Mains Oriented Articles 19-09-2025

GS PAPER - 2

EU-India partnership

Source: The post **EU-India partnership** has been created, based on the article **"EU-India partnership set for upgrade"** published in **"The Hindu" on 18th September 2025.**

UPSC Syllabus Topic: GS Paper -2- Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.

Context: The European Union (EU) has launched a new strategic agenda to upgrade its partnership with India in trade, technology, security, defence and climate change.

Recent Developments

1. The EU's High Representative Kaja Kallas released the **"New Strategic EU–India Agenda"** in Brussels and urged the European Parliament and Council to adopt it.
2. **Focus areas**: The agenda focuses on strengthening cooperation in trade, technology, security, defence industry and climate action.
3. **Brussels and New Delhi are currently negotiating a Free Trade Agreement (FTA)** and are also working on an agreement to exchange classified information to deepen defence industry ties.
4. Both sides are also planning a **joint roadmap for the next EU–India summit** in early 2026.

Importance of the Partnership

1. The EU considers **India a crucial partner in its global strategy**, especially amid increasing geopolitical uncertainties.
2. **Trade between India and the EU** has grown by more than 90% over the last decade, demonstrating the expanding economic relationship.
3. Prime Minister Narendra Modi has **welcomed the adoption of the new strategic agenda** as an opportunity to deepen cooperation further.

Challenges Identified

1. **India's ties with Russia:** The EU is concerned about India's military exercises with Russia, including its participation in Zapad-2025, and its continued import of Russian oil.
2. **Tariff barriers:** There are tariff and non-tariff barriers in the agricultural and industrial sectors, including India's Quality Control Orders (QCOs), which the EU views as restrictive.

3. **Negotiation delays:** EU officials have expressed frustration at the slow pace of negotiations and want to see faster progress.
4. **Divergences on Ukraine conflict:** The EU has also emphasised the peaceful resolution of the war in Ukraine, while India has maintained its strategic autonomy on the issue.

EU's Strategy to Address Challenges

1. The EU's College of Commissioners **has agreed that the EU should deepen ties with India** and not leave a void for other powers to fill.
2. European officials have cited the principle of **"nothing is agreed until everything is agreed"** to ensure that all issues are resolved comprehensively before the finalisation of agreements.
3. The EU aims **to conclude a trade deal with India by the end of 2024** and wants future talks to cover both tariff and non-tariff barriers comprehensively.

Question: Evaluate the recent initiatives to upgrade the India–European Union (EU) partnership and discuss the key challenges in strengthening this relationship. (Answer in 150 words)

Facial recognition in Anganwadis affects welfare delivery

Source: The post Facial recognition in Anganwadis affects welfare delivery has been created, based on the article "**Welfare at the mercy of the machine**" published in " **The Hindu**" on 18th September 2025

UPSC Syllabus Topic: GS Paper 2 – Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Context: The article critiques mandatory **Facial Recognition Software (FRS) in Anganwadis**. It argues that welfare delivery is becoming a technocratic "engineer's paradise," displacing human judgment.

How is automation reshaping welfare delivery?

1. **From cautionary fiction to present governance:** American novelist Kurt Vonnegut, in his 1952 novel *Player Piano,* warned of humans subordinated to machines. A similar pattern appears as digital tools govern welfare delivery and constrain human judgment.
2. **Anganwadi basics:** Started in 1975, Anganwadis address child malnutrition under the Integrated Child Development Scheme. About 14.02 lakh centres, staffed by local women as workers and helpers, provide preschool services and legally mandated

Take Home Rations (THR) for under-threes, pregnant, and lactating women under the National Food Security Act, 2013.

3. **Poshan Tracker + FRS**: Since 2021, the Poshan Tracker app records nutrition status and demands frequent updates. From July 1, women must pass face authentication to receive THR. e-KYC precedes this, linking Aadhaar and biometrics through OTP verification.
4. **Safeguards vs justice:** Two stated aims are preventing beneficiary impersonation and diversion by staff. This setup assumes wrongdoing, conflicting with the principle that people are innocent until proven guilty.

What breaks down on the ground?

1. **OTP hurdles:** Phone numbers change, phones are often not with the women, and sharing OTPs raises trust concerns. Even after e-KYC, face matches fail for reasons Anganwadi workers cannot diagnose.
2. **Tech and network limits:** Workers' phones struggle with heavy processing and hang. Patchy connectivity causes delays. Repeated photo attempts frustrate beneficiaries and slow distribution.
3. **Lost discretion:** Workers personally know families and can vouch for identity, yet cannot override failed authentications. Authentic beneficiaries are denied rations, and workers face the backlash.
4. **No consultation:** The system was introduced without engaging Anganwadi staff who must operate it. Implementation burdens rise while decision-making power shrinks.

What are the real THR bottlenecks?

1. **Quality and supply deficits:** Rations are often poor in quality and supply is irregular. These are central obstacles to nutrition outcomes.
2. **Stagnant child budget:** For children, the THR budget is ₹8 per day and has not been revised since 2018. This limits adequacy and undermines program goals.
3. **Contracting and centralisation issues:** Concerns persist about corrupt contracting and supply by large firms. This continues despite Supreme Court directions since 2004 favouring decentralised production through self-help groups and mahila mandals.
4. **Misdiagnosed problem:** Women "faking" pregnancy or children faking identity are not core issues. FRS targets a peripheral risk while major gaps remain unaddressed.

What course-corrections uphold rights and dignity?

1. **Publish evidence before punitive design:** If large-scale fraud exists, release reports for public scrutiny. Policy should be proportionate to verified risks.

2. **Prefer community monitoring:** Community verification within Anganwadis is a practical, context-aware check on identity and delivery.
3. **Do not criminalise the vulnerable:** FRS is largely used in criminal probes and is even banned in San Francisco. Applying it to women and children treats citizens like suspects.
4. **Keep care above code:** Early childhood care should not wait for software to improve. Choose authenticity over mere authentication, dignity over dehumanisation, and fraternity over friction.

Question for practice:

Discuss the impact of mandatory facial recognition in Anganwadis on Take Home Rations delivery and beneficiaries' dignity.

GS PAPER - 3

World Ozone Day

Source: The post World Ozone Day has been created, based on the article **"Healing the Skies: World Ozone Day"** published in **"PIB" on 18th September 2025.**

UPSC Syllabus Topic: GS Paper -3- Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

Context: World Ozone Day is observed every year on 16 September to create awareness about the ozone layer, which shields life on Earth from harmful ultraviolet radiation.

World Ozone Day was established by the United Nations in 1994 to mark the adoption of the 1987 Montreal Protocol, one of the most successful global environmental treaties. The 2025 theme "From Science to Global Action" underlines how scientific evidence led to coordinated international action and the gradual healing of the ozone layer.

Global Efforts to Protect the Ozone Layer

1. The **Vienna Convention (1985)** established cooperation between nations to protect the ozone layer.
2. The **Montreal Protocol (1987)** led to the global phase-out of major ozone-depleting substances (ODSs) such as CFCs, halons, and carbon tetrachloride.
3. The **Kigali Amendment (2016)** to the Montreal Protocol introduced the phase-down of Hydrofluorocarbons (HFCs), which are potent greenhouse gases.

4. The **Global Environment Facility (GEF)** has provided over $160 million to support ODS phase-out in transition economies, complementing the Montreal Protocol's Multilateral Fund.

The Importance of the Ozone Layer

1. The ozone layer located in the stratosphere 15–50 km above Earth and absorbs harmful UV-B rays and acts as a protective shield for all life forms.
2. Without the ozone layer, there would be higher risks of skin cancer, cataracts, reduced agricultural productivity, marine life disruption, and material degradation.

Causes of Ozone Depletion

1. Human-made chemicals such as CFCs, halons, carbon tetrachloride, and methyl bromide release chlorine and bromine atoms that destroy ozone molecules in the stratosphere.
2. Natural processes, including volcanic aerosols, can worsen ozone depletion by enhancing the effects of man-made chemicals.

Environmental and Health Effects of Ozone Depletion

1. Increased UV radiation raises risks of skin cancer, premature aging, cataracts, and weakened immune systems in humans.
2. Crops like rice, wheat, and soybeans face reduced yields due to disrupted photosynthesis.
3. Marine ecosystems are threatened as plankton and juvenile aquatic species are highly sensitive to UV radiation.
4. Domestic animals and construction materials also suffer from greater UV exposure.

India's Achievements under the Montreal Protocol

1. India phased out CFCs, carbon tetrachloride and halons for controlled use by 2010, ahead of the Montreal Protocol schedule.
2. The **ODS Rules (2000)** banned CFCs and halons in new equipment by 2003 and created a legal framework for enforcement.
3. India met its **HCFC Phase-Out targets** under the HPMP Stage-I by phasing out 341.77 Ozone Depleting Potential (ODP) tonnes.
4. Over **20,000 refrigeration and air-conditioning technicians** have been trained to adopt non-ODS technologies.
5. India's **Cooling Action Plan (ICAP, 2019)** set global precedent, aiming to reduce cooling demand by 20–25%, energy use by 25–40%, and refrigerant demand by 25–30% by 2037–38.

6. India's **National Strategy for HFC Phase-Down (2023)** aligns with Kigali Amendment goals and prioritises low-GWP alternatives.

Individual Actions for Ozone Protection

1. Consumers can choose CFC-free and ozone-friendly appliances.
2. Homeowners can responsibly dispose of old air-conditioners, refrigerators and halon fire extinguishers.
3. Farmers can shift to non-methyl bromide alternatives like integrated pest management.
4. Technicians can recover and recycle refrigerants during servicing to prevent leakage.
5. Citizens can educate themselves about national and global ozone protection efforts and support policy compliance.

Question: Discuss the significance of World Ozone Day in promoting global environmental cooperation. Highlight the key achievements of India under the Montreal Protocol. (Answer in 150 words)

Monsoon floods test resilience of Himalayan states

Source: The post India must strengthen GIFT City to attract global capital has been created, based on the article "**Securing valleys and slopes**" published in " **Indian express**" on 18th September 2025

UPSC Syllabus Topic: GS Paper 3 -Environment

Context: Monsoon 2025 exposed the vulnerability of Himalayan states. Severe rains, cloudbursts, landslides, and floods hit J&K, Himachal Pradesh, Punjab, and Uttarakhand, disrupting pilgrimages and crops. The crisis revived debate on technology, preparedness, and citizen roles in disaster management.

How agencies acted on the ground?

1. **Jammu & Kashmir:** The Army laid Bailey bridges within hours, the Air Force launched helicopter sorties from Jammu, and NDRF specialist teams surged in. Pilgrims at Machail and Vaishno Devi were evacuated through joint action with police, CPF, and SDRF.
2. **Punjab**: NDMA coordinated with CWC, IMD (India Meteorological Department), and BBMB (Bhakra Beas Management Board) to regulate releases and avert breaches. A dramatic Army Aviation airlift saved CRPF personnel near Madhopur Headworks minutes before a building collapsed.

3. **Himachal Pradesh:** Torrential rains triggered slope failures and flash floods across Chamba, Kullu, and Lahaul-Spiti. Despite casualties, over 10,000 Manimahesh Yatra pilgrims were evacuated. Army, IAF, ITBP, and SDRF mounted difficult operations, while BRO restored roads and bridges using drone imagery for assessments.
4. **Uttarakhand**: The Army built a 400-foot aerial cableway, restored bridges, and deployed engineers and SAR dogs. IAF Chinooks lifted heavy equipment, with UCADA (Uttarakhand Civil Aviation Development Authority) adding civil helicopters. SDRF and ITBP used drones and satcom links for swift evacuations, supported by temporary Incident Command Posts.

What enabled speed and coordination?

1. **Unified action:** Soldiers, airmen, engineers, paramilitary forces, disaster professionals, officials, and volunteers worked in concert. A deputy commissioner's 36-hour trek to Dharali reflected the determination to reach isolated communities quickly.
2. **Tech backbone:** Drones, satellite communication, OneWeb links, Doppler radars, and IMD nowcasting supported planning and execution. Joint work by Army communicators and service providers revived networks and stabilised information flows.
3. **Command posts:** Temporary command posts enabled real-time tasking across agencies. Speed, coordination, and innovation characterised the operational posture.

What must improve before the next monsoon?

1. **Mapping and monitoring:** GSI should expand landslide mapping using soil soaking and slope gradients. NRSC (National Remote Sensing Centre) must monitor glacial lakes and debris flows round the clock, and AI using local hydro-met data can sharpen flash-flood and cloudburst forecasts.
2. **Predictive surveillance:** Drones should shift to predictive surveillance of slopes, rivers, and glaciers. GIS-based risk mapping is essential, with a denser Doppler radar network and more localised early-warning systems.

Where community and governance fall short?

1. **Alerts to action:** Despite lakhs of warnings issued through SMS and the Sachet app, too many citizens remain unaware of what to do when alerts arrive. Pilgrimage corridors like Machail and Gangotri see footfall even during red alerts.
2. **Risky practices:** Construction in riverbeds, slope destabilisation from unchecked development, and disregard of building norms magnify hazards. Communities need clarity on evacuation routes, shelters, and steps upon receiving alerts.
3. **Training reach:** The NDMA's Aapda Mitra (Friends in Disaster) programme is a good start, but it needs deeper penetration into schools, panchayats and resident welfare associations. Mock drills should become regular, meaningful community training.

How recovery should build resilience?

1. **Safer infrastructure:** Reconstruction must stabilise slopes, reinforce embankments, and curb illegal mining. Seismic codes and riverbank "no-build zones" require strict enforcement.
2. **Institutions & civil society:** A technically oriented disaster-management community is needed. Civil society's local knowledge should be integrated into district authorities to anchor resilient development.
3. **Shared responsibility:** Responders showed courage and skill, but government action alone is not enough. Preparedness must be treated with the seriousness of civic duties to achieve lasting resilience.

Question for practice

Examine how the Monsoon 2025 floods affected Himalayan states and assess the response, technology use, and community preparedness

Prelims Oriented Articles (Factly)

Air Defence RADARS

News: The Army began procuring advanced air-defence radars to plug border gaps, four months after Operation Sindoor, when hundreds of Pakistani UAVs breached Indian airspace.

About Air Defence RADARS

Source – DRDO

- Radar is the **acronym for Radio Detection And Ranging.**

- It is a specialized **electronic system that uses radio waves** to determine the direction, distance (using time delay), and velocity (through Doppler Shift) of target objects.
- **Uses:** Radars are used by the military to search, detect, identify, and help destroy aerial threats.
- **Components:**
    - **Transmitter:** Sends out **radio signals.**
    - **Receiver:** Collects reflected signals from targets.
- **Types of radars:**
    - **Surveillance radars:** These systems continuously surveil the skies to detect aerial objects, whose detections are analysed by an operator, increasingly with computer assistance, for identification.
    - **Fire control radars:** These systems provide targeting support to surface-to-air guns or missiles so that identified aerial threats can be engaged effectively.
- **Radar Cross-Sections (RCS):** It is a measure of how detectable an object is by radar, usually represented in sq. m.
    - The **larger the RCS, greater the detectability**.
    - The RCS is **not only the function of the size** of an aerial object but also its **specific design features**: the basic thrust of modern stealth technology is to reduce an aircraft's RCS.

Indian Defence Forces' Radar Capabilities

- Both the **army and the Indian Air Force** have both **surveillance** and f**ire control** radars, including Low Level Light Weight Radars (**LLLRs**) for low-altitude.
- **Indian Army** primarily uses **Flycatchers** (indigenously upgraded Super Fledermaus/USFM) and the **AD tactical control radar for fire control.**
- The **IAF** controls most **high- and medium-power radars** with ranges of up to several hundred kilometres for higher-altitude tracking of larger threats such as fighter jets, transport aircraft, and AWACS.
- IAF employs **fire control radars** including the **3D central acquisition radar and the Rajendra radar**.
- **India's Air Defence Infrastructure**
    - **Missile systems:** India has the Russian S-400 system and the indigenous Akash missile system.
    - **Army's Akashteer system:** It integrates radars, sensors, air defence guns, and communications to generate a real-time operational air picture.

- **IAF's IACCS (Integrated Air Command and Control System):** It unifies data from multiple assets to enable coordinated detection and interception.
- **Mission Sudarshan Chakra:** It is an ongoing modernisation programme; DRDO has recently tested the Integrated Air Defence Weapon System.

Japanese Encephalitis (JE)

News: A new study found waning immunity to Japanese encephalitis virus may predispose individuals to more severe dengue, highlighting timing of JE vaccine boosters.

About Japanese Encephalitis (JE)

Source – MoHFW

- Japanese encephalitis virus (JEV) is a **mosquito-borne flavivirus** and a major **cause of viral encephalitis in Asia.**
- It belongs to the **same genus as dengue, Zika, yellow fever, and West Nile viruses.**
- **Most JEV infections are mild** or asymptomatic, but **about 1 in 250 becomes severe**, and among this severe cases the **fatality rate can be as high as 30%.**
- The **incubation period is 4–14 days**.
- **Symptom** : Severe disease presents with high fever, headache, neck stiffness, disorientation, coma, seizures, and spastic paralysis.
- **Transmission through:**
    - Bites of infected **Culex mosquitoes, mainly Culex tritaeniorhynchus.**

  - An **enzootic cycle between mosquitoes, pigs, and/or water birds.**
  - **Humans**, once infected, **do not develop sufficient viraemia to infect feeding mosquitoes**.

- **Seasonality**: It is a warm-season epidemics in temperate Asia; year-round transmission in tropics/subtropics, intensifying during rains and pre-harvest in rice regions.
- **Treatment**: There is **no specific antiviral therapy** for Japanese Encephalitis. Encephalitis is a **medical emergency** and requires **urgent supportive care**..
- **Prevention**
  - **Vaccination: Safe and effective vaccines exist** (inactivated Vero cell-derived, live attenuated, live recombinant). one inactivated and both live vaccines are WHO-prequalified.
  - **Policy:** WHO recommends JE immunization where it is a public health priority, with strong surveillance and a one-time catch-up at introduction.
- **Key facts**
  - First documented JE case: **1871 in Japan**.
  - **Risk areas:** 24 countries in **South-East Asia and Western Pacific Regions** have JEV transmission risk, which includes more than 3 billion people.
  - JE primarily **affects children**.
    - Most **adults** in endemic countries have **natural immunity** after childhood infection, but **individuals of any age may be affected**.

Global Innovation Index (GII) 2025

News: Recently, the World Intellectual Property Organisation's (WIPO) published Global Innovation Index (GII) 2025.

About the Global Innovation Index (GII) 2025

Top 10 Most Innovative Countries in the World 2025:

Global Innovation Index (GII) 2025				
GII Rank 2025	**Country**	**GII Score 2025**	**Income Group Rank**	**Region Rank**
1	Switzerland	66	1	1
2	Sweden	62.6	2	2
3	United States	61.7	3	1
4	Republic of Korea	60	4	1
5	Singapore	59.9	5	2
6	United Kingdom	59.1	6	3
7	Finland	57.7	7	4
8	Netherlands (Kingdom of the)	57	8	5
9	Denmark	56.9	9	6
10	China	56.6	1	3

Source: IE

- Published by: The Global Innovation Index (GII) 2025 is published **annually** by the **World Intellectual Property Organisation (WIPO).**
- It **evaluates 139 economies** using more than 80 indicators measuring innovation inputs and outputs.
- The index tracks trends in **research and development (R&D), technology creation, market sophistication, and institutional performance.**
- **Global R&D growth slowed to 2.9 percent in 2024** and is projected to decline further to 2.3 percent in 2025.
- This represents the lowest level of R&D growth since the 2010 financial crisis.
- **Rankings**
    - **Switzerland remains the most innovative country in the world according to the GII 2025.**
    - **Sweden ranks second with a GII score of 62.6.**
    - The **United States ranks third** with a GII score of 61.7.
    - **China enters and strengthens its position in the global top ten** by leading in patents and technology outputs.
- **Regional Innovation Highlights**
    - Europe **leads as the most innovative region,** with 15 countries in the global top 25, including six in the top 10.

- **North America remains strong,** led by the **United States at rank three and Canada at rank seventeen.**
- **Southeast Asia, East Asia, and Oceania continue to emerge as global innovation hubs,** with six economies in the top 25.

About India's Rank in the GII 2025

- India **ranks thirty-eighth globally in the GII 2025, moving up from rank forty-eight in 2020.**
- India holds the **first position among lower-middle-income economies** and the **first position in the Central and Southern Asia region.**
- India **performs best in Knowledge and Technology Outputs, where it ranks twenty-second.**
- India also **performs relatively well in Market Sophistication, where it ranks thirty-eighth.**
- India **shows weaker performance in Business Sophistication (rank sixty-four), Infrastructure (rank sixty-one), and Institutions (rank fifty-eight).**
- India ranks **thirty-eighth globally,** showing steady improvement over the last five years.
- **India lags behind both China and the United States** but continues to climb the innovation rankings.

Speed Skating World Championships 2025

News: The Prime Minister congratulated Anandkumar Velkumar on winning the gold medal at the 2025 Speed Skating World Championships. He became the first Indian to achieve a world title in skating.

About Speed Skating World Championships 2025

Source: thelogicalindian.com

- **2025 edition:** The **2025 Speed Skating World Championships** is organised in **Beidaihe, China,** from **13 to 21 September 2025.**
- **Venue: Beidaihe**, a renowned beach resort in Qinhuangdao city, will host the event at the **Beidaihe International Roller Skating Center**, featuring a 200 m indoor track, state-of-the-art facilities, and an outdoor road circuit.
- **First Edition:** The event traces back to the **first edition in 1937**.
- It will bring together the **world's fastest skaters for nine days of competition.**
- **Participation:** Over **40 nations** are expected to compete, including strong teams from **China, India, Chinese Taipei, Korea, Colombia, Italy, France, and the USA**.
- **Events:** The championship includes events like **Men's Sprint Races, Women's Sprint Races, Women's Long-Distance Events and Men's Long-Distance Events.**
- **Event Significance:** This championship marks **a major return of world-class speed skating to China following the World Games**, promising high-speed action, record-breaking performances, and intense international rivalry.

National Policy on Geothermal Energy (2025)

News: The Government of India has recently announced the National Policy on Geothermal Energy (2025) to drive the clean energy transition and advance the nation's Net Zero 2070 commitment.

About the National Policy on Geothermal Energy (2025)


Source: BS

- The **Government of India has notified the National Policy on Geothermal Energy (2025)** to accelerate clean energy transition, diversify renewable sources, and support **India's Net Zero 2070 commitment**.
- **Nodal Ministry:** Ministry of New and Renewable Energy (**MNRE**)
- The policy focuses on **research, innovation, technology development, ecosystem creation, capacity building, and partnerships** to harness the untapped potential of geothermal energy.
- **Scope and Applications:**
    - **Clean Power and Direct Use**: Promotes power generation, district heating, agriculture, aquaculture, and Ground Source Heat Pumps (GSHPs) for space cooling and heating.
    - **Comprehensive Framework**: Provides guidelines for exploration, development, and utilization of geothermal resources in India.

Key Highlights of the Policy

- **Research and Best Practices**: Promotes research, inter-ministerial collaboration, and the adoption of global best practices for geothermal energy development, with regulatory and stewardship responsibilities vested in the Ministry.
- **Integration with National Goals**: Seeks to align geothermal energy development with India's Net Zero (2070) target and broader renewable energy objectives.
- **Diverse Applications**: Focuses on electricity generation, space heating and cooling, agriculture (greenhouses and cold storage), tourism, and desalination.
- **Technological Innovation**: Encourages R&D of advanced systems, including hybrid geothermal-solar plants, retrofitting of abandoned oil wells, and Enhanced/Advanced Geothermal Systems (EGS/AGS).
- **Local Innovation and Partnerships**: Emphasizes indigenous innovation, joint ventures, and the repurposing of existing oil and gas infrastructure.
- **Collaboration**: Promotes partnerships with international geothermal bodies, pioneering nations, state governments, oil and gas companies, and research institutions.
- **Ecosystem Development**: Aims to establish a strong public-private ecosystem to support the long-term growth of the geothermal sector.
- **Capacity Building**: Focuses on knowledge sharing, training, and human resource development within the sector.