submit data related to products** used for the residential solar market (Business-to-Consumer) and non-residential market.
 - **USA:**
 - While there are no federal statutes or regulations in the US that talk about recycling, **there are some states who have proactively defined policies to address end-of-life PV module management**.
 - Washington and California have come up with [**Extended Producer Responsibility \(EPR\) regulations**](#). Washington now requires **PV module manufacturers to finance the take-back and reuse or recycling of PV modules** sold within or into the state at no cost to the end-user.
 - **Australia:**
 - The federal government In Australia has acknowledged the concern and announced a USD 2 million grant as **part of the National Product Stewardship**

Investment Fund to develop and implement an industry-led product stewardship scheme for PV systems.

- **Japan and South Korea:**

- Countries such as Japan and South Korea have already indicated their resolve to come up with **dedicated legislation to address the PV waste problem.**

- **Recommendations:**

- **Strong e-waste or Renewable Energy Waste Laws:** EPR for the **manufacturer and developers to take responsibility for end-of-life the solar panel.**
 - PV modules were the first to be included in the EU's WEEE regulations. It includes options for financing waste management.
- **Infrastructure:** To bring down the cost of recycling infrastructure **investment is required, coordination between the energy and waste sector to efficiently handle the renewable energy waste** and build more recycling plants to avoid solar panels ending up in landfills.
- **Environmental Disposal and Recycling:** **Environmental disposal and recycling** of solar waste could be part of the power purchase agreement SECI / DISCOMS / government signs with project developers.
- **Ban on Landfills:** Solar panel waste is harmful to the environment as it contains toxic metals and minerals that may seep in the ground.
- **Business Incentives:** **New business models**, incentives or issues of green certificates to be provided to encourage the recycling industry to participate more.
- **Research and Development:** Innovation in design may have an impact on the type of waste they generate; technology advancements will be significant in reducing the impact of renewable energy waste. New panels, for example, use less silicon and produce less waste during the manufacturing process.

- **Related Indian Initiatives:**

- [**Draft EPR Notification: Plastic Packaging Waste.**](#)
- [**Plastic Waste Management Amendment Rules, 2021.**](#)
- [**E-Waste \(Management\) Rules, 2016.**](#)
- [**E-waste \(Management\) Amendment Rules, 2018.**](#)
- [**Central Pollution Control Board.**](#)

[**Source: DTE**](#)

Kathak

Why in News

Recently, the famous [**Kathak**](#) dancer **Pandit Munna Shukla** died.

- His most noted works include the dance-drama Shan-e-Mughal, Inder Sabha, Ameer Khusro, Anga Mukti, Anvesha, Bahar, Tratak, Kraunch Badh, Dhuni, among others.
- His contribution to the world of dance was awarded the [**Sangeet Natak Akademi Award**](#) (2006), [**Sahitya Kala Parishad Award**](#) (2003) and the [**Saraswathi Samman**](#) (2011).

THE ART OF STORYTELLING

Kathak is one of the eight forms of classical Indian dance, hailing from northern India. This dance originally focused on religious themes before it was adapted for the Mughal courts during the 16th century. Performed by courtesans, these themes were replaced with popular and secular folk stories to entertain the aristocracy.

EXPRESSIVE EYES

Facial movements were a key part of the kathak dance and prominent makeup was worn by the dancers to highlight their expressions as they enacted their stories. For example, they wore black kajal around their eyes as many of the facial movements focused on the eyes and eyebrows.

ORNATE JEWELLERY

The Mughal Empire was known for its stunning jewellery, so it's no surprise that kathak dancers were adorned with it, especially as jewellery helped to emphasise their movements. They typically wore pieces such as earrings, bracelets, armlets, necklaces and so on, which were made from gold or occasionally silver.

PERSIAN INFLUENCE

Kathak became heavily influenced by Persian dance and music during the Mughal Empire and this included the costumes that were worn. For example, dancers traditionally wore a transparent headscarf or veil, known as an odhani or orhni, which was typically worn by Persian women.

EYE-CATCHING COSTUME

Dancers wore trousers under their sheer skirts - known as churidar pajamas - in bright colours such as orange and red, which made them more noticeable. Not only did this hold the audience's attention, but it enabled them to see the deliberate and skilled movements of the kathak dancers.

FLOWING DRESS

During the Mughal era dancers wore an angrakha dress, which left the midriff visible and had a sheer skirt, allowing audiences to see their legs underneath. The skirt, influenced by the costumes of Sufi dancers, would flare out during the dance but was short enough that it would not get entangled in their feet.

PERCUSSIVE FOOTWORK

Ghungroos, anklets of small metallic bells strung together, were worn by dancers to highlight their intricate and rapid footwork to the music. They also complemented the complex and rhythmic step sequences, known as tatkars, and the sound of the bells engaged the senses of the audience.

Key Points

▪ About:

- The word Kathak has been derived from the **word Katha which means a story**. It is primarily performed in Northern India.
- It was primarily a temple or **village performance** wherein the **dancers narrated stories from ancient scriptures**. It is one of the **classical dances of India**.

▪ Evolution:

- Kathak began evolving into a distinct mode of dance in the **fifteenth and sixteenth centuries with the spread of the Bhakti movement**.
- The legends of Radha-Krishna were enacted in folk plays called **rasa lila**, which combined folk dance with the basic gestures of the kathak **story-tellers**.
- Under the **Mughal emperors and their nobles**, Kathak was performed in the court, where it acquired its present features and developed into a form of dance with a distinctive style.
- Under the patronage of **Wajid Ali Shah, the last Nawab of Awadh**, it grew into a major art form.

▪ Dance Style:

- Usually a solo performance, the dancer often pauses to recite verses followed by their **execution through movement**.
- The focus is more on footwork; the movements are skillfully controlled and performed **straight-legged** by dancers **wearing ankle-bells**.
- The **tatkaar** is the fundamental footwork in kathak.
- Kathak is the only form of classical dance wedded to Hindustani or North Indian music.
- Some prominent dancers include **Birju Maharaj, Sitara Devi**.

▪ Other Classical Dances in India

- **Bharatanatyam** from Tamil Nadu
- **Kathakali**, from Kerala.
- **Kuchipudi**, from Andhra Pradesh.
- **Odissi**, from Odisha.
- **Sattriya**, from Assam.
- **Manipuri**, from Manipur.
- **Mohiniyattam**, from Kerala.

Bhakti Movement

- The development of the **Bhakti movement** took place in **Tamil Nadu between the seventh and ninth centuries**.
- It was reflected in the **emotional poems of the Nayanars** (devotees of Shiva) and **Alvars** (devotees of Vishnu).
 - These saints looked upon religion not as a cold formal worship but as a loving bond based upon love between the worshipped and worshipper.
- They wrote in local languages, **Tamil and Telugu** and were therefore able to reach out to many people.
- In course of time, the **ideas of the South moved up to the North** but it was a very slow process.
- A more effective method for spreading the Bhakti ideology was the use of local **languages**. The Bhakti saints composed their verses in local languages.
- They also translated Sanskrit works to make them understandable to a wider audience. Examples include **Jnanadeva writing in Marathi, Kabir, Surdas and Tulsidas in Hindi, Shankaradeva popularising Assamese, Chaitanya and Chandidas spreading their message in Bengali, Mirabai in Hindi and Rajasthani**.

Source: IE

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