



# Repealing Farm Laws

## Why in News

Recently, the Prime Minister announced the [repeal](#) of the [three contentious farm laws](#).

- The [Parliament](#) ( Lok Sabha + Rajya Sabha + President) has the authority to **enact, amend, and repeal any law**.
- The farm laws had witnessed [protests from farmers](#), mainly from Punjab and Haryana, on the borders of Delhi for more than a year.

## Key Points

- **Three Farm Laws:**
  - **Farmers Produce Trade and Commerce (Promotion and Facilitation) Act, 2020:** It is aimed at allowing trade in agricultural produce outside the existing [APMC \(Agricultural Produce Market Committee\)](#) mandis.
  - **Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020:** It seeks to provide a framework for contract farming.
  - **Essential Commodities (Amendment) Act, 2020:** It is aimed at removing commodities such as cereals, pulses, [oilseeds](#), [edible oils](#), onion and potato from the list of essential commodities.
- **Reason for Enacting the Laws:**
  - There has been a **long-pending demand** for reforms in agricultural marketing, a **subject that comes under the purview of state governments**.
  - The Centre **took the issue up in the early 2000s** by pushing for reforms in the APMC Acts of the states.
  - The Agriculture Ministry under the then government **designed a model APMC Act in 2003 and circulated it among the states**.
    - The subsequent government, too, pushed for these reforms. But given that it is a state subject, **the Centre has had little success in getting the states to adopt the model APMC Act**.
  - It was in this backdrop that the government went for reforms in the sector by passing these laws.
- **Reasons Behind Farmers Protest:**
  - **Repealing the farm laws:** The first and foremost demand of the protesting farmers' organisations is the **repeal of three new agricultural laws**.
    - As per the farmers the law is framed to **suit big corporations who seek to dominate the Indian food and agriculture business** and will **weaken the negotiating power of farmers**. Also, big private companies, exporters, wholesalers, and processors may get an edge.
  - **Minimum support price:** The second demand of farmers is the **guarantee of [Minimum Support Price \(MSP\)](#)** to ensure procurement of crops at a suitable price.

- The Farmers are also demanding to get a written assurance in the form of a Bill for the continuation of the MSP and conventional food grain procurement system.
- The Farmers' organisations want the APMC or the Mandi System to be protected.
- **Electricity (Amendment) Bill:** The third demand of farmers is the **withdrawal of the [Electricity \(Amendment\) Bill](#)**, as they feel that they won't get free electricity due to this.
- **Swaminathan Commission:** The Farmers are demanding MSP as recommended by the Swaminathan Commission.

- The **Swaminathan Commission Report states that the government should raise the MSP to at least 50%** more than the weighted average cost of production. It is also known as the C2+ 50% formula.
- It includes the imputed cost of capital and the rent on the land (called 'C2' ) to give farmers 50% returns.

#### ▪ **Staying the Implementation:**

- The [Supreme Court](#) stayed the implementation of the three laws in January 2021.
  - The **farm laws were in force for only 221 days** — June 5<sup>th</sup> 2020, when the ordinances were promulgated to January 12<sup>th</sup> 2021, when the Supreme Court stayed their implementation.
- Since the stay, the **laws have been suspended**. The government has used old provisions of the [Essential Commodities Act, 1955](#) to impose stock limits, having amended the Act through one of the three farm laws.

#### ▪ **Impacts of Repealing the Law:**

##### ◦ **Need of Consultation:**

- The repeal underlines that any future attempts to reform the rural agricultural economy would require a **much wider consultation**, not only for **better design of reforms, but for wider acceptance**.
- The repeal would leave the government hesitant about pursuing these reforms in stealth mode again.

- The government will doubtless have to walk the path of reform very cautiously.

##### ◦ **Low Farmers Income:**

- Given that the **average holding size stands at just 0.9 ha** (2018-19). Unless one goes for **high-value agriculture** — and, that's where one needs **efficient functioning value chains from farm to fork** by the infusion of private investments in logistics, storage, processing, [e-commerce](#), and digital technologies — the incomes of farmers cannot be increased significantly.
- There is no doubt that this **sector is crying for reforms**, both in the marketing of outputs as well as inputs, including land lease markets and direct benefit transfer of all input subsidies — **fertilisers, power, credit and farm machinery**.

##### ◦ **Negative Impact on Industries:**

- Industries including **logistics, cold chain, agri-related, and farm equipment would be impacted the most** because they were supposed to be the direct beneficiaries of these laws.

##### ◦ **Constant Agri-GDP:**

- The agri-[Gross Domestic Product \(GDP\)](#) growth has been **3.5% per annum in the last 14 years**. One expects this trend to continue — there might be minor changes in the agri-GDP depending on rainfall patterns.
- [Cropping patterns](#) will remain skewed in favour of rice and wheat, with the granaries of the [Food Corporation of India](#) bulging with stocks of grain. The food subsidy will keep bloating and there will be large leakages.

## Way Forward

- On a positive note, the tryst with the farm laws could provide important lessons to the government. The most important lesson being that **the process of economic reforms has to be more consultative, more transparent and better communicated** to the potential beneficiaries.
- It is this **inclusiveness that lies at the heart of democratic functioning of India**. It takes time and humility to implement reforms, given the argumentative nature of our society. But doing so ensures that everyone wins.

[Source: IE](#)

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## Threat to Gender Equality due to Covid-19: UNESCO Study

### Why in News

Recently [UNESCO](#) released a new study, 'when schools shut', exposing the gendered impact of [Covid-19](#) school closures on learning, health and well-being.

- It was released on the occasion of the 2021 **International Day of the Girl Child** (11<sup>th</sup> October).

### International Day of the Girl Child

#### ▪ History:

- In 1995, at the **World Conference on Women in Beijing**, the need for an event focused on young and vulnerable girls was identified.
- The initiative began as a **non-government international plan of action** to address the challenge faced by young women.
- A resolution to declare 11<sup>th</sup> October as the **International Day of the Girls Child** was adopted by the **UN General Assembly** in 2011.
- In 2020, this marked 25 years of the adoption of the **Beijing declaration**.

#### ▪ Aim:

- It is celebrated for **empowering and amplifying the voices of young girls** around the world.

#### ▪ Theme for 2021:

- **'Digital generation'. Our generation'**.

## Key Points

#### ▪ About the Study:

- The global study titled **"When schools shut: Gendered impacts of Covid-19 school closures"** brings to the fore that girls and boys, young women and men were affected differently by school closures, depending on the context.
- At the **peak of the Covid-19 pandemic**, 1.6 billion students in 190 countries were affected by school closures.

#### ▪ Areas of Gendered Impacts:

- **Household Demands:**

- In poorer contexts, **girls' time to learn was constrained by increased household chores**. Boys' participation in learning was limited by income-generating activities.
- **Digital Divide:**
  - Girls faced **difficulties in engaging in digital remote learning modalities** in many contexts because of limited access to internet-enabled devices, a lack of digital skills and cultural norms restricting their use of technological devices.
    - The study pointed out that **digital gender-divide was already a concern** before the Covid-19 crisis.
- **Rate of School Return:**
  - **Limited data available to date about school return rates** also show gender disparities.
    - A study conducted in four counties in Kenya found that 16 % of girls and 8 % of boys aged 15 to 19 failed to re-enrol during the two months following school reopening in early 2021.
- **Impact on Health:**
  - School closures have **impacted children's health**, notably their mental health, well-being and protection.
    - **Girls reported more stress, anxiety and depression** than boys in 15 countries across the world. LGBTQI learners reported high levels of isolation and anxiety.
- **Suggestions:**
  - **Factor Gender in Policies and Programmes:**
    - The study calls on the **education community to factor gender in policies and programmes to tackle declining participation** and low return-to-school rates in vulnerable communities, including through cash transfers and specific support to pregnant girls and adolescent mothers.
  - **Track Trends and Expand Interventions:**
    - Continued efforts are needed to **track trends and expand interventions to bring an end to [child marriages](#)** as well as early and forced marriages, practices which rob girls of their right to education and health and reduce their long-term prospects.
  - **No-Tech and Low-Tech Remote Learning Solutions:**
    - A strong **need for no-tech and low-tech remote learning solutions**, measures to enable schools to provide comprehensive psychosocial support and to monitor participation through sex-disaggregated data, among other necessary measures is needed.

[Source: TH](#)

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## USOF Scheme for Aspirational Districts in 5 states

### Why in News

Recently, the Union Cabinet has approved the **Universal Service Obligation Fund (USOF) scheme for provisioning of 4G-based mobile services in uncovered villages of [aspirational districts](#) across five states** — Andhra Pradesh, Chhattisgarh, Jharkhand, Maharashtra, and Odisha.

- **NITI Aayog's Aspirational Districts programme** aims to quickly and effectively transform 112 most under-developed districts across the country.

### Key Points

▪ **About:**

- It envisages to provide **4G based mobile services in the 7,287 uncovered villages of 44 Aspirational Districts across five States**. It would be **funded by the Universal Service Obligation Fund (USOF)**.
- It will **enhance digital connectivity** useful for self-reliance, facilitate learning, dissemination of information and knowledge, skill upgradation and development, disaster management, e-Governance initiatives, establishment of enterprises & e-commerce facilities, etc.
- It seeks to fulfill the vision of [Digital India](#) promoting domestic manufacturing and fulfilling the objectives of [Atmanirbhar Bharat](#) etc.

▪ **Universal Service Obligation Fund (USOF):**

◦ **About:**

- USOF ensures that there is **universal non-discriminatory access to quality ICT** (Information and Communications Technology) **services** at economically efficient prices **to people in rural and remote areas**.
- It was **created under the Ministry of Communications in 2002**.
- It is **a non-lapsable fund**, i.e., the unspent amount under a targeted financial year does not lapse and is accrued for next years' spending.
- All credits to this fund require parliamentary approval and it has statutory support under **Indian Telegraph (Amendment) Act, 2003**.

◦ **Objectives:**

- **Economic:** Network extension & stimulate uptake of the ICT services
- **Social:** Mainstreaming the underserved & un-served areas/groups by bridging the Access Gap.
- **Political:** to enable citizens exercise their political rights in an informed way and
- **Constitutional:** Equitable distribution of the fruits of the telecom/digital revolution and fair allocation of national resources (pooled USO levy) via targeted subsidies.

◦ **Significance:**

- The rural areas get the Village Public Telephones (VPTs), Rural Community Phones (RCPs), Rural Household Telephones (RDELs), and mobile infrastructure.
- With access to affordable telecom services in remote and rural areas it **can help stemming urban migration and ensure generating employment opportunities in the rural areas**.
- The increased awareness of ICT services in the rural areas and growing participation of the rural people **will help promote facilities related to health, education etc**.
- It can ensure the **growth of Rural Business Process Outsourcing (BPOs-Rural) and Rural Knowledge Process Outsourcing (KPOs-Rural)**.
- USOF is also perceived as the right tool **to extend the benefits of the government schemes** aimed at the social development of the rural population.

**Related Schemes**

- [BharatNet Project](#)
- [National Broadband Mission](#)
- [Submarine Cable Connectivity to Andaman and Nicobar Islands](#)
- [National Optical Fibre Network](#)
- [Digital India](#)
- [National Digital Communications Policy, 2018](#)

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# Great Ancient Kings: Alexander & Chandragupta

## Why in News

Recently, Uttar Pradesh Chief Minister said that [Chandragupta Maurya](#) had defeated [Alexander](#) and yet, it is the latter whom historians have chosen to call **great**.

- Alexander was referred to as great by early historians. Similarly in Indian history, 'great' has been used for the emperors **Ashoka, Rajaraja and Rajendra Chola, and Akbar**, among others.
- However, later historians have **moved their focus** away from the political triumphs of individual rulers **to the society, economy, art and architecture** of their times.

## Key Points

### ▪ Reason for Greatness of Kings:

#### ◦ Alexander:

- Because of his **stupendous military conquests** which amazed European writers and chroniclers of the ancient world.
- He had established, **before he turned 30 years of age, the largest empire** (323 B.C.) **the world had seen until then**, which stretched across modern western and central Asia all the way from Greece to India's northwestern frontier.

#### ◦ Chandragupta Maurya:

- He was the **architect of the Mauryan empire** (321 B.C - 185 B.C) **that controlled the plains of both the Indus and the Ganga**, and which stretched until the eastern and western oceans.

- With Pataliputra at its imperial centre, the **Mauryan Empire for the first time unified most of South Asia**.

- He **laid the foundations of an extensive and efficient system of centralised administration and tax-collection** that formed the bases of his empire.
- **Trade and agriculture were reformed and regulated** with the building of infrastructure and standardisation of weights and measures, and provisions were made for a large standing army.

#### ◦ Chola Emperors:

- The Chola emperors **Rajaraja I** (985-1014) and **Rajendra I** (1014-1044) built **strong navies** that conquered the Maldives, and reached Sri Lanka and several countries of Southeast Asia across the Bay of Bengal.

#### ◦ Ghenghis Khan & Others:

- Ghenghis Khan (1162-1227) stamped his **authority over a bigger swathe of Asia and Europe**, and other conquerors such as Tamerlane, Atilla the Hun, and Charlemagne, as well as Ashoka, Akbar, and Aurangzeb built their own very large empires.

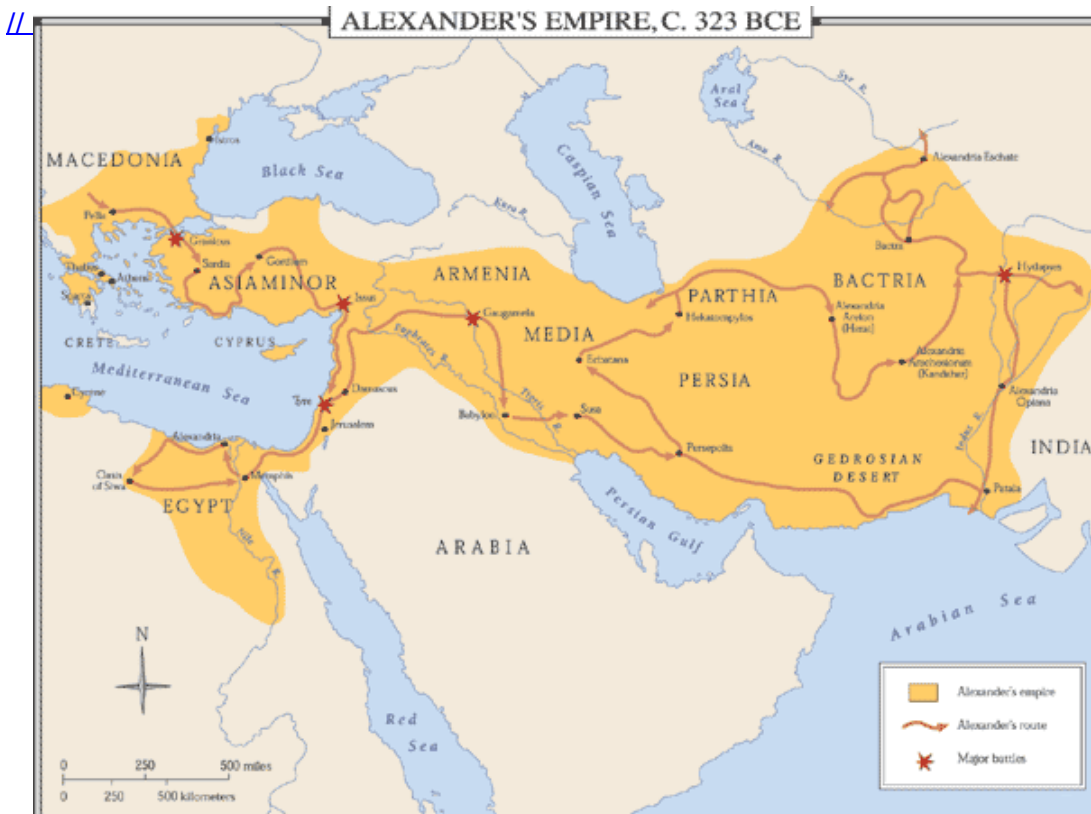
## Alexander (356-323 BC)

### ▪ About:

- Alexander was **born in 356 BC at Pella in ancient Greece**, and succeeded his father,

king Phillip II, to the throne at the age of 20.

- Over the next 10 years, Alexander led campaigns across large parts of West Asia and North Africa.
- In **330 BC, he defeated Darius III in the decisive battle of Gaugamela**, and after a long campaign in Bactria in the region of the Amu Darya north of today's Afghanistan, he crossed the Hindu Kush and entered the Kabul valley.



### ▪ Indian Campaign:

- In **326/327 BC, Alexander crossed the Indus**, the farthest frontier of the old Persian empire, and began his Indian campaign that lasted about two years.
- The king of Taxila surrendered to Alexander, but **beyond the Jhelum he was challenged by the legendary warrior** whom Greek sources have identified as **Porus**.
- In the **battle of Hydaspes** that followed, Alexander won, but following his famous interview with Porus — during which the wounded king is said to have demanded that the invading emperor treat him “as befits a king” — was impressed enough to return to the captive Porus his kingdom, and to **leave him in charge of Punjab when the Greek army ultimately retreated**.

### ▪ Retreat:

- After the defeat of Porus, Alexander wished to march on into the heartland of the Gangetic basin — but **upon reaching the Beas, the last of the five rivers of Punjab, his generals refused to go further**.
- Alexander was forced to turn back, and **he followed the Indus southward to its delta, where he sent part of his army to Mesopotamia by sea**, while leading the other part overland along the Makran coast.
- He reached Susa in Persia in 324 BC, and in the following year, died in the ancient city of Babylon, to the south of today's Baghdad.
- His aborted Indian campaign notwithstanding, **Alexander is believed to have died undefeated in any battle** — seemingly fulfilling the prophecies that he would conquer the entire world.
- At the time Alexander turned back from the threshold of India, his army was tired and

homesick, they had wearied of fighting in the heavy Indian monsoon, and it is possible they were **intimidated by stories of two great armies** that lay in wait for them ahead:

- That of the **Nandas of Magadha** (c. 362 BC-321 BC), comprising, according to Greek writers, at least 20,000 cavalry, 200,000 infantry, and 3,000 war elephants.
- And the **Gangaridai empire** corresponds to what is today West Bengal and parts of Bangladesh.

## Chandragupta and Alexander

- Historians estimate the year of **Chandragupta's rise to power in a band stretching from 324 BC to 313 BC**, however, it is generally accepted that he ascended the throne in 321 BC and died in 297 BC.
  - Even **accepting the least recent year for his accession would, however, place him after Alexander had left India** — and just before the Greek emperor's death in Babylon.
- Greek sources suggest that Chandragupta may have been in communication with Alexander during the latter's Indian campaign.
  - **A L Basham's The Wonder That Was India** notes that "classical sources speak of a young Indian named Sandrocottus — identical with the Chandragupta Maurya of Indian sources.
  - **Plutarch** states that **Sandrocottus advised Alexander to advance beyond the Beas and attack the Nanda emperor**, who was so unpopular that his people would rise in support of an invader.
  - The **Latin historian Justin adds that later Sandrocottus offended Alexander** by the boldness of his speech and after many adventures succeeded in expelling the Greek forces and gaining the throne of India.
  - Based on these accounts, **Basham** concluded that **"it is reasonable to believe that the emperor Chandragupta Maurya, who rose to power soon after Alexander's invasion, had at least heard of the conqueror, and perhaps derived inspiration from his exploits"**.

## Chandragupta

### ▪ About:

- Greek and Indian sources agree that **Chandragupta overthrew the unpopular last king of the Nandas, Dhana Nanda**, and occupied his capital, Pataliputra.
  - **Chandragupta** is said to have been a **protege of the Brahmin philosopher Kautilya** who, having been insulted by the Nanda king, bore a grudge against him.
  - **Chanakya, also known as Kautilya and Vishnugupta**, to whom is attributed the legendary Arthashastra, the pioneering Indian treatise on political science, statecraft, military strategy, and economy.
- Buddhist texts say **Chandragupta Maurya belonged to the kshatriya Moriya clan associated with the Shakyas**.
  - Brahmanical texts, however, refer to the **Mauryas as shudras and heretics**.
- **Guided by the guile and strategy of Kautilya** and by his own great military prowess, **Chandragupta went about fulfilling his imperial ambitions**.

### ▪ Movement to North-West:

- He moved north-west to occupy the power vacuum left by the retreat of Alexander's army.
- These areas fell to him rapidly, **until he reached the Indus. Here he paused as the Greek Seleucus Nicator** — the successor to Alexander — had fortified his hold on the area.
  - Consequently, "Chandragupta moved to central India for a while, but 305 BC saw



him back in the north-west, **involved in a campaign against Selucus**", in which he was successful.

- By the **peace treaty that was negotiated in 303 BC, some Seleucid territories that today would cover eastern Afghanistan, Balochistan, and Makran were ceded to the Maurya.**
- Some matrimonial alliances followed as well, and during the campaign and afterward, there was considerable **cultural contact between the Mauryans and the Greeks.**
- With the treaty of 303 BC, **the routes and nodal points of the north-west region shifted from Persian-Hellenistic to Mauryan control.**



[Source: IE](#)

## World Fisheries Day: 21st November

### Why in News

**World Fisheries Day (WFD)** is observed on the 21<sup>st</sup> November every year.

- The award ceremony was organised by the **ministry of fisheries, animal husbandry and dairying, in Bhubaneswar** on the occasion of WFD.
- Balasore district (Odisha) has been awarded India's **"Best Marine District"**.

### Key Points

- **WFD** is celebrated to **demonstrate solidarity with all fisherfolk, fish farmers and concerned stakeholders** throughout the world.
- It was started in the year 1997 when **"World Forum of Fish Harvesters & Fish Workers"** met at New Delhi leading to formation of **"World Fisheries Forum"** with representatives from 18 countries and signed a declaration advocating for a global mandate of sustainable fishing practices and policies.
- It is aimed at drawing attention to **overfishing, habitat destruction and other serious**

**threats** to the sustainability of marine and inland resources.

## Fisheries Sector

### ▪ About:

- Fishing is the capture of **aquatic organisms in marine, coastal and inland areas**.
- Marine and inland fisheries, together with aquaculture, provide food, nutrition and a source of **income to around 820 million people around the world**, from **harvesting, processing, marketing and distribution**. For many it also forms part of their traditional cultural identity.
- One of the greatest threats to the sustainability of global fishery resources is **illegal, unreported and unregulated fishing**.

### ▪ Indian Scenario:

- In 2019-20, with an overall production of 142 lakh tons, India produced 8% of the global share.
  - During the same time period, India's fisheries exports stood at Rs 46,662 crore, constituting about 18% of India's agricultural exports.
- India aims to **achieve a target of producing 22 million metric tonnes of fish by 2024-25**.
- The fisheries sector has witnessed **three major transformations in the last few years**:
  - The growth of **inland aquaculture, specifically freshwater aquaculture**.
  - The **mechanization** of capture fisheries.
  - The successful commencement of **brackish water shrimp aquaculture**.
- As compared to last year there has been a 34% increase in the budget for the fisheries sector in 2021-22.

### ▪ Significance of Fisheries for India:

- India is the **second major producer of fish** through aquaculture in the world.
- India is the **4<sup>th</sup> 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.
- Despite challenges pertaining to infrastructure, the measures by the Central government in the past six years ensured that the fisheries sector continued to register an **annual growth rate of more than 10 %**.

### ▪ Challenges for Fisheries sector:

- The [Food and Agriculture Organization \(FAO\)](#) points out that nearly 90% of the global marine fish stocks have either been fully exploited or overfished or depleted to the extent that recovery may not be biologically possible.
- Discharge of harmful substances like plastics and other waste into water bodies that cause devastating consequences for aquatic life.
  - [Changing climate](#).

### ▪ Government's Effort to Improve Fisheries:

#### ◦ Fishing Harbours:

- The development of **five major Fishing Harbours** (Kochi, Chennai, Visakhapatnam, Paradip, Petuaghat) as hubs of economic activity.

#### ◦ 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.

- **Pradhan Mantri Matsya Sampada Yojana:**

- It strives to create direct employment to 15 lakh fishers, fish farmers, etc. and about thrice this number as indirect employment opportunities.
- It also aims to double the incomes of fishers, fish farmers and fish workers by 2024.

- **Palk Bay Scheme:**

- The Scheme, “Diversification Of Trawl Fishing Boats From Palk Straits Into Deep Sea Fishing Boats”, was launched in 2017 as a **Centrally Sponsored Scheme**. It was launched as part of the umbrella **Blue Revolution Scheme**.

- **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)**.

- **Fisheries and Aquaculture Infrastructure Development Fund (FIDF):**

- FIDF is created to attract private investment in creation and management of fisheries infrastructure facilities.

- **Kisan Credit Card (KCC):**

- The Kisan Credit Card (KCC) scheme was introduced in 1998 for providing adequate and timely credit support from the banking system under a single window with flexible and simplified procedure to the farmers for their cultivation and other needs like purchase of agriculture inputs such as seeds, fertilizers, pesticides etc. and draw cash for their production needs.

- **Marine Products Export Development Authority:**

- MPEDA is a nodal coordinating, state-owned agency engaged in fishery production and allied activities.
- It was established in 1972 under the Marine Products Export Development Authority Act (MPEDA), 1972.

## Way Forward

- States need **to be inspired by each other and explore options to grow** in the marine sector.
- There is **a need to come up with environment friendly fishing** and also look for sustaining the sector while continuing the consumption.
- India needs to develop more scientifically its fishing system and other related aspects such as freezing, packaging, etc.

**Source: PIB**

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## Amazon Deforestation

### Why in News

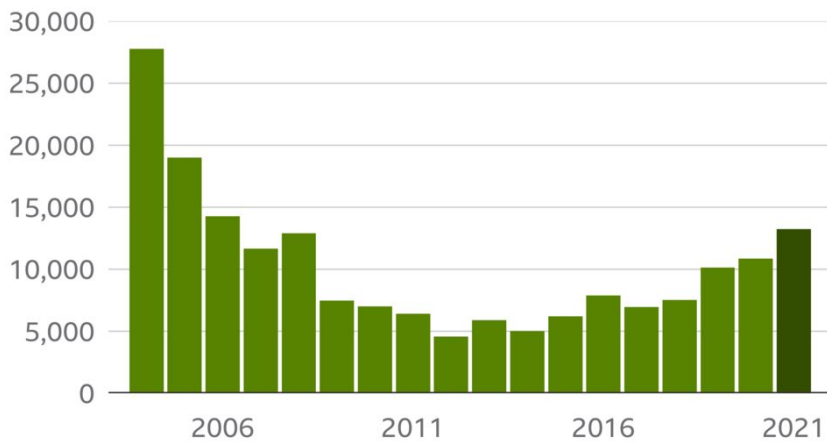
Recently, it was found that the **area deforested in Brazil's Amazon** reached a 15-year high after a 22% jump from the prior year (2020).

- Earlier, a study showed that **Amazon Forests have started emitting Carbon dioxide (CO<sub>2</sub>)** instead of absorbing it.
- Over time, global climate change and more deforestation will likely **lead to increased**

**temperatures and changing rain patterns** in the Amazon, which will undoubtedly affect the region's forests, water availability, biodiversity, agriculture, and human health.

## Amazon deforestation highest since 2006

Annual rate in square kilometres



Annual figures August to July

### Key Points

#### ▪ Drivers of Deforestation in the Amazon:

##### ◦ Cattle Ranching:

- One of the **leading causes of deforestation** in the Amazon Rainforest is linked to beef consumption.
- **Vast areas of forest are cleared by cutting down trees** and burning the forest down in order to create pasture land for grazing cattle.
- **Brazil is a major supplier of beef to countries** like the United States and China, exporting 1.82 million tons in 2019 alone.

##### ◦ Small-Scale Agriculture:

- It has long been touted as a major driver of deforestation in the Amazon Rainforest.
- As with ranching, **small-scale agriculture requires the forest** to be “slashed and burned” to clear the ground for crops and grazing of various types.

##### ◦ Fires:

- Unlike other types of forests, the Amazon did not evolve to burn.
- And in the Amazon basin, **fires can actually be spurred by deforestation**. As their name suggests, rainforests contain high levels of moisture, which helps buffer them from fire.

##### ◦ Industrial Agriculture Operations:

- **Industrial agriculture operations are becoming increasingly common** in the Amazon Rainforest.

##### ◦ Other Reasons:

- **Mining operations**, for sought-after minerals such as gold, account for further damage to the Amazon forest.
- **Increased government incentives** in the form of loans and infrastructure spending, including roads and dams.

#### ▪ Amazon Rainforests:

- These are the **world's largest tropical rainforest** occupying the drainage basin of the Amazon River and its tributaries in northern South America.

- **Tropical forests are closed-canopy forests** growing within 28 degrees north or south of the equator.
- They are **very wet places**, receiving more than 200 cm rainfall per year, either seasonally or throughout the year.
- **Temperatures are uniformly high** - between 20°C and 35°C.
- Such forests are found in Asia, Australia, Africa, South America, Central America, Mexico and on many of the Pacific Islands.
- The Amazon is a vast biome that **spans eight rapidly developing** countries—Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, and Suriname—and French Guiana, an overseas territory of France.
- The **Amazon rainforests cover about 80% of the Amazon basin** and they are **home to nearly a fifth of the world's land species** and is also home to about 30 million people including hundreds of indigenous groups and several isolated tribes.
  - The **Amazon basin is huge** with an area covering over 6 million square kilometres, it is nearly twice the size of India.
  - The basin produces about **20% of the world's flow of freshwater** into the oceans.
- **Comprising about 40% of Brazil's total area**, it is bounded by the Guiana Highlands to the north, the Andes Mountains to the west, the Brazilian central plateau to the south, and the Atlantic Ocean to the east.



▪ **Initiatives to tackle Deforestation:**

- Brazil was among a **number of nations who promised to end and reverse**

- **deforestation** by 2030 during the **COP26 climate summit**.
- **LEAF (Lowering Emissions by Accelerating Forest Finance) Coalition** was announced at the Leaders Summit on Climate, 2021.
- **REDD+ initiatives:** It is one of the **climate change mitigation options** in developing countries for conservation of forest carbon stock, sustainable management of forests and reducing emissions from deforestation and forest degradation.

[Source: TH](#)

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## IRNSS-NavIC: ISRO

### Why in News

Recently, the Vice President has suggested **ISRO (Indian Space Research Organization)** make **Indian regional navigation satellite system-Navigation in Indian Constellation (NavIC)** for global use.

### Key Points

#### ▪ Background:

- In 2006, the project was approved by the Government of India and was expected to be completed and implemented by 2015-16.
- The constellations' first satellite (IRNSS-1A) was launched on 1<sup>st</sup> July 2013 and the seventh and final satellite (IRNSS-1G) was launched on 28<sup>th</sup> April 2016.
- With the last launch of the constellation's satellite (IRNSS-1G), **IRNSS was renamed Navigation Indian Constellation (NavIC)** by India's Prime Minister.

#### ▪ About:

- Presently, IRNSS **consists of eight satellites**, three satellites in geostationary orbit and five satellites in **geosynchronous orbit**.
- IRNSS-1I is **expected to replace IRNSS-1A**, which was rendered ineffective after its three rubidium atomic clocks failed.
- The main objective is **to provide reliable position, navigation and timing services** over India and its neighbourhood.
- It works just like the established and popular US Global Positioning System (GPS) but **within a 1,500-km radius over the sub-continent**.
- Technically satellite systems with more satellites provide more accurate positioning information.
  - However, compared to GPS (24 satellites) which has a position accuracy of 20-30 metres, the NavIC is able to pinpoint location to an estimated accuracy of under 20 metres.
- It has been **certified by the 3<sup>rd</sup> Generation Partnership Project (3GPP)**, a global body for coordinating mobile telephony standards.
- It was **recognised by the International Maritime Organization (IMO)** as a part of the World Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean Region in 2020.
- ISRO is working to build the next generation of IRNSS satellites with indigenous atomic clocks and enhancements to navigation services.

#### ▪ Potential Uses:

- Terrestrial, aerial and marine navigation;
  - Disaster management;
  - Vehicle tracking and fleet management (especially for mining and transportation sector);
  - Integration with mobile phones;
  - Precise timing (as for ATMs and power grids);
  - Mapping and geodetic data capture.
- **Significance:**
    - It gives real time information for 2 services i.e **standard positioning service open for civilian use** and **Restricted service which may be encrypted for authorised users** like for military.
    - India became **one of the 5 countries having their own navigation system** like GPS of USA, GLONASS of Russia, Galileo of Europe and BeiDou of China. So India's dependence on other countries for navigation purposes reduces.
    - It will **help scientific & technological** advancement in India. It is important for the **country's sovereignty** and strategic requirements.
    - In April 2019, the **government made NavIC-based vehicle trackers mandatory** for all commercial vehicles in the country in accordance with the Nirbhaya case verdict.
    - Also, Qualcomm Technologies has **unveiled mobile chipsets** supporting NavIC
    - Further with extensive coverage, one of the stated future uses of the project includes **sharing of the project with the SAARC nations**. This will help in integrating the regional navigation system further and a diplomatic goodwill gesture from India towards countries of the region.

### **GPS Aided Geo Augmented Navigation (GAGAN)**

- This is a **Satellite Based Augmentation System (SBAS)** implemented jointly with Airport Authority of India (AAI).
- The system will be **interoperable with other international SBAS systems and provide seamless navigation across regional boundaries**.
  - The GAGAN Signal-In-Space (SIS) is available **through GSAT-8 and GSAT-10**.
- **Objectives:**
  - To provide Satellite-based Navigation services with accuracy and integrity required for civil aviation applications.
  - To provide better Air Traffic Management over Indian Airspace.

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

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