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Daily Current Affairs

To The Point

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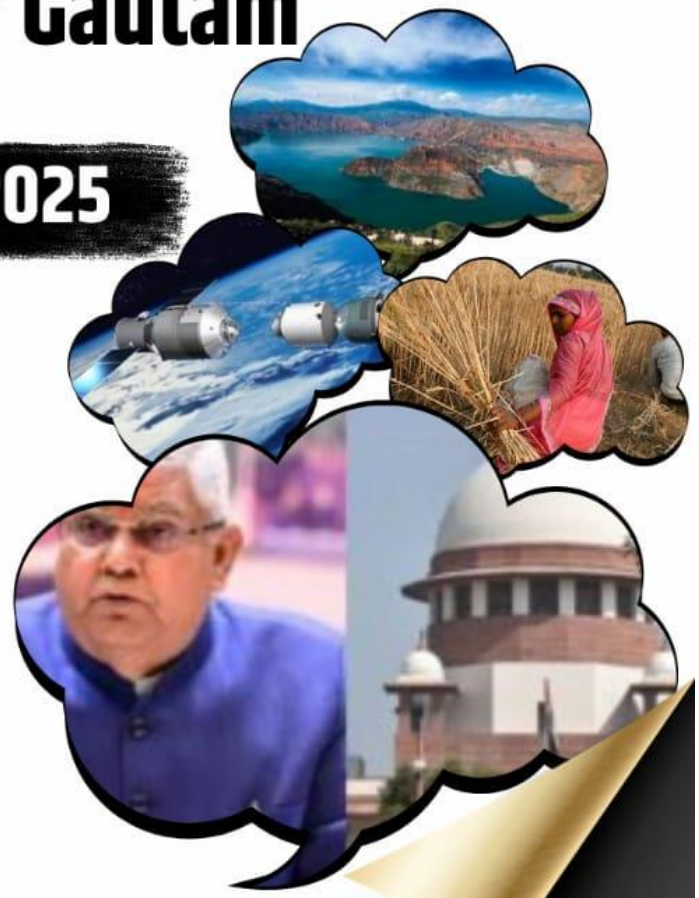

Table Of Content

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GS Paper 3 – Economy

1 ISRO Satellites Forecast Wheat Production

Context: In a remarkable blend of **space science and agriculture**, **ISRO** has forecasted India's **wheat production** for the **2024–25 Rabi season** at an estimated **122.724 million tonnes**. This estimate comes from **eight major wheat-growing states**, showcasing how **space-based tools** are revolutionizing farm monitoring.

About the Study:

ISRO utilized the **Comprehensive Remote Sensing Observation on Crop Progress (CROP)** framework for this assessment. Key technologies included:

- **Optical & Synthetic Aperture Radar (SAR)** datasets from satellites:
  - **EOS-04**
  - **EOS-06**
  - **Resourcesat-2A**
- **Near real-time monitoring** of wheat sowing and crop conditions

What is CROP?

- A **semi-automated, scalable framework** developed by **NRSC/ISRO**
- Tracks **crop sowing**, **harvesting**, and **growth stages** in real-time
- As of **March 31, 2025**, wheat was sown over **330.8 lakh hectares**, aligning closely with the **Ministry of Agriculture's** data

Why Space Technology in Agriculture Matters:

Challenges in Indian Agriculture:

- Heavy reliance on **natural resources**
- **Rising population** pressure
- Need for **sustainable** and **data-driven** agriculture

How Space Tech Helps:

- Enables **smart planning** and **resource optimization**
- Provides **real-time insights** to **farmers**, **scientists**, and **policymakers**
- Improves **yields**, reduces **input waste**, and supports **climate resilience**

Key Applications of Space Technology in Agriculture:

1. Precision Agriculture:

- Uses **GNSS (Global Navigation Satellite Systems)** for accurate **field mapping**
- Facilitates:
  - **Precision irrigation**
  - **Nutrient optimization**
  - **Targeted crop planning**
- Results in **higher yields** and **better resource efficiency**

2. Enhanced Connectivity: Satellite-based networks provide farmers with:

  - **Weather forecasts**
  - **Market prices**

- **Expert agronomic advice**

3. Remote Sensing & Satellite Imaging:

- Monitors:
  - **Crop health**
  - **Vegetation indices**
  - **Land use patterns**
- Detects **disease and stress early**, reducing pesticide use

4. Hyperspectral Imaging:

- Tracks **subtle physiological changes** in plants
- More precise than traditional sensors for:
  - **Plant health monitoring**
  - **Nutrient deficiency detection**

5. Water & Soil Management:

- Tracks:
  - **Soil moisture**
  - **Groundwater levels**
  - **Irrigation efficiency**
- **Aids in:**
  - **Combating erosion**
  - **Conserving resources**
  - **Sustainable land management**

Government Initiatives Supporting Agri-Space Integration:

- **Since the 1980s**, India has harnessed **satellite data** for agricultural planning.
- **Mahalanobis National Crop Forecast Centre (MNCFC)** established in **2012** to operationalize crop forecasting using ISRO data.
- **Soil and Land Use Survey of India (SLUSI)** employs satellite mapping for **soil resources**.
- **Krishi-DSS**: A groundbreaking **geospatial digital platform** offering:
  - **Satellite imagery**
  - **Weather and soil data**
  - **Reservoir storage and groundwater levels**

Accessible **anytime, anywhere**, Krishi-DSS empowers data-driven decisions.

Conclusion & The Road Ahead:

Space technology is fast becoming a cornerstone of **smart agriculture** in India. By leveraging **satellite data** and **geospatial intelligence**, the sector can achieve:

- Enhanced **productivity**
- Improved **sustainability**
- Strengthened **food security**

As **climate change**, **population growth**, and **resource scarcity** continue to challenge traditional agriculture, integrating **space-based solutions** will be vital for ensuring **resilient and informed farming systems**.

GS Paper 3 – Environment and Ecology

2 Kerala's IPR Policy to Be Revamped After 17 Years

Context: After a gap of **17 years**, **Kerala** is set to comprehensively revise its **Intellectual Property Rights (IPR) Policy**, aligning with the evolving national and global IP ecosystem.

About the Initiative:

- The revision is spearheaded by the **Kerala State Council for Science, Technology and Environment (KSCSTE)**.
- A **six-member committee**, led by the **Chairman of the Kerala State Biodiversity Board**, is drafting the new policy.
- The existing policy was first introduced in **2008** and will now be modernized in line with the **National IPR Policy 2016** and **2024 directives** from the **Department of Science and Technology**.

Key Highlights of the Draft Policy:

- **Mandatory IPR education** in school and university curricula.
- Establishment of:
  - **Kerala IPR Academy**
  - **Kerala Traditional Knowledge Authority**
  - **Traditional Knowledge Docketing System**
  - **'Mission IPR'** for centralized IP governance
- Aimed at promoting **innovation**, **protecting traditional knowledge**, and strengthening **IP infrastructure** in the state.

Understanding Intellectual Property Rights (IPRs):

What is Intellectual Property?:

Intellectual Property (IP) refers to creations of the **mind** in fields such as **science**, **art**, **industry**, and **literature**.

What are IPRs?

Intellectual Property Rights are **legal rights** granted to creators and innovators to protect their work and benefit from its use.

Forms of IPR:

- **Patents**
- **Copyrights**
- **Trademarks**
- **Industrial Designs**
- **Geographical Indications (GIs)**
- **Plant Varieties & Farmers' Rights**
- **Layout Designs of Integrated Circuits**

- **Trade Secrets**

Global vs. National IPRs:

Patent Cooperation Treaty (PCT):

- Offers an **international filing system** (not a global patent).
- Allows inventors to seek protection in **multiple countries** with a single application.
- **India joined the PCT in 1998**.
- Managed by the **World Intellectual Property Organization (WIPO)**.

About WIPO (World Intellectual Property Organization):

- A **UN agency** promoting global IP protection.
- Established in **1967** under the **WIPO Convention**.
- Has **193 member countries**, including **India** (joined in **1975**).
- **Headquarters:** Geneva, Switzerland.

Challenges in India's IP Regime:

1. **Patent Backlog**: Slow patent examination and approvals.
2. **IP Infringement**: Weak enforcement leading to counterfeiting and piracy.
3. **Low Commercialization**: Poor industry-academia collaboration.
4. **Global Innovation Lag**: Foreign firms dominate filings due to low domestic R&D.

India's IP Ecosystem: Reforms and Initiatives:

National IPR Policy 2016:

- Unifies all IPRs under one **vision document**.
- Emphasizes **IP awareness**, **protection**, **enforcement**, and **commercialization**.
- **Cell for IPR Promotion and Management (CIPAM):** Coordinates the implementation of the **National IPR Policy**.
- **National Intellectual Property Awareness Mission (NIPAM):** Aims to create **IP awareness** in **schools and colleges** across India.
- **Startup-Focused Initiatives: SIPP Scheme**: Supports startups in protecting their IP assets.

Atal Innovation Mission (AIM) by NITI Aayog:

Encourages a culture of innovation through:

- **Atal Tinkering Labs**
- **Atal Incubation Centers**
- **Atal New India Challenges**
- **Mentor India Network**

Conclusion: A Vision for an Innovation-Led Economy

India's dynamic progress in the IP domain reflects its **growing intellectual capital** and **global ambition**. The revision of Kerala's IPR policy adds momentum to India's broader mission to build an **innovation-driven**, **economically resilient**, and **IP-empowered future**.

GS Paper 2 – Governance, Constitution, Polity, Social Justice

3 Judiciary and Constitutional Boundaries: Vice-President's Remarks Ignite National Discourse

Context: In a thought-provoking address, **Vice-President Jagdeep Dhankhar** questioned certain facets of India's judiciary, reigniting long-standing debates on **judicial powers**, **accountability**, and **constitutional interpretation**.

His remarks touched upon sensitive issues, including:

- **Judicial review**
- **Use of Article 142**
- **Judicial directives to constitutional authorities**
- **Bench composition**
- **Transparency in internal judicial affairs**

India's Judiciary: A Constitutional Pillar:

The **Supreme Court of India** serves as the **guardian of the Constitution** and protector of **fundamental rights**. Through tools like:

- **Judicial review**
- **Article 142** ...it ensures **checks and balances** on the executive and legislative branches.

However, the **scope** and **transparency** of these powers often lead to sharp scrutiny.

Vice-President Dhankhar's Remarks: Key Concerns

At a recent public event, **Vice-President Dhankhar** spotlighted five contentious areas:

1. **Lack of Transparency in Judicial Inquiries** Criticized opaque mechanisms in handling judicial misconduct, referencing a high-profile **Delhi High Court incident** involving cash recovery.
2. **Judicial Directives to High Offices** Raised concerns over a **Supreme Court judgment** that prescribed **action timelines** to the **President and Governors**, stating this may intrude upon constitutional boundaries.
3. **Judiciary's Accountability Deficit** Unlike the executive or legislature, the judiciary lacks **direct public accountability mechanisms**, he argued.
4. **Size of Constitution Benches** Cited **Article 145(3)**, suggesting that requiring five judges for constitutional matters may be outdated with today's **34-member Supreme Court**.
5. **Use of Article 142** Warned that the judiciary's **extraordinary powers** under Article 142 sometimes override **representative democracy** principles.

A Nation Divided: Supporters vs. Critics

Dhankhar's remarks have drawn a **mixed reaction**:

Supporters say:

- The judiciary **must evolve** with public expectations.
- Calls for **transparency** are necessary for public trust.
- **Accountability mechanisms** could balance unchecked powers.

Critics argue:

- Remarks from a high office may be seen as **infringement** on **judicial independence**.
- Judicial review and Article 142 are **constitutionally mandated tools** that ensure justice when other institutions fail.

Judicial Activism: Overreach or Necessary Intervention?

Historically, **Article 142** has enabled bold, justice-oriented decisions:

- *Bhopal gas tragedy compensation* (1989)
- *Vishaka guidelines on workplace harassment* (1997)
- *Cancellation of illegal coal block allocations* (2014)
- *Permanent Commission for Women Officers in Armed Forces* (2024)
- *Guidelines on Unlawful Demolitions* (2024)

These rulings reflect the judiciary's **activist role** in plugging administrative gaps.

Timeline Mandates & Judicial Review:

The **power of judicial review** is considered a **basic feature** of the Constitution. Legal experts have upheld the Supreme Court's recent timeline ruling, noting:

- It was consistent with **past precedents**.
- It aligned with a **2016 Ministry of Home Affairs Office Memorandum**, which advised prompt action by constitutional authorities.

Bench Strength & Article 145(3):

- **Article 145(3)** mandates at least **five judges** to decide constitutional matters.
- With the SC now expanded to **34 judges**, some believe this threshold could be reconsidered for better efficiency, while others argue that:

  "More isn't always faster — logistics and deliberation matter."

Judicial Independence & Constitutional Sovereignty:

India's model blends:

- **British-style Parliamentary Sovereignty**
- **American-style Judicial Supremacy**

This hybrid system **allows:**

- Judicial scrutiny of laws and executive actions.
- Retention of **constitutional supremacy**.

Any attempt to **reform judicial appointments** (e.g., reintroducing the NJAC) must safeguard **judicial independence**, not dilute it.

GS Paper 3 – Science and Technology

4 SpaDeX Mission: ISRO's Leap into Space Docking Technology

Context: In a groundbreaking achievement, the **Indian Space Research Organisation (ISRO)** has successfully completed the **second docking** of its two satellites — **SDX01 (Chaser)** and **SDX02 (Target)** — as part of the **SpaDeX (Space Docking Experiment)** mission. This marks a significant milestone in India's space technology capabilities.

About the SpaDeX Mission:

The **SpaDeX Mission** is a **technology demonstration** initiative by ISRO, aimed at validating the **capability of docking and undocking** two small satellites in **low-Earth orbit (LEO)**. The mission's success represents a critical step towards advancing India's space exploration and in-orbit operations.

Key Mission Details:

- **Satellites Involved**:
  - **SDX01 (Chaser)**: The active satellite that performs docking operations.
  - **SDX02 (Target)**: The satellite to be docked.
- **Weight**: Both satellites weigh approximately **220 kg** each.
- **Launch Vehicle**: The satellites were launched by the **PSLV-C60** rocket.
- **Orbit Details**: They were placed in a **460 km circular orbit**, with an inclination of **45 degrees**.

Objectives of the SpaDeX Mission:

Primary Objective:

To develop and demonstrate the ability to **rendezvous, dock, and undock** spacecraft while in **orbit** — a crucial technology for future space missions.

Secondary Objectives:

1. **Electric Power Transfer**: The mission aims to showcase the transfer of **electric power** between docked spacecraft, a key capability for future **in-space operations**.
2. **Spacecraft Control Systems**: Developing and validating **composite spacecraft control systems** for precise maneuvering in orbit.
3. **Payload Operations**: Testing the **payload operations** post-undocking — critical for the success of **deep-space missions**.

India Joins Elite Space Powers:

With this successful docking mission, **India** becomes the **fourth country** after the **United States**, **Russia**, and **China** to conduct successful **satellite docking operations**. This accomplishment positions ISRO as a growing force in **space exploration** and paves the way for more **complex missions** in the future.

Conclusion: A Step Towards Future Deep-Space Missions

The **SpaDeX Mission** marks a remarkable achievement for India's space program, demonstrating ISRO's evolving capabilities in **spacecraft rendezvous**, **docking technology**, and **in-orbit operations**. These advancements are vital for **future deep-space missions**, **crew transfer systems**, and more sophisticated space activities.

5 Brazil Hosts the 15th BRICS Agriculture Ministers' Meeting

Context: A Hub for Agriculture and Global Cooperation

- **Brazil** is not only the **largest country in South America** but also the **fifth largest nation** in the world, holding a strategic position in global affairs.
- **Capital City**: **Brasília**
  - A planned city known for its modernist architecture and futuristic layout.
- **Geographical Position**:
  - Brazil spans both the **Equator** and the **Tropic of Capricorn**, resulting in a diverse climate, ranging from **humid tropical** to **subtropical** zones.
  - The country is bordered by every South American country except **Chile** and **Ecuador**, making it a central player on the continent.
- **The Amazon**:
  - Home to the **world's largest river system** and the **largest remaining virgin rainforest**, the **Amazon River** and its basin are crucial for global biodiversity and carbon regulation.
  - The Amazon rainforest is often called the **"lungs of the Earth"** for its vital role in absorbing carbon dioxide and producing oxygen.
- **Economic Power**:
  - Brazil is the world's **leading producer of niobium**, a rare metal essential for high-tech industries, and the **second-largest producer of iron ore**, **manganese**, **tantalite**, and **bauxite**.
  - These resources are pivotal for the global supply chain, particularly in technology and construction.
- **Climate Diversity**:
  - Despite its predominantly tropical and subtropical climate, Brazil has a **drier region** in the **Northeast**, making the country a case study in climatic variation.
- **Agriculture Focus**:
  - The **BRICS Agriculture Ministers' Meeting** (hosted in Brazil) serves as a key event for discussing global food security, sustainable farming practices, and international agricultural collaboration.

Brazil: A Land of Abundance and Influence

- As a powerhouse in both **natural resources** and **agriculture**, Brazil plays a crucial role in shaping global markets and environmental policies.
- The **BRICS nations** (Brazil, Russia, India, China, South Africa) continuously engage in fostering mutual growth and addressing challenges like climate change, agricultural productivity, and food security.

Brazil's remarkable geographic and economic advantages make it an essential player on the world stage, and meetings like the BRICS Agriculture Ministers' event highlight its importance in shaping the future of global agriculture and sustainability.

GS Paper 1 – Geography

6 UNESCO Expands Global Geoparks Network with 16 New Sites

Context: In a milestone celebration of the **10th Anniversary of UNESCO Global Geoparks (UGGPs)**, **16 new sites** across **11 countries** have been designated as part of the **Global Geoparks Network (GGN)**, a non-profit international association founded under **UNESCO**. These newly added sites hold immense geological significance and demonstrate a commitment to sustainable development, education, and preservation of Earth's natural heritage.

Key Features of UNESCO Global Geoparks:

- **Global Geoparks Network (GGN)**: GGN is an international network that establishes ethical standards for **Global Geoparks**, which must be followed to maintain membership.
- **UGGPs (UNESCO Global Geoparks)**: UGGPs are geographical areas of **international geological significance**. These parks are managed holistically to integrate **protection**, **education**, and **sustainable development**.
    - **Management**: Each park is managed by an entity with **legal recognition** under national laws.
    - **Reassessment**: The **UGGP status** is not permanent, and parks are reassessed every **four years** to ensure they meet the required standards.
    - **Membership**: **Networking** within the GGN is mandatory for all UNESCO Global Geoparks.
- **Current Statistics**: As of now, there are **229 UNESCO Global Geoparks** across **50 countries**. Interestingly, **India** does not currently have any UNESCO Global Geoparks.

Prominent New Geoparks Added:

1. **Kanbula (China)**: Situated on the edge of the **Qinghai-Tibet Plateau**, Kanbula is home to the ancient **Maixiu volcanoes** and the **Yellow River**, showcasing well-preserved geological formations.
2. **Mt Paektu (North Korea)**: Famous for its role in the **Millennium Eruption** around **1000 CE**, this area is a significant volcanic site with both historical and geological importance.
3. **North Riyadh (Saudi Arabia)**: The **Obaitharan Valley** (Wadi Obaitharan), nestled at the base of the **Tuwaiq Mountain**, is a lush region critical to the local water supply and home to ancient **coral reef systems**.

The Vision Behind UNESCO Global Geoparks:

The **UNESCO Global Geoparks** initiative was introduced in **2015** as part of the **International Geosciences and Geoparks Programme (IGGP)**. Its primary goal is to promote **geological conservation**, enhance **community engagement**, and stimulate **sustainable tourism**.

These new additions strengthen the network's global presence, underscoring the importance of preserving the Earth's geological heritage for future generations.