NEXT IAS

DAILY CURRENT AFFAIRS (DCA)

Time: 45 Min

Date: 19-07-2024

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ROLE OF THE FINANCE COMMISSION

Context

- The sixteenth Finance Commission headed by Arvind Panagariya has begun its work by inviting suggestions from the public on the mandate set for it by the Centre.

What is the Finance Commission?

- The Finance Commission is a **constitutional body** constituted by the **President of India** under **Article 280,** that recommends how tax revenues collected by the Central government should be distributed among the Centre and various States in the country.
- The Commission is **reconstituted every five years** and usually takes a couple of years to make its recommendations to the Centre.
- The Centre is **not legally bound** to implement the suggestions made by the Finance Commission.

Tax Devolution

- The Finance Commission decides what proportion of the Centre's net tax revenue goes to the **States overall (vertical devolution)** and how this share for the States is distributed among various **States (horizontal devolution).**
- **The horizontal devolution** of funds between States is usually decided based on a formula created by the Commission that takes into account a **State's population, fertility level, income level, geography**, etc.
- The vertical devolution of funds, however, is not based on any such objective formula.
- The Centre also aids States through **additional grants for certain schemes** that are jointly funded by the Centre and the States.

Friction between the Centre and States

- The Centre and the States have been at loggerheads over the issue of **sharing tax revenues.**
- The Centre collects major taxes such as the **income tax, the corporate tax**, and the **Goods and Services tax (GST)** while the States primarily rely on taxes collected from the sale of goods such as liquor and fuels that are beyond the ambit of GST.
- This has led to complaints that the Centre has reduced the power of the States to collect taxes and that it does not give enough funds to the States to match with the scale of their responsibilities.

What are the disagreements?

- **Demand for more funds:** States argue they should receive more funds than recommended by the Finance Commission. States have greater responsibilities, including education, healthcare, and policing services.
- **Disparities Among States:** Developed States like Karnataka and Tamil Nadu feel they receive less money from the Centre than they contribute in taxes.
  - Tamil Nadu receives only 29 paise for every rupee contributed, while Bihar receives more than 7 for each rupee contributed.
  - In other words, it is argued that more developed States with better governance are being penalized by the Centre to help States with poor governance.
- **Divisible Pool Concerns:** Cesses and surcharges, which are not shared with the States, can constitute up to **28%** of the Centre's tax revenues, leading to revenue losses for States.
- **Shortfall in Devolution:** The Fifteenth Finance Commission recommended 41% of the divisible pool to the States. However the Centre has devolved an average of only **38%** of funds from the divisible pool to the States.
- **Criticism of the Finance Commission:** Critics believe the Finance Commission may not be fully independent due to the Centre's role in appointing its members, leading to potential political influence.

Way Ahead

- In response to evolving economic and social dynamics, the Finance Commission needs to remain proactive and responsive. This entails addressing challenges stemming from GST implementation, the Covid-19 Pandemic, Climate Change, and Digital Transformation.
- Also the concerns should be accommodated so that they do not feel penalized for development and better governance of their state.

Source: TH

ELECTRONICS: POWERING INDIA'S PARTICIPATION IN GLOBAL VALUE CHAINS

Context

- Recently NITI Aayog launched the report titled "Electronics: Powering India's Participation in Global Value Chains".

Global Value Chains (GVCs) in Electronics Sector

- **GVCs are international production sharing**, where the full range of activities i.e., design, production, marketing, distribution and support to the final consumer, etc. are divided among multiple firms and workers across geographic spaces, to bring a product from conception to end-use and beyond.
- The global electronics market is estimated at **US$ 4.3 trillion.**
- The electronics GVC is intricate, with a select group of nations like **China, Taiwan, the USA, South Korea, Vietnam, Japan, Mexico, and Malaysia.**
  - **China** is the world's largest electronics producer, accounting for nearly **60%** of worldwide electronics production.

Potential of India's electronics sector

- India's electronics sector reached **USD 155 billion in FY23.**
- The electronics production nearly doubled from **USD 48 billion in FY17** to **USD 101 billion in FY23,** driven primarily by mobile phones which constitute **43%** of total electronics production.
  - This comprises **USD 86 billion** in finished goods production and **USD 15 billion** in components manufacturing.
- The country's electronics export is expected to reach **$120 Bn by FY26.**
- During May 2024, electronic goods exports were recorded at **$2.97 Bn** as compared to **$2.41 Bn** during May 2023, registering a growth of **22.97%.**

Government Interventions

- **Scheme for setting up of Semiconductor Fabs in India** provides fiscal support to eligible applicants for setting up of Semiconductor Fabs which is aimed at attracting large investments for setting up semiconductor wafer fabrication facilities in the country.
- **Initiatives like Make in India and Digital India,** improved infrastructure and ease of doing business, supported by various incentives, have stimulated domestic manufacturing and attracted foreign investments.
- **Design Linked Incentive (DLI) Scheme** offers financial incentives, design infrastructure support across various stages of development and deployment of semiconductor design for Integrated Circuits (ICs), Chipsets, Systems & IP Cores and semiconductor linked design.
- **In India 100% FDI** is allowed under the automatic route. In the case of defense electronics, FDI up to 49% is allowed through automatic route and beyond 49% requires government approval.

Challenges in electronics sector

- **Market Competition:** The global electronics market is dominated by countries like **China, Taiwan, USA, South Korea, Vietnam** and **Malaysia.**
  - India currently exports approximately **USD 25 billion** annually, representing less than **1%** of the global share.
- **Technical Skills:** There is a lack of adequately trained technical personnel for advanced manufacturing processes.
- **Capital Intensive industry:** Electronic manufacturing is a complex and technology-intensive sector with huge capital investments, high risk, long gestation and payback periods, requiring significant and sustained investments.
- **Import dependency:** Heavy reliance on imports for key components, especially semiconductors, makes the industry vulnerable to global supply chain disruptions.
- India's electronics industry is **focussed primarily on assembly**, with limited capabilities in design and component manufacturing.

Way Ahead

- India has set a target to achieve **500 billion USD** in electronics manufacturing in value terms by **2030.**
- To enhance competitiveness, India needs to localize high-tech components, **strengthen design capabilities through R&D investments**, and forge strategic partnerships with global technology leaders.
- There is a need for promoting components and capital goods manufacturing, **incentivising R&D and Design, tariff rationalization, skilling initiatives, facilitation of technology transfers, and infrastructure development** to foster a robust electronics manufacturing ecosystem in India.

Conclusion

- India possesses immense potential to establish itself as a global leader in electronics manufacturing.
- By capitalizing on emerging opportunities, enhancing value chain integration, and overcoming existing challenges, India can transform its electronics sector into a cornerstone of economic growth and job creation.

Source: PIB

GLOBAL EDUCATION MONITORING REPORT: UNESCO

Context

- A new report by the **Global Education Monitoring Report** of the United Nations Educational, Scientific and Cultural Organization (UNESCO) has highlighted the **long-term impact of climate shocks experienced in early childhood.**

About

- The paper is part of a series aimed at **fostering dialogue on education** and the UN-mandated Sustainable Development Goals (SDGs).
- It raises concerns about the **lasting damage extreme weather events** can inflict on a **child's development.**
- The report emphasised the **vulnerability of young children**.
  - Their reliance on adults and developing bodies make them more vulnerable to the immediate physical hazards of floods, droughts, and heatwaves.

Major Findings

- **Climate related stressors:** These are heat, wildfires, storms, floods, droughts, diseases and rising sea levels, affecting education outcomes.
  - These experiences can have a negative impact on a child's cognitive abilities, emotional well-being, and educational opportunities.
- **Severity:** A 10-year-old in 2024 will experience twice as many wildfires and tropical cyclones, three times more river floods, four times more crop failures, and five times more droughts over her lifetime in a 3°C global warming pathway than a 10-year-old in 1970.
- **Impact on Learning: Children in Ecuador** who were exposed to severe El Nino floods while in the womb, were **shorter and performed worse on cognitive tests** five to seven years later.
- **Impact on Enrollment:** An **analysis of disasters experienced early in life by over** 140,000 children in **seven Asian countries** discovered a **negative relationship between school enrollment,** particularly for boys, and mathematics performance, particularly for girls, by the age of 13 to 14.
- **School Closures: Most low and middle-income countries** are experiencing climate-related school closures every year, **increasing chances of learning loss and dropout.**
  - At least **75 percent of extreme weather** events have resulted in school closures over the last 20 years.
  - **Tropical Cyclone Gita** damaged **72 percent of Tonga's schools** in 2018.
- **Decrease in Number of Completed Grades:** Flood exposure reduced the number of completed grades among 12- to 15-year-olds in Ethiopia (3.4 percent), India (3.8 percent) and Vietnam (1.8 percent), **owing to household income loss.**
- **Impact of Heat:** An analysis of census and climate data from **29 countries between 1969 and 2012** found that exposure to higher-than-average temperatures during prenatal and early life is associated with **fewer years of schooling, particularly in Southeast Asia.**
  - High temperatures reduced high-stakes test performance in China, resulting in lower high school graduation and college entrance rates.
- **Rain variability** can also have a negative impact on educational outcomes.
  - An analysis of Demographic and Health Survey data from ten African countries reveals that **abnormally low precipitation has a negative impact on primary school completion.**
- **Drought** reduced children's mathematics and reading scores in rural Maharashtra, India by 4.1 percent and 2.7 percent, respectively.

Way Ahead

- There is a need to **include climate change education in school curricula.**
  - This integration should not only provide climate science knowledge, but also **skills in resilience, adaptation and sustainable development.**
- The report advocated for **greater investment in educational systems to strengthen their resilience to climate-related disruptions.**
  - This includes strengthening school buildings to withstand climate impacts, training educators to support students psychologically and academically during these challenges, and fostering community resilience through awareness and adaptation initiatives.

Source: DTE

TELANGANA GOVERNMENT RELEASES FUNDS TOWARDS CROP LOAN WAIVER

In News

- The Telangana government launched the first phase of the **farm loan waiver scheme** with Rs 6,098 crore being credited into the accounts of over 11 lakh farmers.

Loan Waiver

- Farm loan waivers are financial relief measures where the government forgives certain agricultural loans, alleviating farmers from the obligation to repay.
- The government takes on the farmers' outstanding debt by allocating funds to banks and financial institutions.
- Farmers face numerous challenges, including disputed land ownership, diminishing groundwater reserves, poor soil quality, rising input costs, and low crop productivity.

Arguments favoring the Loan Waiver

- **Debt Relief:** Farmers facing severe financial hardship due to crop failure, natural disasters, or low market prices can benefit from debt relief provided by waivers. It can offer temporary relief and prevent them from falling into a deeper debt spiral.
- **Improved Investment Capacity:** By alleviating debt burden, waivers can free up resources for farmers to invest in better inputs (seeds, fertilizers), irrigation, and technology, potentially leading to increased productivity in the long run.
- **Social and Political Stability:** Widespread farmer distress can lead to social unrest. Loan waivers can be seen as a measure to address this concern and maintain social stability in rural areas.
- **Stimulating Rural Economy:** Increased disposable income for farmers due to debt relief can stimulate the rural economy by boosting demand for essential goods and services.

Arguments against the Loan Waiver

- **Moral Hazard:** Loan waivers can create a moral hazard problem. Farmers, knowing that the government might intervene in case of debt, might be less cautious about taking on loans and managing their finances responsibly. This can lead to a cycle of debt and reliance on bailouts.
- **Fiscal Burden:** Loan waivers can be a significant financial strain on the government. The money used for waivers could be better spent on long-term solutions for the agricultural sector, such as irrigation projects, research and development for improved crop varieties, or building better storage facilities. **For Example:** Maharashtra state decision to waive off crop loans cost about Rs 45,000 crore in 2020.
- **Limited Long-Term Impact:** Loan waivers only offer temporary relief. They do not address the underlying causes of farm distress, such as low crop prices, volatile markets, lack of access to irrigation or proper storage facilities, and high input costs. Without addressing these root causes, the problem of farm debt will persist.
- **Distortion of Credit Market:** Loan waivers can discourage banks and other financial institutions from lending to farmers in the future, fearing potential future bailouts. This can make it even harder for farmers to access credit, hindering long-term investments in their farms.
- **Inefficiency and Corruption:** The process of implementing loan waivers can be inefficient and prone to corruption. There's a risk that the intended beneficiaries might not receive the full benefit due to bureaucratic hurdles or mismanagement.

Way Ahead

- Invest in infrastructure for better storage facilities, improved transportation networks, and efficient marketing channels to ensure farmers get fair prices for their produce.
- Encourage farmers to diversify their crops to reduce dependence on a few vulnerable crops and mitigate risk associated with price fluctuations.

Source: ET

ADB APPROVED LOAN TO FINANCE ROOFTOP SOLAR SYSTEMS IN INDIA

Context

- **The Asian Development Bank (ADB)** has approved a **loan of USD 240.5 million** to finance rooftop solar systems in India.

About

- This financing will support **tranches 2 and 3 of the Multitranche Financing Facility (MFF) Solar Rooftop Investment Program,** initially approved by ADB in **2016.**

- In 2023, the program was restructured to **focus specifically on deploying residential solar rooftop systems.**

- The approved financing will be allocated to the **State Bank of India (SBI)** and the **National Bank for Agriculture and Rural Development (NABARD).**
  - These institutions will **provide loans to developers and end-users** throughout India for the installation of rooftop solar systems.

Significance of Rooftop Solar Systems

- It can **reduce the technical and operational burden** by generating electricity close to where it is consumed, thereby **decreasing the need for long-distance power supply** and the associated system losses.
  - This enhances the **efficiency of power distribution** and provides a degree of energy independence, minimizing power supply disruptions.
- **India's Aim:** India aims to achieve about 50 percent of cumulative electric power installed capacity from non-fossil fuel energy sources by 2030 in line with its global commitments to reduce carbon emissions.
  - ADB's financing supports these goals and will contribute to the Prime Minister's Surya Ghar program, which encourages people to install rooftop solar systems across the country

Solar Energy

- Solar energy is the **most abundant & cleanest energy** resource on earth.
- **Solar energy can be used mainly in three ways** one is direct conversion of sunlight into electricity through PV cells, the two others being concentrating solar power (CSP) and solar thermal collectors for heating and cooling (SHC).
- **Indian Scenario:** India is endowed with abundant solar energy, which is capable of producing 5,000 trillion kilowatts of clean energy.
  - India gets around **300 sunny days in a yea**r and solar insolation of 4-7kWh per Sq. m per day.
  - If this energy is harnessed efficiently, it can easily **reduce the energy deficit scenario and that too with no carbon emission.**
  - In near future Solar energy will have a **huge role to play in meeting India's energy demand.**

India's Solar Energy

- **Capacity: India's installed solar power capacity** is about 81 GW (1 GW is 1,000 megawatt), or roughly **17% of the total installed electricity.**
  - India's largest solar parks are located in the north-west, particularly **Gujarat and Rajasthan.**
  - **India currently stands 4th globally in solar power capacity.**

India has set following resolute targets to usher in a renewable revolution:

- 500 GW of renewable energy capacity by 2030;
- Meeting 50% of its energy requirement from renewable sources by 2030;
- Reducing the total projected carbon emissions by 1 Bn Tonnes by 2030;
- Reducing the carbon intensity of its economy by under 45%;
- Becoming a net zero carbon country by 2070.

Government Initiatives to Promote Solar Energy Adoption

- **Solar Park Scheme,** designed to establish 50 Solar Parks of 500 MW and above with a cumulative capacity of ~38 GW by 2025-26.
- **PM-KUSUM** — aimed to achieve solar power capacity addition of 30.8 GW by 2026 — are transforming India's agricultural sector by setting up decentralised solar power plants, replacing agriculture diesel pumps with solar agriculture water pumps and solarising existing grid-connected agriculture pumps.
- **Rooftop Solar Programme** for the residential sector and the Off-grid Solar PV Applications Programme for rural areas are also making solar energy accessible by providing subsidies.
- **The International Solar Alliance (ISA),** launched in **2015** by the Prime Minister of India and the President of France.
  - It is a member-centric, collaborative platform focused on action aimed at creating 450 GW of renewable energy by 2030.
- **The Rooftop Solar Yojana, or the PM Surya Ghar Muft Bijli Yojana,** aims to provide 300 units of free electricity every month to light up one crore households.
  - The objective of this scheme is to reduce the electricity costs of the house by installing rooftop solar panels and using solar energy.

Conclusion

- Solar energy has been recognized as an **alternative to conventional energy resources.**
- Amongst all the clean technologies, solar energy serves as an effective renewable energy resource to mitigate greenhouse gas emissions and reduce global warming.
- Solar energy is one of the resources capable of **self-reliant energy generation,** reducing foreign energy dependence.
- This necessitates the **wide use of solar panels** with better efficiency to meet the energy requirements from solar resources.

Source: ET

GREEN REVOLUTION IN MAIZE

Context

- Recent data showed that the **Maize production in India** has more than **tripled over the last two decades**, that has now gone from being a **feed crop to a fuel crop.**

About

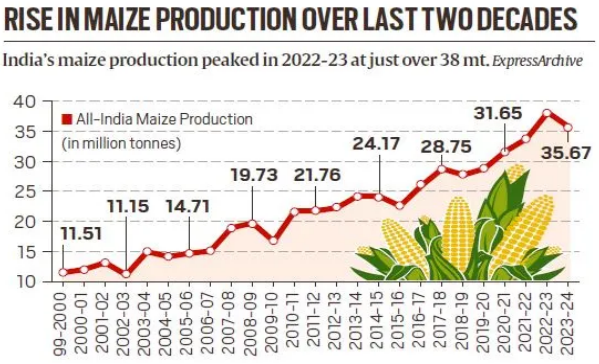
- Maize, often hailed as the **'queen of cereals',** plays a crucial role in India's agricultural landscape.
- **India ranks fourth globally** in terms of maize cultivation area and **seventh in production**. Approximately 4% of the world's maize area and 2% of total production come from India.
  - The **top three producers**—namely, the **US, Brazil, and Argentina**—dominate **both production and trade**. They export a whopping 197 mt of maize primarily to countries like China, the European Union, Mexico, Japan, South Korea, Vietnam, Iran, and Egypt.
- In India, maize is principally grown in two seasons, **rainy (kharif) and winter (rabi)**.
  - **Kharif maize** represents around 83% of maize area in India, while rabi maize corresponds to 17% maize area.
  - Over 70% of kharif maize area is grown under the rainfed condition with a prevalence of many biotic and abiotic stresses.
- The **stress prone ecology** contributes towards lower productivity of **kharif maize** (2706 kg/ha) as compared to **rabi maize** (4436 kg/ha), which is predominantly grown under an assured ecosystem.

State-wise Maize Production

- Madhya Pradesh and Karnataka lead in maize cultivation, each accounting for 15% of the total maize area in India.
- Other significant maize-producing states include Maharashtra (10%), Rajasthan (9%), and Uttar Pradesh (8%).
- Bihar, after Karnataka and Madhya Pradesh, stands out as a major maize producer.
- Andhra Pradesh boasts the highest state productivity, with districts like Krishna and West Godavari achieving impressive yields of up to 12 tons per hectare.

Maize's Remarkable Journey

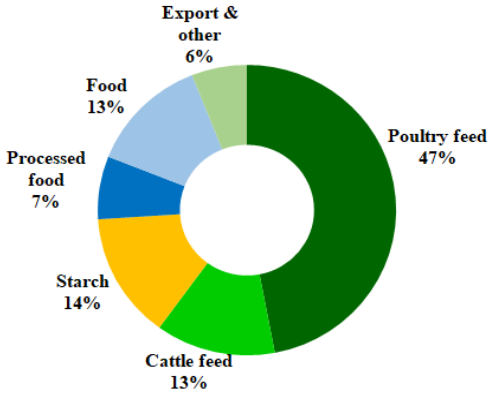
- Between 1999-2000 and 2023-24, India's maize production has more than tripled—from 11.5 million tonnes to over 35 million tonnes, with average per-hectare yields also rising from 1.8 to 3.3 tonnes, annually.
- Not only has the quantity increased, but average yields per hectare have also risen significantly, from 1.8 to 3.3 tonnes.
- Unlike rice and wheat, maize isn't primarily a food grain. Only about **a fifth of India's maize production directly feeds humans.**



- **Poultry and Livestock Feed:** Approximately 60% of maize goes into **animal feed.** It's essentially **'maize with wings'.**
  - **Maize supplies carbohydrates**, the principal energy source for poultry and livestock. Other feed ingredients include protein sources (soybean meal and other oilseed cakes), mineral and vitamin supplements, and additives.
  - **Broiler birds** consume maize-based feed during their rearing cycle. And it's not just chickens—maize **indirectly** reaches our tables through **eggs and milk as well.**
- **Starch and Ethanol:** Around **14-15% of India's maize** finds **industrial applications. Maize grains**

are rich in starch (68-72%), and **1-3% of other simple carbohydrates** (sucrose, glucose and fructose) which have diverse uses in industries such as textiles, paper, pharmaceuticals, and food and beverages.

- It is increasingly becoming a **feedstock for ethanol production**



- The **starch in maize** is a mixture of **two polymers,** comprising glucose molecules bonded together in a straight chain **(amylose)** and in branched form **(amylopectin).** Normal maize starch has 30% amylose and 70% amylopectin.

- **Maize as Fuel:** Distilleries, which usually run on sugarcane molasses during the crushing season, turn to grains (like maize) when cane isn't available. With surplus rice supplies dwindling, **maize has become a key player in ethanol production. India's first 'waxy' maize hybrid**, rich in amylopectin starch, is now well-suited for ethanol.

Challenges Ahead

- **Yield Enhancement:** While maize production has grown, we need to ensure sustained yield increases. Doubling maize production by 2025, as envisioned, requires high-yielding, climate-resilient varieties. These must thrive during both Kharif (monsoon) and Spring seasons.
  - The **stress-prone ecology of rainfed kharif** maize areas contributes to **lower productivity** compared to rabi maize, which benefits from assured irrigation systems.
- **Pest Management:** The dreaded fall armyworm has plagued maize crops. Effective pest control strategies are crucial to maintaining productivity.
- **Technology Adoption:** Encouraging farmers to adopt modern production technologies remains essential. We must bridge the gap between research and on-ground implementation.
- **Climate-Smart Practices:** As climate patterns shift, promoting sustainable intensification practices becomes critical.
- **Infrastructure and Markets:** Strengthening input and output markets, along with low-cost farm mechanisation, will boost maize production.

Related Government Initiatives

- **National Food Security Mission (NFSM):** Under NFSM, maize receives support for seed distribution, soil health management, and technology adoption.
- **Rashtriya Krishi Vikas Yojana (RKVY):** RKVY promotes maize cultivation through financial incentives, capacity building, and infrastructure development.
- **Pradhan Mantri Fasal Bima Yojana (PMFBY):** This crop insurance scheme provides risk coverage to maize farmers against yield losses due to natural calamities.
- **Promotion of Hybrid Maize:** The government encourages the adoption of hybrid maize varieties to improve productivity.
- **Research and Extension Services:** Investments in research and extension services help disseminate best practices and technological advancements to maize farmers.
- **National Policy on Biofuels (NPB)**: It has paved the way for maize-based ethanol blending. The **target** is ambitious: 20% blending by 2024-25 and 30% by 2029-30.
- **New Breeding Strategies:** CIMMYT has opened a maize **doubled haploid (DH)** facility at **Kunigal in Karnataka**. Established in partnership with the University of Agricultural Sciences, Bangalore, it produces **100% homozygous** (i.e. having two identical copies of a single gene), and genetically pure inbred lines of maize that can be used as parents for further crossing and breeding of hybrids.

Role of Research

- The IARI-developed hybrid, having an average grain yield of 7.3 tonnes per hectare and potential of 8.8 tonnes, has been identified for release under the **All-India Coordinated Research Project on Maize.**
- The starch from IARI's waxy maize hybrid has 93.9% amylopectin. Amylose starch imparts hardness in the grain, while amylopectin causes softness. That, in turn, affects starch recovery and fermentation rates. Normal maize grains have 68-72% starch, but only 58-62% is recoverable.

- The grains from the new **Pusa Waxy Maize Hybrid-1,** as it is proposed to be called, have 71-72% starch with 68-70% recovery.

Way Forward: Unlocking the Potential

- **High-Yielding Hybrids:** India must focus on developing high-yielding single cross hybrids with traits resistant to the **Fall Armyworm (FAW)**. These hybrids should be well-suited to our diverse climatic conditions.
- **Minimum Support Price (MSP):** Offering an attractive MSP for maize will encourage farmers to invest in its cultivation. Adequate support ensures stability and incentivizes production.
- **Procurement Assurance:** Farmers need assurance that their maize will find buyers. Strengthening procurement mechanisms can boost confidence and encourage increased cultivation.
- **Transportation Concessions:** Efficient transportation from farm to factory is crucial. Streamlining logistics and providing concessions can reduce post-harvest losses.

Source: IE

NEWS IN SHORT

MASHKO PIRO

Context

- Indigenous rights NGO Survival International has released rare pictures of the Mashco Piro tribespeople, one of the world's 100-odd uncontacted tribes.

About

- They are **Nomadic hunter-gatherers** who inhabit the remote regions of the **Amazon rainforest.**
  - They live in **Manú National Park** in the Madre de Dios Region in Peru.
- The Mashco-Piro tribe speaks a dialect of the **Piro language.**

Amazon Rain Forests

- **Location:**The region belongs to **nine nations** of the **South American** continent.
  - 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.
- **Area Covered:**The majority of the forest, 60%, is in **Brazil,** followed by **Peru** with 13%, **Colombia** with 10%, and with minor amounts in **Bolivia, Ecuador, French Guiana, Guyana, Suriname and Venezuela.**

Source: IE

THANGKA ART

Context

- Efforts are undertaken **to raise awareness about Thangka art** at Delhi's Majnu Ka Tila.

Thangka Art

- It is a **Tibetan artform** traditionally created on **rich cotton or silk applique**.
- The intricate pieces depict the **life story of Buddha or other Buddhist deities** and **influential Lamas** and serve both as **devotional objects and teaching tools.**
- The paint consists of **water-soluble animal glue,** which are sourced from **minerals and organic materials.**
- **In Nepal, 24-carat gold** is applied to make the piece more sublime.
- The production process is often described as a **spiritual practice,** involving **purification rituals** and is accompanied by **recitation of mantras.**
- Many contemporary Thangka artists now try to innovate with **modern themes,** including mandalas, to make it more appealing and relatable to global audiences.

Source: TH

GLACIAL GEOENGINEERING

Context

- Scientists have proposed glacial geoengineering, to slow sea-level rise due to climate change.

What is Glacial Geoengineering?

- **Glacial geoengineering** is an approach to mitigating the impacts of climate change on glaciers and ice shelves. The two main technological tools are as;
  - **Fibre-based 'curtains' around the feet of ice shelves:** It reduces the melting process by blocking warm ocean water from reaching the base of the ice shelves.
  - **Drilling holes through the glacier bed:** It creates channels to allow meltwater to drain more efficiently from under the glacier.

Other Geoengineering Methods

- **Solar Radiation Management:** The techniques attempt to reflect sunlight back into space, by orbiting mirrors, tonnes of sulfates sprayed into the stratosphere, and modifying clouds, plants and ice to make them reflect more sunlight.
- **Earth Radiation Management:** The negative effects of climate change can be offset by allowing heat to escape into space – for example, by thinning cirrus clouds.

Source: DTE

PROJECT 'STRAWBERRY'

Context

- OpenAI is reportedly building a new AI model named **Project 'Strawberry'.**

About

- OpenAI is working on a **new reasoning technology** under the code name **"Strawberry"**, believed to be the new name for **Project Q*.**
  - Q* (Q-Star) was reportedly a plan for making AI capable of planning, logical reasoning, and capabilities similar to that of a human brain.
- **Challenges of LLMs: Large Language Models (LLMs),** which form the basis of AI chatbots, **can summarise dense texts and compose prose instantly.**
  - However, they **struggle with common sense problems** and **multi-step logic tasks.**
- **Strawberry models,** with their enhanced reasoning, would **perform tasks that require planning and a series of actions over an extended time.**
- **Application:** Such models could undertake **advanced research** — conduct experiments, analyse data, and suggest new hypotheses. This could lead to **multiple breakthroughs in sciences.**
  - **In medical research,** they could assist in drug discovery, research in genetics.
  - With enhanced problem-solving abilities, AI could **solve complex mathematical problems.**
  - It could handle problems requiring logical deductions and be helpful in **legal analysis and strategic planning.**
  - **In business,** these models could analyse market trends, predict economic changes, assess risks, and help with investment decisions.

Source: IE

CHAGOS ISLANDS

Context

- Recently, **India's External Affairs Minister** reaffirmed its support to **Mauritius** on the **issue of the Chagos Islands** in the Indian Ocean **against the United Kingdom**.

About the Chagos Islands (aka Chagos Archipelago)

- These consist of more than 60 islands and atolls, and are situated approximately 500 kilometres **south of the Maldives.**

Discovery and Early Ownership

- **Portuguese** navigators stumbled upon the Chagos Islands in the 16th century. They mapped the islands and bestowed names that endure to this day.
- The **Dutch** also had a brief presence but eventually moved on.
- **France and Mauritius** later took possession of the islands. The French named additional islands and established coconut plantations, relying on enslaved workers from **Madagascar, Mozambique, and southern India.**

British Acquisition

- After the defeat of Napoleon, Great Britain gained control over both Chagos and Mauritius.

- Since 1971, only **Diego Garcia** has been inhabited. It serves as a crucial **military base for the United States**, with around 2,500 American military personnel stationed there.

Sovereignty Dispute

- Mauritius, which gained independence from the UK in 1968, claims sovereignty over the Chagos Islands.
- However, the UK retained control, citing the need to accommodate the US military's use of Diego Garcia for defence purposes.
- This dispute has persisted for over 50 years, with Mauritius seeking the return of the islands.

UK's Role and Diego Garcia

- **Diego Garcia, the largest island in the Chagos Archipelago,** is pivotal. It hosts a major US military base **leased from Britain in 1966.** The base plays a strategic role in global security and defence.
- However, it remains a **point of contention between the UK, Mauritius,** and the international community.

Source: First Post

PRESIDENT OF INDIA AND STATE BILLS

ContextSyllabus: GS2/Polity

- Recently, the President of India has **declined to give her assent** to the Punjab Universities Laws (Amendment) Bill, 2023 that aimed to replace the State Governor with the Chief Minister as the chancellor of state-run universities.

About

- **A Bill** is a statute in draft and **cannot become law unless** it has received the approval of **both the Houses of Parliament** and the assent of the **President of India**.
- In order to become an Act, every Bill passed by the State Legislature must receive his assent or, having been **reserved by him for President's consideration**, receive the assent of the President.
- **The Constitution of India** makes the **Governor** a component part of the **State Legislature (Article 168).**
    - He cannot be a member of either House of that Legislature.
- If the **Governor or the President**, as the case may be, **withholds his assent**, the **Bill fails to become law or Act.**
- **State Bills reserved for President's consideration** under the Constitution, may be classified as follows:
    - Bills which must be reserved for President's consideration;
    - Bills which may be reserved for President's consideration and assent for specific purposes;
    - Bills which may not specifically fall under any of the above categories, yet may be reserved by the Governor for President's consideration under Article 200.

Article 200 of Indian Constitution

- It provides that when a **Bill passed by the State Legislature**, is presented to the Governor, the Governor shall declare:
    - that he **assents** to the Bill; or
    - that he **withholds assent** therefrom; or
    - that he **reserves** the Bill for the President's consideration; or
    - The Governor may, as soon as possible, **return the Bill (other than a Money Bill)** with a message for reconsideration by the State Legislature.
        - But, if the Bill is again passed by the Legislature with or without amendment, the Governor shall not withhold assent therefrom **(First Proviso)**; or
    - if in the opinion of the Governor, the Bill, if it became law, would so **derogate from the powers of the High Court** as to endanger its constitutional position, he shall not assent to but **shall reserve it for the consideration of the President (Second Proviso).**
- If the Governor reserves a Bill for President's consideration, the enactment of the Bill then depends on the assent or refusal of assent by the President.

Source: IE