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DAILY CURRENT AFFAIRS-

1. A Case for Joining the Global Carbon Coalition
2. Satellite Radiation: Blocking Views
3. Mission for Aatmanirbharta in Pulses: Delays in Research Approvals
4. Female Labour Force Participation in North-East States and UTs
5. China's Proposed Curbs on Solar Technology Exports
6. India's Nutrient-Rich Purple **Potato: Kufri Jamunia**

1.A Case for Joining the Global Carbon Coalition

Source: The Hindu

Why in News?

- India's Carbon Credit Trading Scheme (CCTS) has become operational with binding targets and penalties.
- Experts have urged India to join the Open Coalition on Compliance Carbon Markets (OCCCM) to influence global carbon market rules and prepare for emerging climate-related trade measures.

India's Carbon Credit Trading Scheme (CCTS)

- The scheme aims to help India achieve its Nationally Determined Contributions (NDCs) and the target of net-zero emissions by 2070.
- Nearly 500 Indian companies submitted their first compliance reports on July 31.
- The first carbon credits were expected in October, followed by trading on power exchanges between November and January, according to the report.

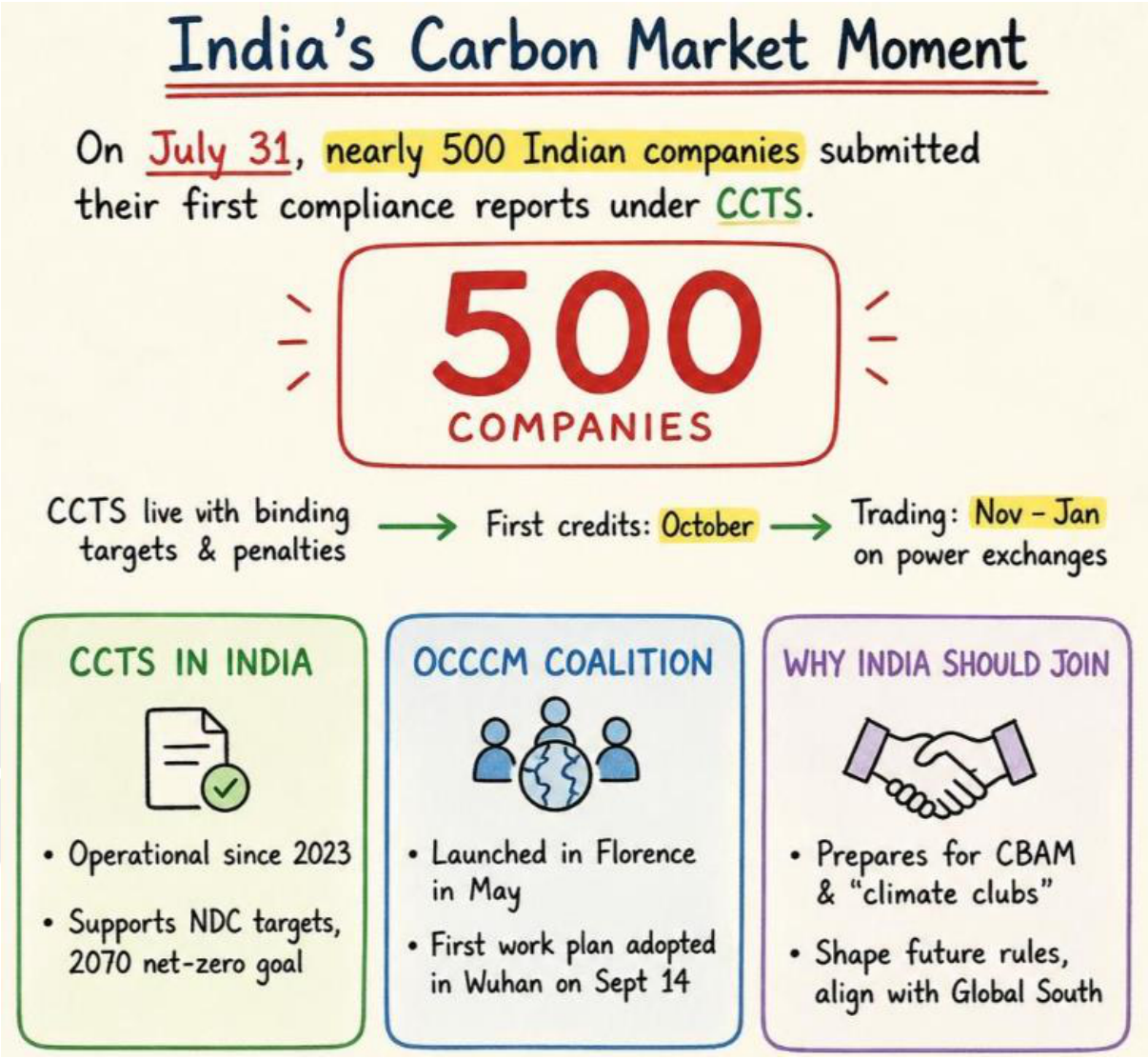
Open Coalition on Compliance Carbon Markets (OCCCM)

- Launched in May in Florence by the European Union, China and Brazil.
- It promotes cooperation among countries on compliance carbon markets.
- Key areas of cooperation include carbon pricing mechanisms, Monitoring, Reporting and Verification (MRV) systems, carbon accounting methodologies and high-integrity carbon offsets.
- The coalition adopted its first work plan in Wuhan on September 14. India has not yet joined.

Why Should India Join?

- Global rule-making: Participate in discussions shaping international carbon market standards.

- Climate clubs: Prepare for emerging groups of countries coordinating climate policies and trade measures.
- Trade competitiveness: Understand and respond to carbon-related trade barriers, particularly the EU's Carbon Border Adjustment Mechanism (CBAM).
- International cooperation: Exchange knowledge on carbon pricing, emissions accounting and market design.
- Developing-country interests: Coordinate with countries such as Brazil to ensure developing economies' concerns are considered.



Carbon Border Adjustment Mechanism (CBAM)

- The EU's mechanism places a carbon cost on specified imports to address differences in carbon pricing between domestic and foreign producers.
- It aims to reduce carbon leakage, where production shifts to countries with weaker climate regulations.

- It can affect the competitiveness of carbon-intensive Indian exports in the European market.

Way Forward

- India can engage with the OCCCM while protecting its development priorities and policy autonomy.
- Domestic carbon markets should ensure transparent monitoring, reliable emissions data and credible carbon credits.
- India should assess the implications of international carbon pricing systems for its industries, exporters and climate commitments.

2.Satellite Radiation: Blocking Views

Source: The Hindu

Why in News?

- A study published in Monthly Notices of the Royal Astronomical Society under the SNIFFLES programme found that radio emissions from communication satellites interfere with astronomical observations.
- The interference can reduce the sensitivity of radio telescopes and affect research on celestial objects.

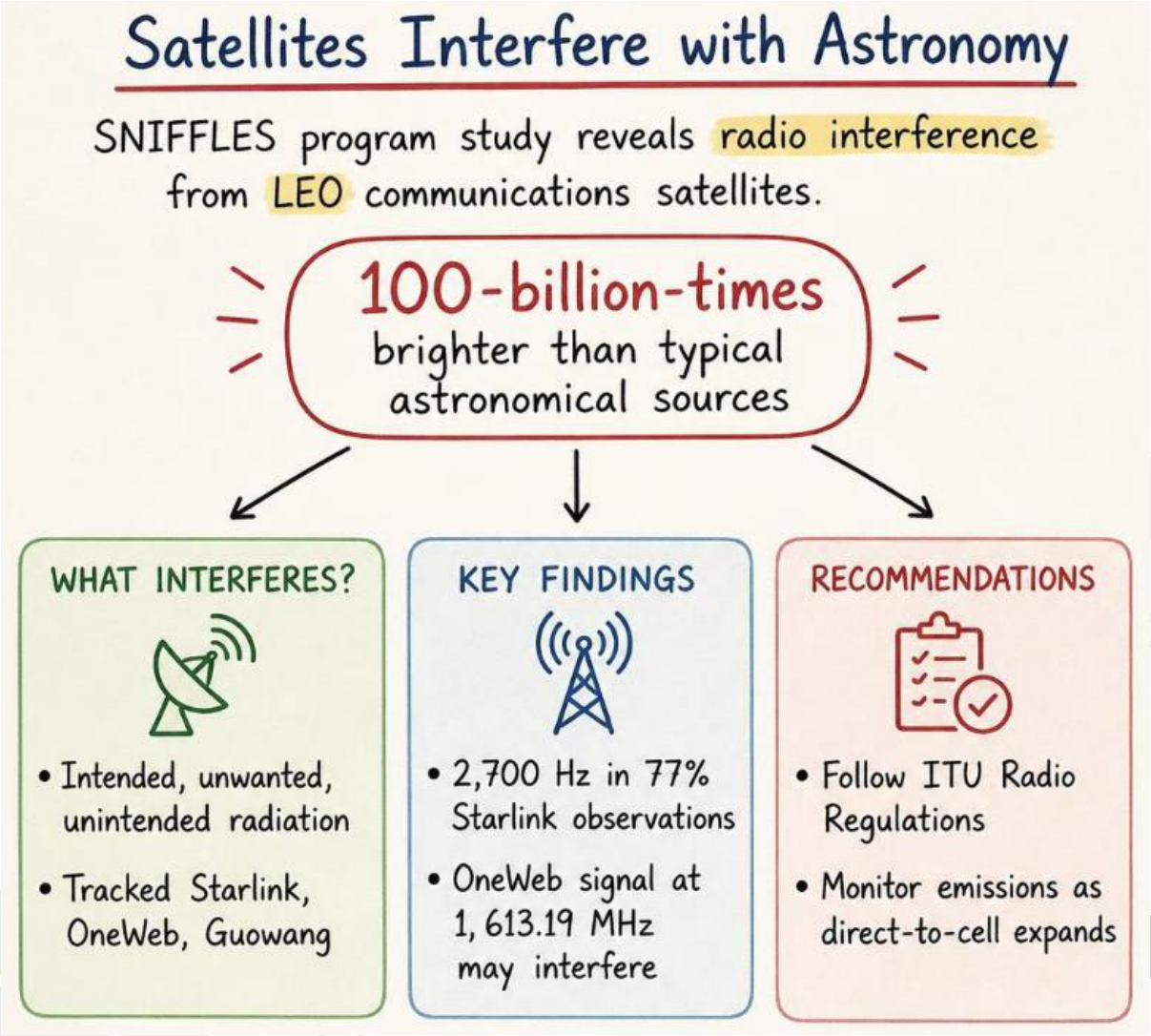
Key Findings

- Researchers used the Mopra radio telescope and the Australia Telescope Compact Array to study emissions from satellite constellations such as Starlink, OneWeb and China's Guowang.
- Some satellite signals were found to be up to 100 billion times brighter than typical astronomical sources.
- A signal from OneWeb at 1,613.19 MHz could interfere with observations of hydroxyl (OH) emissions in space.
- Radiation at 2,700 Hz was detected in nearly 77% of observations involving a particular version of Starlink satellites, according to the study.

Types of Satellite Emissions

- Intended emissions: Deliberate radio transmissions for communication services, including direct-to-cell connectivity.

- Unwanted emissions: Signals outside the intended frequency range, including harmonics produced at multiples of a fundamental frequency.
- Unintended emissions: Stray electromagnetic radiation from onboard electronic components, such as power converters and computers.



SNIFFLES Programme

- Aims to systematically characterise the electromagnetic environment created by non-geostationary satellite orbit (NGSO) constellations.
- Examines emissions across frequency bands used by radio astronomy receivers.
- Helps identify interference sources and assess their impact on astronomical observations.

Impact on Astronomy

- Reduced telescope sensitivity: Bright satellite emissions can overwhelm faint signals from distant celestial objects.

- Disruption of scientific research: Interference may affect observations of galaxies, pulsars and interstellar molecules.
- Growing challenge: The expansion of satellite constellations and direct-to-cell services increases the potential for radio-frequency interference.

International Telecommunication Union (ITU)

- The ITU is a specialised agency of the United Nations responsible for international cooperation in information and communication technologies.
- Its Radio Regulations provide an international framework for radio-frequency spectrum allocation and coordination.
- They aim to prevent harmful interference between radio services, including radio astronomy.

Way Forward

- Satellite operators should comply with international radio-transmission rules and continuously monitor unwanted emissions.
- Greater coordination is needed between satellite companies, regulators and astronomical observatories.
- Improved satellite electronics and emission-control technologies can help protect sensitive radio astronomy observations.

3.Mission for Aatmanirbharta in Pulses: Delays in Research Approvals

Source: The Hindu, Page 1 Subject: Agriculture | Government Schemes | Food Security

Why in News?

- The Cabinet Secretariat flagged delays in approving research projects under the Mission for Aatmanirbharta in Pulses, despite a ₹500 crore allocation for its first year.
- It urged the Ministry of Agriculture and Farmers' Welfare to complete the approval process by November 15, 2026.
- The Ministry stated that eligible projects were expected to be sanctioned by the end of October 2026.

About the Mission

- Announcement: Union Budget 2025–26, presented on February 1, 2025.
- Cabinet approval: October 1, 2025; formally launched on October 11, 2025.
- Duration: Six years, from 2025–26 to 2030–31.
- Total financial outlay: ₹11,440 crore.
- First-year research allocation: ₹500 crore, according to the supplied source.

The **Mission for Aatmanirbharta in Pulses**, officially launched on **October 11, 2025**, is a strategic six-year roadmap designed to eliminate India's dependency on pulse imports by **2030-31**.
As the world's largest producer and consumer, India still relies on imports to meet nearly 15-20% of its domestic demand. This mission aims to bridge that gap through an integrated "seed-to-market" value chain approach.

Strategic Pillars and Objectives

The mission focuses on three primary crops—**Tur (Arhar)**, **Urad (Black Gram)**, and **Masoor (Lentil)**—which account for the bulk of India's import bill.

- **Production Targets:** The goal is to scale annual pulse production to **350 lakh tonnes** and improve national productivity to **1,130 kg/hectare** by 2030-31.
- **Area Expansion:** Targeting an additional **35 lakh hectares**, specifically utilizing **rice-fallow** areas and promoting intercropping in major states like Madhya Pradesh, Maharashtra, and Rajasthan.
- **Seed Systems:** Distribution of **87.5 lakh free seed kits** and promotion of climate-resilient, high-yielding varieties.
- **Assured Procurement:** A key incentive where **NAFED** and **NCCF** are authorized to undertake **100% procurement** of Tur, Urad, and Masoor at MSP for four years (2025-26 to 2028-29).

Current Progress (Status as of late 2026)

One year into the mission, the agricultural landscape has shown measurable shifts toward self-reliance.

Parameter	2024-25 Status	2025-26 (Progress)
Total Production	256.83 Lakh Tonnes	274.09 Lakh Tonnes
Cultivation Area	277.20 Lakh Hectares	286.46 Lakh Hectares
Import Bill	₹46,427.60 Crore	₹31,793.59 Crore (▼ 31.5%)
National Yield	926 kg/hectare	957 kg/hectare

Key Targets by 2030–31

- Pulse production: Increase by 45% to 350 lakh metric tonnes.
- Cultivation area: Increase by 13% to 310 lakh hectares.
- Average yield: Improve by 28% to 1,130 kg per hectare.

Objectives and Implementation

- Develop climate-resilient and high-quality seeds, including varieties with improved protein content.
- Increase productivity and strengthen agricultural research.
- Improve post-harvest storage and reduce losses.
- Ensure remunerative prices for pulse farmers.
- The Agriculture Ministry received 419 research proposals from institutions, including ICAR institutes and State Agricultural Universities.
- A National-level Research and Development Committee is assessing proposals based on scientific merit, relevance and potential for field application.

Significance and Challenges

- Import dependence: Higher domestic production can reduce dependence on imported pulses and strengthen food security.
- Nutrition security: Pulses provide protein and support dietary diversity.
- Farmer welfare: Improved yields, storage and remunerative prices can raise farm incomes.
- Climate resilience: Improved seed varieties can help farmers cope with changing climatic conditions.
- Implementation challenge: Delayed research approvals can postpone field trials, technology development and the adoption of improved varieties.

Way Forward

- Complete project appraisal and approvals within the stipulated timeline.
- Prioritise research with clear potential for field-level application.
- Strengthen coordination among ICAR institutions, agricultural universities, State governments and farmers.
- Link research outcomes with seed distribution, extension services, storage infrastructure and market access.

UPSC Prelims Practice

Q. With reference to the Mission for Aatmanirbharta in Pulses, consider the following statements:

1. It aims to increase pulse production to 350 lakh metric tonnes by 2030–31.
2. Its total financial outlay is ₹11,440 crore.
3. Its objectives include developing climate-resilient seeds and improving post-harvest storage.

Which of the statements given above are correct?

(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3

Answer: (d) 1, 2 and 3

Explanation: All three statements are consistent with the mission details provided in the source.

UPSC Mains Practice

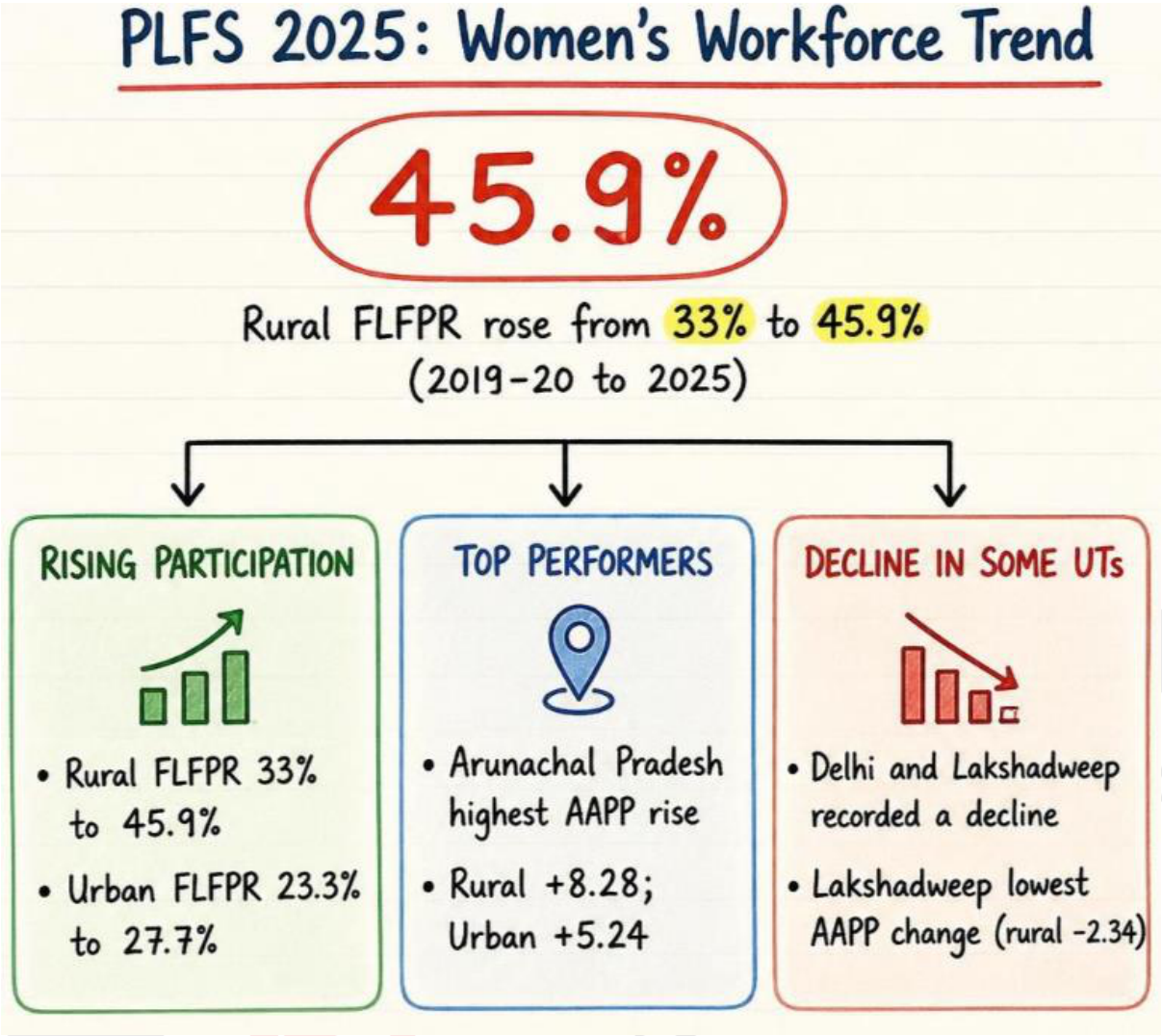
Q."Strengthening agricultural research and its timely implementation is essential for achieving self-sufficiency in pulses." Discuss the significance of the Mission for Aatmanirbharta in Pulses and the challenges in achieving its targets.

4.Female Labour Force Participation in North-East States and Uts

Source: The Hindu, Page 7

Why in News?

- The Periodic Labour Force Survey (PLFS) 2025 highlights an increase in the Female Labour Force Participation Rate (FLFPR) across India since 2019–20, particularly in rural areas.



Key Highlights

- Rural FLFPR increased from 33% to 45.9%, while urban FLFPR rose from 23.3% to 27.7%.
- Arunachal Pradesh recorded the highest Average Annual Percentage Point (AAPP) increase in both rural (+8.28) and urban (+5.24) areas.
- Delhi and Lakshadweep recorded declines in FLFPR, with Lakshadweep registering the lowest rural AAPP change at −2.34.
- The national average AAPP increase was 2.58 percentage points in rural areas and 0.88 percentage points in urban areas.
- Nagaland and Meghalaya maintained high female labour participation, while Assam and Tripura recorded faster improvements from lower starting levels.

Significance and Challenges

- Higher participation in North-Eastern states is associated with women's involvement in agriculture, trade and commerce, as well as social and cultural factors.
- Greater female labour force participation can support economic growth, poverty reduction and progress towards the Sustainable Development Goals (SDGs).
- Challenges include informal employment, the gender pay gap and regional disparities in women's workforce participation

5.China's Proposed Curbs on Solar Technology Exports

Source: As provided, Page 11

Why in News?

- China has proposed export controls on 12 technologies used in solar equipment manufacturing under draft Announcement No. 48.
- The proposal forms part of a broader revision of China's export-control list covering artificial intelligence, biotechnology and photovoltaic technologies.
- The consultation period is open until November 15, 2026. An interim requirement for pre-export registration of certain overseas technology transfers took effect on October 16, 2026, according to the supplied source.

Key Features of the Proposed Controls

- Scope: The draft proposes a complete export ban on 14 technologies and restrictions on 26 others across AI, biotechnology and photovoltaics.
- Solar technologies: The 12 targeted photovoltaic technologies include polysilicon production, wafer manufacturing, and advanced solar-cell technologies such as perovskite and tandem cells.
- Rationale: China's Ministry of Commerce cited national security concerns and the potential use of solar technologies in aerospace and defence.
- Global dominance: According to the supplied material, China accounts for over 80% of manufacturing capacity across the stages of global solar-panel production.

Photovoltaic (PV) Technology

- Photovoltaic effect: Solar cells convert sunlight into electricity when photons excite electrons in a semiconductor.

- P–N junction: The junction between differently doped semiconductor layers creates an electric field that helps separate charge carriers and generate current.
- Balance of System (BoS): Components such as inverters convert direct current (DC) into alternating current (AC) for practical use and grid integration.

Major Solar Cell Technologies

- Crystalline silicon: The mainstream technology used in solar panels.
- TOPCon: Tunnel Oxide Passivated Contact technology improves cell efficiency by reducing charge-carrier recombination.
- Heterojunction Technology (HJT): Combines crystalline and amorphous silicon layers to improve cell performance.
- Perovskite–silicon tandem cells: Combine two light-absorbing materials to capture a wider range of sunlight and potentially achieve higher efficiency than conventional single-junction silicon cells.
- Shockley–Queisser limit: Describes the theoretical efficiency limit of a conventional single-junction solar cell under specified assumptions.

Implications for India

- Manufacturing dependence: Restrictions could complicate access to advanced Chinese solar-manufacturing technologies.
- Domestic capacity: India's efforts to expand module and cell manufacturing could face technology-transfer delays and higher costs.
- Energy transition: Delays in scaling domestic manufacturing could affect the pace and cost of solar deployment.
- Strategic autonomy: The development of indigenous technologies and diversified supply chains is important for reducing exposure to external export controls.

India's Solar Sector: Key Initiatives

- Production Linked Incentive (PLI) scheme: Supports domestic high-efficiency solar photovoltaic module manufacturing.
- PM Surya Ghar: Muft Bijli Yojana: Promotes rooftop solar adoption among households, with a target of one crore households.
- Domestic research and development: Investment in advanced cells, wafers, polysilicon and tandem technologies can strengthen the domestic supply chain.

Emerging Applications of Solar PV

- Agrivoltaics: Combines solar power generation with agricultural activities on the same land.
- Floating solar: Installs solar panels on water bodies and can help reduce evaporation.
- Building-Integrated Photovoltaics (BIPV): Integrates solar materials into building components such as roofs, windows and façades.

Way Forward

- Expand domestic research, manufacturing and technology-transfer capabilities.
- Diversify imports and international technology partnerships.
- Strengthen collaboration among industry, research institutions and universities.
- Support advanced solar-cell research while ensuring quality, durability and affordability.

UPSC Prelims Practice

Q. With reference to photovoltaic technology, consider the following statements:

1. The photovoltaic effect enables the conversion of sunlight into electrical energy.
2. Tandem solar cells use multiple light-absorbing layers to improve energy conversion.
3. An inverter converts alternating current into direct current for grid integration of solar power.

Which of the statements given above are correct?

(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3

Answer: (a) 1 and 2 only

Explanation: Solar panels generally produce DC electricity, and an inverter converts it into AC for grid use.

UPSC Mains Practice

Q."Concentration of clean-energy manufacturing technologies in a few countries can create strategic vulnerabilities for energy-importing economies." Discuss the implications of China's proposed solar technology export controls for India and suggest measures to strengthen domestic manufacturing.

6.India's Nutrient-Rich Purple Potato: Kufri Jamunia

Why in News?

- The Indian Council of Agricultural Research–Central Potato Research Institute (ICAR-CPRI) developed Kufri Jamunia, a biofortified purple potato variety aimed at addressing micronutrient deficiencies.

Key Highlights

- Kufri Jamunia was released in 2024 and contains higher levels of vitamin C, anthocyanins, carotenoids, zinc and iron.
- It contains 42.75 mg/100 g of vitamin C, 2.28 mg/100 g of zinc, 3.22 mg/100 g of iron and 42.05 mg/100 g of anthocyanins in its flesh.
- The variety is recommended for cultivation in the North Indian plains and has a yield potential of 32–35 tonnes per hectare.
- Other purple potato varieties developed by ICAR-CPRI include Kufri Neelkanth (2018) and Kufri Manik (2021).
- Kufri Jamunia has a medium dormancy period of 6–8 weeks, good storage quality and applications in traditional dishes, breakfast items and processed foods.

Key Concepts

- Hidden hunger refers to micronutrient deficiencies despite adequate calorie intake.
- Biofortification is the process of increasing the nutritional content of crops through plant breeding and other agricultural techniques.
- Anthocyanins are pigments responsible for the purple colour of the potato and are known for their antioxidant properties.