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Weekly Current Affairs

🎯 To The Point
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19 to 25 Jan 2025

Global Cybersecurity Outlook 2025: Navigating Emerging Threats

Context: The **World Economic Forum (WEF)**, in collaboration with **Accenture**, recently released the **Global Cybersecurity Outlook 2025**. This insightful report delves into the **cybersecurity trends** that will shape economies and societies in the near future. It highlights the evolving complexity of the **cybersecurity landscape**, influenced by factors such as **geopolitical tensions**, emerging technologies, **supply chain vulnerabilities**, and the growing sophistication of **cybercrime**.

Key Issues Identified in Global Cybersecurity Outlook 2025:

1. **Geopolitical Conflicts:** Ongoing conflicts, including the **Ukraine war**, have heightened **cyber vulnerabilities** in critical sectors like **energy**, **telecommunications**, and **nuclear power**. These tensions have made national and global infrastructures more susceptible to cyberattacks.

2. **Cybersecurity Readiness:** **Two-thirds** of organizations expect **AI** to impact cybersecurity, but only **one-third** have the necessary tools to assess AI-related risks. Smaller organizations, in particular, face significant challenges in adapting to these new threats.

3. **Cyber Skills Gap:** As of **2024**, the cybersecurity workforce is short by **4.8 million** professionals. Only **14%** of organizations possess the skilled workforce needed to tackle today's cybersecurity challenges, with **public-sector organizations** bearing the brunt of this shortage.

4. **Supply Chain Interdependencies:** Over **50%** of large organizations consider the **complexity of supply chains** a major barrier to **cyber resilience**. Key concerns include vulnerabilities in third-party software, the increasing frequency of **cyberattacks**, and difficulties in enforcing security standards across the supply chain.

5. **Cybercrime Sophistication:** **Cybercriminals** are now using advanced **generative AI** tools to carry out **personalized attacks**, including **phishing** and **social engineering**. In **2024**, **42%** of organizations reported experiencing attacks such as **phishing** and **deepfakes**.

6. **Regulatory Challenges:** A significant **70%** of organizations find existing **cybersecurity regulations** too complex, leading to **compliance difficulties** and a fragmented approach to global cyber defense.

Impact of Cybersecurity Threats:

1. **Critical Infrastructure Vulnerabilities:** Cyberattacks on essential services such as **water utilities**, **satellites**, and **power grids** pose serious threats to **public safety**. For instance, a **2024** cyberattack on a U.S. water utility disrupted critical services, highlighting the risks to **infrastructure**.

2. **Biosecurity Risks: AI advancements**, cyberattacks, and **genetic engineering** could disrupt laboratories and **public health systems**. This was evidenced by cyber incidents in **South Africa** and the **UK**, which exposed biosecurity vulnerabilities.

3. **Economic Disparity:** There is a growing **cyber resilience gap** between developed regions (**Europe**, **North America**) and emerging economies (**Africa**, **Latin America**). While developed nations are better equipped to tackle cyber threats, emerging economies face greater risks due to limited resources.

4. **Renewable Energy Transition Issues:** The shift toward **renewable energy** systems brings new cybersecurity challenges. **Power grids** are becoming prime targets for **cybercriminals**, as seen in attacks targeting energy infrastructure.

Suggestions and Way Forward:

1. **Strategic Investment in Cybersecurity:** Cybersecurity should be viewed as a **strategic investment** rather than merely a technical issue. **Leadership** must focus on both **economic** and **technical dimensions** to ensure robust cyber defenses.

2. **Foster Collaboration:** There is a growing need for **stronger collaboration** between **business leaders** and **cybersecurity experts** to proactively manage emerging threats and minimize risks.

3. **Simplify and Harmonize Regulations: Global cybersecurity regulations** must be simplified and aligned to enhance **compliance** and **resilience** across borders, helping organizations better navigate regulatory complexities.

4. **Address the Cyber Skills Gap:** **Upskilling** and **training programs** are essential to bridge the global **cyber skills gap**. Organizations must invest in workforce development to prepare for the challenges ahead.

5. **Focus on Emerging Technologies:** As **AI** continues to reshape cybersecurity landscapes, organizations must **develop tools** to assess and mitigate the risks associated with AI, ensuring a proactive approach to security in the digital age.

The **Global Cybersecurity Outlook 2025** offers vital insights into the evolving cyber landscape, urging global stakeholders to take strategic actions to strengthen defenses and safeguard against future cyber risks.

India-Bangladesh Border Dispute: Challenges in Fencing and Border Security

Context: The ongoing **India-Bangladesh border dispute** has raised tensions over issues related to **border security** and **fencing**. Recently, **India** summoned **Bangladesh's Acting High Commissioner** after **Bangladesh** expressed concerns about the **Border Security Force (BSF)** allegedly violating bilateral agreements. These concerns have escalated, especially after **Border Guards Bangladesh (BGB)** attempted to halt **fencing construction** in the **West Bengal-Malda border** region. This border, spanning over **4,096.7 km**, remains a long-standing source of disputes over **barbed wire fencing** and **border management**.

India-Bangladesh Border (IBB):

The **India-Bangladesh border** is the longest border India shares, measuring **4,096.7 km**. It runs through several states, including **West Bengal (2,216.7 km)**, **Assam (263 km)**, **Meghalaya (443 km)**, **Tripura (856 km)**, and **Mizoram (318 km)**. The border is characterized by varied geographical features like **plains**, **hills**, **riverine stretches**, and **forests**, with **no significant natural barriers**. The highly porous nature of the border has made it a hotspot for illegal activities, such as **immigration**, **cattle smuggling**, and **human trafficking**.

Status of Fencing Along the India-Bangladesh Border:

Overall Fencing Coverage:

Out of the total **4,096.7 km** of the **India-Bangladesh border**, **3,141 km** have been successfully fenced, covering all **eastern states**, including **West Bengal**. However, challenges persist in some regions due to geographical, social, and political factors.

Fencing in West Bengal: West Bengal shares the largest portion of the border, **2,216.7 km**, and as of **2023**, **81.5%** of it has been fenced. However, there are still small **unfenced patches** due to:

- **Objections from villagers**
- **Challenging terrain**
- **Ongoing negotiations** with **Bangladesh**

Challenges in Fencing Completion:

The **Ministry of Home Affairs** has highlighted several **delays** in fencing construction, including:

- **Non-cooperation** from the **West Bengal government**
- **Pending land acquisition**
- The **riverine nature** of over **900 km** of the border, which makes fencing impractical. These areas are secured by the **BSF's water wing**.

Recent Fencing Incidents:

Fencing Incident in Malda's Kaliachak Block:

The **BSF** and the **Central Road Works Department** were involved in constructing a **single-row fence** in **Malda's Kaliachak No. 3 block**, near **Bangladesh's Shibganj** in **Rajshahi district**. Border Guards

Bangladesh (BGB) objected to this construction. Despite their objections, the work continued after discussions.

Fencing Dispute in Mekhliganj, Cooch Behar:

On **January 10**, **villagers** in **Mekhliganj** began constructing a **four-foot-high barbed-wire fence** near the **Bangladeshi enclave** of **Dahagram-Angarpota**, with support from the **BSF**. This was intended to prevent **cattle** from crossing over into Indian farms. **BGB** intervened to halt the work, escalating tensions between the two countries once again.

India-Bangladesh Border Guidelines:

1975 Joint Guidelines:

The **1975 India-Bangladesh Joint Guidelines** prohibit the construction of **defense structures** within **150 yards** of the international boundary, commonly referred to as the **zero line**. While **India** does not classify **wire fencing** as a defense structure, **Bangladesh** and **Pakistan** do.

Challenges in Fencing Due to Border Complexity:

The **2,217 km** long border in **West Bengal** is especially complicated by:

- **Villages** and **rivers** along the boundary
- **Enclaves** such as **Dahagram-Angarpota** where **Bangladesh** is located within India
- The terrain, where sometimes the **zero line** coincides with **houses** or **villages**, complicating fencing efforts.

Exceptions to the 150-Yard Rule:

When fencing near the **zero line** is deemed impractical due to terrain, population, or water bodies, **mutual negotiations** between India and Bangladesh allow for **exceptions**. Fencing is sometimes built **closer** to the border, with **gates installed** to facilitate the movement of residents.

Reasons for the Dispute:

Violation of the 1975 Agreement:

Bangladesh argues that the construction of fencing, especially **single-row fencing (SRF)**, violates the **1975 India-Bangladesh guidelines**, particularly because it occurs within the **150-yard** zone from the border.

Impact on Border Residents:

Fencing has created inconveniences for residents, **restricting movement** and **daily activities** along the border. However, **India** maintains that **SRF** is not a **defense structure** but a measure to control **animal movement** and curb **cross-border crimes**.

Objection to Smart Fencing:

Bangladesh has raised concerns about **smart fencing**, which includes **CCTV** and **electronic surveillance**, fearing that it enables **India** to monitor their territory. **Smart fencing** is primarily installed in areas where villages are located within **150 yards** of the border or on the border itself.

Ongoing Discussions:

The **fencing dispute** has been under continuous discussion for over **five years**, with frequent **objections** raised by **Bangladesh Border Guards (BGB)** during **flag meetings**. Both nations continue to negotiate the complexities of **border security** and the **fencing process**, with the aim to achieve a mutually agreeable resolution.

To the Point
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NEWS
Freedom UPSC
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Bhargavastra: India's Revolutionary Counter-Swarm Drone Micro-Missile System

Context: India has successfully tested the **Bhargavastra**, a cutting-edge **micro-missile system** designed to counter the emerging threat of **swarm drones**. This indigenous defense technology marks a significant advancement in the country's **military capabilities**, especially in countering aerial threats posed by drones.

What is Bhargavastra?

The **Bhargavastra** is India's **first indigenous micro-missile system**, specifically engineered to neutralize the growing menace of **swarm drones**. Developed by **Economic Explosives Ltd**, this advanced system is designed for **quick deployment** on **mobile platforms**, enabling it to target aerial threats with remarkable precision.

- **Range**: Capable of hitting targets over **2.5 kilometers** away.
- **Detection**: The system can detect even small incoming flying machines at distances over **6 kilometers**.
- **Micro Munitions**: It uses **micro munitions** that are **guided** towards the threat to ensure accurate strikes.
- **Capacity**: The Bhargavastra can simultaneously launch over **64 micro missiles** to counter multiple threats.
- **Versatility**: Designed to operate in **all terrains**, including **high-altitude areas**, making it suitable for various military environments.
- **Use in Army Air Defence**: This system meets the specific requirements of the **Army Air Defence** and is the first **counter-drone system** utilizing **micro missiles**.

What Are Swarm Drones?

The term **SWARM** stands for "**Smart War-Fighting Array of Reconfigured Modules**." **Drone swarm technologies** involve the coordination of multiple drones—ranging from a few to potentially thousands—that work together to accomplish missions with minimal human oversight.

Capabilities of Drone Swarms:

- **Cooperative Missions**: Drone swarms can perform tasks such as **wildfire control**, **damage assessment**, and **fire suppression** efficiently by collaborating without the need for constant human control.
- **Robustness and Efficiency**: Swarms are more effective than individual drones, as they can perform various tasks simultaneously and continue operating even if some drones malfunction or become inoperable.
- **Advanced Technology**: These swarms use sophisticated **computer algorithms**, **local sensing**, and **communication technologies** to synchronize their movements and achieve shared objectives.
- **Methods of Control**: Swarms can operate with several command structures, including:
  - **Pre-programmed missions** with defined flight paths.
  - **Centralized control** from a ground station or a leading drone.

o **Distributed control**, where drones communicate and collaborate autonomously based on shared information.

Why Bhargavastra Matters:

With the rise of **swarm drone technologies**, which can overwhelm traditional defense systems, the **Bhargavastra** provides a critical defense mechanism for India's military forces. By offering the ability to quickly detect, engage, and neutralize **drone swarms**, it enhances **air defense capabilities** and helps protect **strategic assets** from advanced aerial threats.

This system underscores India's commitment to building **indigenous defense solutions** and strengthening its ability to counter modern warfare challenges effectively.

Call for Renaming India-Linked Fungus: A Global Health Concern

Context: A group of **dermatologists** from **14 countries**, including **India** and **Germany**, has called for a change in the **regional naming** of a novel **fungal species**, **Trichophyton indotineae**, which is responsible for difficult-to-treat **skin infections**. The dermatologists argue that naming this fungus after specific geographic regions promotes **prejudice**, spreads **misinformation**, and goes against global **health guidelines** set by major health organizations like the **World Health Organization (WHO)**.

About Trichophyton Indotineae:

- **Identification**: First identified in **2020** by **Japanese dermatologists**, this fungus was found in patients from **India** and **Nepal**.

- **Historical Naming Practice**: The fungus was named following a historical practice of linking infectious agents to specific **geographical regions**, an approach the dermatologists believe fosters stigma.

- **Early Classification**: Initially categorized as a variant of **Trichophyton mentagrophytes**, also referred to as **Internal Transcribed Spacer (ITS) genotype VIII/T. interdigitale**.

- **Global Spread**: Cases have been reported across **multiple continents**, including **Europe**, **the Middle East**, **North America**, and **Asia**, primarily due to **travel** and **migration** from **South Asia**.

- **Transmission**: The fungus is **mainly transmitted** through **person-to-person contact**, such as **skin-to-skin interactions** and sharing personal items. **Emerging evidence** also suggests **sexual contact** may be another mode of transmission.

- **Symptoms**: It causes **inflammatory** and **itchy dermatophytosis**, typically affecting areas like the **groin**, **gluteal region**, **trunk**, and **face**.

- **Antifungal Resistance**: This fungus shows significant **resistance to terbinafine**, a common antifungal drug, due to mutations in the **squalene epoxidase gene**, making treatment challenging.

- **Global Health Threat**: Found in over **40 countries**, **Trichophyton indotineae** is now a global **health concern**.

Concerns Raised by Dermatologists:

The dermatologists have highlighted the following concerns regarding the fungus's naming:

- **Stigmatization**: Naming infectious agents after specific locations fosters **stigma**, **racial prejudice**, and **misinformation**.

- **Contradiction with Global Guidelines**: The naming of **Trichophyton indotineae** goes against the **World Health Organization's (WHO)** guidelines, which recommend avoiding geographical names for pathogens.

- **Scientifically Unsubstantiated Naming**: The fungus was named after isolates from only **two patients**—one from **India** and one from **Nepal**—making the region-specific naming scientifically questionable.

- **Unclear Origin**: The true **origin** of the fungus is still unknown, rendering a regional name **inappropriate**.

Internal Transcribed Spacer (ITS):

The **Internal Transcribed Spacer** (ITS) is a genetic marker crucial for identifying and analyzing fungal species.

- **Genetic Marker**: Found in the **ribosomal RNA gene cluster**, ITS plays a role in regulating **rRNA production** but does not code for proteins.

- **Fungal Identification**: Its high variability makes it ideal for distinguishing **fungal species**, including **Trichophyton indotineae**.

- **Molecular Diagnostics**: ITS is widely used in **molecular diagnostics** to identify **fungi** accurately.

The Call for Change:

The dermatologists are urging health organizations and scientists to reconsider the **regional naming** of **Trichophyton indotineae** and adopt a more **neutral** and **scientifically sound approach** that avoids perpetuating harmful stereotypes or geographical associations. This call aligns with the **global health community's commitment** to accurate, non-biased scientific practices that foster collaboration and unity across borders in tackling global health issues.

The Flat-Top Sada of Konkan: A Biodiversity Treasure

Context: Recent studies on the **biodiversity** and **ecosystem** of the **Konkan region** have brought attention to the unique **sada**—the flat-topped **lateritic plateaus** that are characteristic of this coastal area. These plateaus are gaining recognition for their role in preserving diverse flora and fauna, while also offering valuable insights into **prehistoric** human life.

Konkan's Sada Landscapes: A hub of biodiversity and culture
www.clearias.com

What is Konkan Sada?

- **Geography**: Located between the **Arabian Sea** and the **Western Ghats**, the Konkan region is known for its striking **sadas** or flat-topped plateaus, particularly in the **Ratnagiri district**.

- **Formation**: These plateaus are the result of centuries of **erosion**, with terrain resembling that of the **Kaas Plateau** in **Satara district**, which is known for its rocky surface.

- **Significant Plateaus**:

    o **Sadawaghapur Plateau**: Situated on the **Tarle-Patan road** in **Patan tehsil**, **Satara district**, this plateau comes alive with vibrant **wildflower blooms** during the **monsoon**, attracting both tourists and nature enthusiasts.

    o **Barsu Sada**: Located near **Rajapur** in **Ratnagiri district**, this plateau is famous for its **ancient petroglyphs**, offering a glimpse into the prehistoric human activities that once shaped the region.

Biodiversity Hotspot:

A study conducted from **2022 to 2024** has recorded an impressive range of species:

- **459 plant species**, including **105 endemic species**.

- **31 reptile species**, **13 amphibians**, **169 bird species**, and **41 mammal species**.

- The **Indian flapshell turtle** (**Lissemys punctata**), a vulnerable species, along with **leopards**, **jackals**, and various **migratory birds**, call this region home.

During the **monsoon**, the once barren plateaus are transformed into lush habitats that support this unique and diverse ecosystem.

Water and Agriculture on the Sadas:

- Villages situated on the sadas rely on **open wells**, **springs**, and **perennial streams** for their water needs.

- The **lateritic soil**, highly weathered over time, acts as a **natural rainwater catchment**, effectively replenishing the **groundwater** supply.

- Locals engage in traditional, **pesticide-free farming** of **rice** and **millets (Eleusine coracana)**, particularly during the **monsoon season** on small patches of the sadas.

Threats to the Sadas:

While these plateaus are home to diverse life forms, they face several challenges:

- **Laterite stone extraction**, a major activity, threatens the integrity of these plateaus.

- The region has been labeled as **'wasteland'** in the **Wasteland Atlas**, hindering efforts to protect and recognize its **ecological significance**.

The Significance of Geoglyphs:

- **Geoglyphs** are large **designs** or **motifs** created on the ground by removing soil or using rocks to create patterns that contrast with the surrounding landscape.
- The **Konkan region**, particularly **Barsu Sada**, is home to **10,000-year-old geoglyphs**, offering insights into **prehistoric human life** and their **cultural expressions**.

Indian Flapshell Turtle (Lissemys punctata):

- **IUCN Status**: **Vulnerable**
- **Native Range**: Found across **South Asia**, including **India**, **Pakistan**, **Sri Lanka**, **Nepal**, and **Bangladesh**.
- Prefers freshwater ecosystems such as **ponds**, **rivers**, **marshes**, and **lakes**.
- Found in **National Parks** like:
    - **Keoladeo National Park** (Rajasthan)
    - **Kaziranga National Park** (Assam)
    - **Sundarbans National Park** (West Bengal)

Conclusion: A Unique Ecosystem at Risk

The **Konkan sadas** are not only geological wonders but also vital **biodiversity hotspots**. The region's unique ecosystems, combined with its rich cultural heritage, make it a treasure worth preserving. However, threats like **stone extraction** and the mislabeling of the land as **wasteland** threaten the delicate balance of this precious environment.

Rooster Fights Persist in Andhra Pradesh Despite Police Warnings

Context: Kodi Pandem, the illegal rooster fighting sport, has deep roots in the rural areas of **Andhra Pradesh**, especially during the **harvest festival**. Despite being banned by the **High Court of Andhra Pradesh** in **2016** and being illegal under both the **Prevention of Cruelty to Animals Act, 1960** and the **Andhra Pradesh Gaming Act, 1974**, this brutal sport continues to thrive, fueled by strong local patronage.

Recent Developments: Police Efforts and Technology in Action:

- **Police Raids**: As the festival of **Sankranti** approaches, police forces in **Andhra Pradesh** have stepped up their efforts to crack down on **rooster fights**, targeting **organizers**, **knife manufacturers**, and **habitual offenders**. Special task forces have been formed to monitor and stop these illegal activities.

- **Use of Technology**: In an innovative approach, the **Andhra Pradesh police** are utilizing **drones** and **artificial intelligence (AI)** to **track** and **prevent** rooster fights during the festival season, reflecting a modern approach to enforcing the law.

- **Financial Stakes**: Despite the **ban**, these rooster fights continue to involve significant amounts of money, highlighting the ongoing cultural importance of the practice and the financial incentives that keep it alive.

The Prevention of Cruelty to Animals Act, 1960:

The **Prevention of Cruelty to Animals Act, 1960** is a key law aimed at ensuring the welfare of animals by preventing unnecessary harm or suffering. Some key provisions include:

- **Cruelty (Section 11)**: This section defines cruelty to animals, prohibiting activities like **beating**, **kicking**, **torturing**, or **overloading** animals. It also outlaws the **organizing** or **participating** in animal fights.

- **Animal Welfare Board of India (AWBI)**: Section 4 establishes the **AWBI**, which works to promote animal welfare, advise the government, and ensure the enforcement of the Act.

- **Exemptions (Section 28)**: The law allows for the **humane killing** of animals in specific contexts, such as for food or religious purposes.

State-Wise Animal Fights in India:

Although **Kodi Pandem** is banned, various forms of **animal fights** continue to take place across **India** during festivals. Here's an overview of such events:

- **Jallikattu** (Tamil Nadu): A **bull-taming** event during **Pongal**, where participants attempt to hold onto a bull's hump.

- **Cockfights (Kodi Pandem)** (Andhra Pradesh, Telangana, Kerala): Roosters with **blades attached** to their legs fight, especially during **Sankranti**.

- **Kambala** (Karnataka): A **buffalo race** held on **slushy fields**, celebrating farming traditions.

- **Bullock Cart Races** (Maharashtra, Karnataka): **Bullocks** race on tracks during **festivals** or **rural fairs**.

- **Bulbul Fights** (Assam): **Nightingales** are forced to fight during the **Bhogali Bihu** festival.

- **Buffalo Fights** (Assam, Odisha): **Buffaloes** battle each other during **Bhogali Bihu** and **Dussehra** festivals.

- **Camel Fights** (Haryana, Rajasthan): **Camels** are made to fight at **fairs**.

- **Dhirio (Bull Fights)** (Goa): Traditional **bullfights** during **local fairs**.

- **Polo with Ponies** (Manipur): Traditional **polo** played using **ponies**, raising concerns about **pony welfare**.

Conclusion: The Ongoing Battle Against Animal Cruelty

Despite significant efforts by law enforcement and modern technology, the **practice** of **rooster fights** and other animal-related sports continues to be deeply ingrained in certain parts of India. The **financial stakes** and cultural significance of these events make it a challenging issue to fully eradicate, highlighting the need for more robust enforcement and public awareness to prevent cruelty towards animals.

India-Singapore: Celebrating 60 Years of Diplomatic Ties

Context: India and Singapore recently celebrated **60 years of diplomatic relations**, commemorated by the first visit of **Singapore's President Tharman Shanmugaratnam** to India. This milestone highlights the long-standing and evolving relationship between the two nations.

Historical Foundations of India-Singapore Relations:

1. **Colonial Connections**: The diplomatic relationship between India and Singapore began on **August 24, 1965**, shortly after Singapore's independence. Their modern ties, however, date back to **1819**, when **Sir Stamford Raffles** established a British trading post in Singapore.

2. **Role in India's Freedom Struggle**: Singapore played a key role during **India's independence movement**, serving as the base for the **Provisional Government of Azad Hind** formed by **Subhash Chandra Bose** in **1943**.

3. **Recognition of Sovereignty**: India was among the first nations to recognize Singapore's independence in **1965**, setting the tone for a strong and enduring partnership.

4. **Comprehensive Strategic Partnership**: Over the decades, this relationship has grown into a **Comprehensive Strategic Partnership**, showcasing robust ties in **economics**, **politics**, and **culture**.

Key Areas of Cooperation:

Economic and Trade Relations:

- Bilateral trade surged from **$6.7 billion in FY 2004-05** to **$35.6 billion in FY 2023-24**.

- Singapore ranks as **India's 6th largest trading partner**, accounting for **3.2% of India's total trade**.

- **FDI Inflows**: In **2023-24**, Singapore invested **$11.774 billion** in India, with key sectors including:
    - Services
    - IT & Hardware
    - Telecommunications
    - Pharmaceuticals

Fintech and Digital Integration:

- **RuPay Card** and **UPI-PayNow Linkage**: Singapore became the first country to enable cross-border **Person-to-Person (P2P)** digital payment with India, highlighting collaboration in the **digital economy**.

Defense and Strategic Collaboration:

- **Defense Exercises**: Both nations participate in:
    - **Exercise Agni Warrior** and **Bold Kurukshetra** (Army)
    - **Exercise SIMBEX** (Navy)

- **Maritime Security**: They jointly promote **freedom of navigation** and counter piracy in the **Indo-Pacific** region.

- Singapore supports India's **Act East Policy**, enhancing India's engagement in regional cooperation.

Science and Technology:

- The **Indian Space Research Organisation (ISRO)** has launched several Singaporean satellites, including:
  - Singapore's first **indigenous micro-satellite** in **2011**.
  - **17 additional satellites** between 2014 and 2023.
- Initiatives include:
  - **ASEAN-India Women Scientists Conclave (2024)**
  - **Cyber Policy Dialogue (2024)**
  - **e-workshop on digital health and medical technology (2024)**

Education and Skill Development:

- India's **Skill India Program** benefits from Singapore's expertise in **vocational training**.
- Collaborative **research programs** between Indian and Singaporean institutions further strengthen educational ties.

Multilateral and Regional Cooperation:

- Singapore is a member of the **International Solar Alliance** and the **Global Bio-fuel Alliance** (joined in 2023).
- It backed India's **Declaration on Digital Public Infrastructure, AI, and Data for Governance** at the **G20 Summit (2024)**.
- **Comprehensive Economic Cooperation Agreement (CECA)**: The first agreement of its kind signed by India with any nation.

Cultural Ties: Celebrating Heritage Together:

- The rich **Indian diaspora** in Singapore, comprising **9% of its population**, reflects the deep cultural connection.
- Festivals and events like **Kalaa Utsavam** and **Little India** in Singapore showcase the vibrant cultural bond.

Future Prospects: Paving the Way for Deeper Collaboration:

Looking ahead, India and Singapore aim to enhance their **Comprehensive Strategic Partnership** by exploring new opportunities in:

- **Digitalization**
- **Trade and economic development**
- **Cultural exchange programs**

The 60th-anniversary celebrations have laid the foundation for a new era of cooperation, ensuring mutual growth and prosperity.

Nine Years of Startup India: Catalyzing Innovation and Entrepreneurship

Context: India recently marked the **9th anniversary of the Startup India initiative**, a transformative program aimed at fostering entrepreneurship and innovation.

Startup India Initiative: A Glimpse

Launch and Vision:

- Launched on **January 16, 2016**, the initiative is spearheaded by the **Department for Promotion of Industry and Internal Trade (DPIIT)**.

- It aims to cultivate a **startup-friendly ecosystem**, fostering innovation and entrepreneurship across the country.

Core Features of Startup India:

1. **Ease of Doing Business**: Simplified compliance processes, **self-certification**, and **single-window clearances** to support startups.

2. **Tax Incentives**: Startups meeting eligibility criteria enjoy **tax exemptions** for three consecutive financial years.

3. **Funding Support**: The ₹**10,000 crore Fund of Funds for Startups (FFS)** enables startups to access early-stage funding.

4. **Sector-Focused Policies**: Dedicated policies for sectors like **biotechnology**, **agriculture**, and **renewable energy** drive growth in niche areas.

Flagship Schemes Under Startup India:

1. **Startup India Seed Fund Scheme (SISFS)**:
   - Provides financial aid for **concept validation**, **prototyping**, **market entry**, and **commercialization**.
   - Funds are disbursed through eligible incubators.

2. **Credit Guarantee Scheme for Startups (CGSS)**:
   - Offers **credit guarantees** for loans provided by banks, NBFCs, and SEBI-registered venture funds to DPIIT-recognized startups.

3. **Fund of Funds for Startups (FFS)**:
   - Launched in **June 2016** with a corpus of ₹**10,000 crore**, the FFS enhances domestic capital availability.
   - Managed by **SIDBI**, the fund invests in SEBI-registered **Alternative Investment Funds (AIFs)**, which subsequently support startups.

4. **BHASKAR Platform**:
   - Introduced in **September 2024**, this platform connects **startups, investors, and mentors**, particularly focusing on empowering non-metro cities.

Key Achievements Over Nine Years:

Startup Ecosystem Expansion:

- From **500 startups in 2016** to **1.59 lakh** today, India has emerged as the **world's third-largest startup ecosystem**.

Job Creation:

- Startups have generated over **16.6 lakh direct jobs**, with key sectors including:
    - **IT Services**: 2.04 lakh jobs
    - **Healthcare**: 1.47 lakh jobs
    - **Education**: 90,414 jobs

Women Entrepreneurs:

- Over **73,000 startups** now have at least **one woman director**, reflecting a significant rise in **women's participation** in the startup ecosystem.

Funding Milestones:

- Schemes like the **10,000 crore FFS** and **SISFS** have provided essential funding for startups in their formative stages.

Sectoral Growth:

- Innovations in **fintech**, **edtech**, **health-tech**, and **e-commerce** have flourished. Companies such as **Zomato**, **Nykaa**, and **Ola** have revolutionized markets and created thousands of jobs.

Challenges Faced by Startups:

1. **Regulatory Hurdles**: Outdated regulations often fail to keep up with rapid innovation, creating uncertainty for entrepreneurs.
2. **Skilled Workforce and Mentorship Gap**: The lack of skilled talent and experienced mentors hinders startups' ability to scale effectively.
3. **Infrastructure Bottlenecks**: Poor infrastructure, particularly in smaller cities, affects **internet connectivity**, logistics, and overall growth.
4. **Digital Divide**: Startups in rural areas struggle with limited resources, **market access**, and skilled talent, widening the rural-urban gap.

The Road Ahead: A Vision for the Future:

As India continues its journey toward becoming a global hub for **innovation and entrepreneurship**, the **Startup India initiative** remains a cornerstone of this transformation.

To maximize its impact, the government and stakeholders must:

- Streamline **regulatory frameworks** to encourage innovation.
- Bridge the **skill gaps** through targeted training programs.
- Invest in **infrastructure development** in smaller cities and rural areas.

With these measures, **Startup India** will empower entrepreneurs, fuel economic growth, and position India as a leader in the global innovation landscape.

India's Demographic Transition: Opportunities and Challenges

Context: A recent report by **McKinsey & Company** reveals that **India is on the brink of a major demographic transformation**. By the **2050s**, India's support ratio will align with advanced economies, signaling an **aging population** and a shift in demographic dynamics.

Key Highlights of the Report:

Economic Impacts:

- **Demographic Dividend Contribution**: From **1997 to 2023**, India's youthful population added **0.7 percentage points annually** to GDP per capita growth.
- **Future Trends**: By **2050**, this contribution is projected to fall to **0.2 percentage points per year**, underscoring the need for proactive measures.

Rising Dependency Ratio:

- In **1997**, India had **14 working-age individuals (15-64 years)** for every senior citizen aged **65 or older**.
- By **2050**, this will decline to **4.6 workers per senior**, and by **2100**, to **1.9 workers per senior**—a ratio comparable to today's **Japan**.

Female Labor Force Participation:

- Female participation in the **20-49 age group** is only **29%** in India, compared to **50-70%** in emerging economies and **74%** in high-income nations.
- **Boosting women's participation in the workforce** is a critical recommendation to counteract the economic impact of aging.

Fertility Rates and Population Projections:

- India's fertility rate stands at **1.98 children per woman**, below the replacement level of **2.1**.
- **Population Trends**:
  - India's population will **peak at 1.7 billion in 2061** and then decline.
  - By the end of the century, India's population will be **twice that of China**.

India's Aging Population: Data Insights

- The share of individuals over **60 years** will rise from **10.5% in 2022** to **20.8% by 2050**.
- By **2100**, the elderly will constitute over **36% of India's population**.
- The **80+ age group** will experience a staggering growth of **279% between 2022 and 2050**, with a predominance of widowed and dependent older women.

India's Demographic Dividend: A Window of Opportunity

Understanding Demographic Dividend:

The **demographic dividend** refers to economic growth potential resulting from a **favorable population age structure**—when the **working-age population (15-64 years)** outnumbers the dependent population (14 and younger or 65 and older).

India's Advantage:

- India is currently reaping the benefits of its **young population**, expected to add **183 million working-age individuals** between **2020 and 2050**.

- The dividend is set to **peak in 2041**, with the working-age population making up **59% of the total population**, and last until **2055**.

Challenges Hindering Growth:

Unemployment:

- To fully leverage the demographic dividend, India must create jobs for the **7-8 million youth** entering the workforce annually.

- **Youth Unemployment**:
  - It surged from **5.7% in 2000** to **17.5% in 2019**.
  - In **2022**, graduate unemployment stood at **29%**, while the rate for illiterates was just **3.4%**.

Education and Skill Deficit:

- Over **40% of Indian youth** are educated below the secondary level.

- Only **4%** have access to **vocational training**, highlighting a significant skills gap.

Gender Inequality:

- Low **female workforce participation** restricts India's economic potential.

Infrastructure Gaps:

- Inadequate infrastructure, particularly in rural areas, hampers **employment opportunities** and **economic growth**.

Measures to Address the Challenges:

1. **Skill Development:** Initiatives like the **Skill India Mission** aim to provide training and certification to enhance employability.

2. **Education Reforms:** Policies such as the **New Education Policy 2020** focus on improving the quality of primary and secondary education.

3. **Boosting Manufacturing:** Programs like **Make in India** and **Atmanirbhar Bharat** aim to generate jobs through increased domestic manufacturing and industrial growth.

4. **Encouraging Startups:**The **Startup India campaign** promotes entrepreneurship, offering support to young innovators and job creators.

5. **Expanding Digital Access:** Initiatives like **Digital India** are improving internet access and digital literacy to open new avenues for youth in the tech sector.

6. **Healthcare Improvements:** Programs like **Ayushman Bharat** ensure better healthcare access for the population.

Way Forward:

- **Learning from Developed Nations**: Countries with aging populations now rely on **migrant workers** for economic growth.

- **Focus on Employment Generation**: Failing to create jobs will not only squander the demographic dividend but also risk **economic stagnation** and **social unrest**.

- **Invest in Youth and Women**: By addressing gender gaps and skill deficiencies, India can turn its population into an economic powerhouse.

As India navigates this **demographic transition**, the focus must remain on **empowering its workforce**, leveraging the young population, and preparing for an aging society. Proper planning today will ensure **sustainable economic growth** and societal well-being in the years to come.

Celebrating Great Anniversaries of Peace Initiatives

Context: The year **2025 marks 80 years** since the first nuclear weapon test, underscoring the importance of **peace initiatives** in promoting global disarmament and fostering international cooperation. This milestone serves as a reminder of the **devastating power of nuclear weapons** and the need for continued efforts toward peace.

The Threat of Nuclear Weapons:

Devastating Consequences:

- The world witnessed the catastrophic effects of nuclear weapons in the **Hiroshima and Nagasaki bombings of 1945**, which resulted in over **200,000 deaths** and long-term health consequences from radiation exposure.

- The potential for a **nuclear winter**—a scenario where soot and debris block sunlight, disrupting agriculture and causing mass starvation—remains a global concern.

Escalation of Global Conflicts:

- The **Cold War arms race** demonstrated how nuclear proliferation increases tensions, with the doctrine of **Mutually Assured Destruction (MAD)** deterring open warfare but perpetuating fear.

- Incidents like the **Cuban Missile Crisis (1962)** highlight how misunderstandings and miscalculations can bring humanity to the brink of catastrophe.

Risk of Accidents:

- **Human error**, technical failures, or **cyberattacks** could trigger unintended nuclear detonations, posing a grave threat to global security.

Nuclear Powers in the World:

Currently, **nine nations** possess nuclear weapons, often referred to as "nuclear-armed states":

- **United States**, **Russia**, **China**, **United Kingdom**, **France**, **India**, **Pakistan**, **North Korea**, and **Israel**.

Understanding Nuclear Disarmament:

- **Nuclear Disarmament** refers to the **reduction** or **elimination** of nuclear weapons, either unilaterally or through reciprocal agreements.

- It can involve reducing the **number of weapons** or abolishing entire categories of them.

Key Peace Initiatives in History:

The Russell-Einstein Manifesto (1955):

- Led by **Bertrand Russell** and **Albert Einstein**, this manifesto warned of the existential threat posed by nuclear weapons.

- It urged world leaders to pursue **peaceful conflict resolutions** and highlighted the moral responsibility of scientists in preventing nuclear catastrophes.

The Avadi Resolution (1955):

- Under the leadership of **Jawaharlal Nehru**, the **Indian National Congress** called for the **United Nations Disarmament Commission** to work toward a global consensus for the **total prohibition of nuclear weapons**.

India's Role in Promoting Peace and Disarmament:

Major Contributions:

- **Avadi Resolution**: India's call for global nuclear disarmament began with this historic resolution.
- **Rajiv Gandhi Action Plan (1988)**: Proposed a **step-by-step roadmap** for a nuclear weapons-free and non-violent global order.

Stand on International Treaties:

- **Nuclear Non-Proliferation Treaty (NPT), 1968**: India opposed the treaty, citing its **discriminatory nature**, as it allowed existing nuclear powers to retain their arsenals while restricting others.
- **Comprehensive Nuclear-Test-Ban Treaty (CTBT), 1996**: India refused to sign, arguing that it failed to ensure **disarmament by nuclear-armed states**.

No First Use (NFU) Policy:

- Following its **1998 nuclear tests**, India adopted a **No First Use** policy, pledging not to use nuclear weapons as a first strike but only in retaliation.

Way Forward for a Peaceful Future:

Strengthening Multilateralism:

- India should continue advocating for **United Nations reforms** to ensure that disarmament efforts are equitable and inclusive.

Leveraging Technology for Peace:

- **Artificial Intelligence (AI)** and **cybersecurity** should be central to global discussions, with India leading efforts to prevent the misuse of technology in controlling or accessing nuclear weapons.

Collaborative Diplomacy:

- Encouraging dialogue among nuclear powers and non-nuclear states can pave the way for meaningful progress toward **global disarmament** and peace.

As the world reflects on **80 years of nuclear history**, the importance of peace initiatives remains ever-relevant. By learning from history and working collaboratively, nations can strive for a **future free from the shadow of nuclear weapons**.

INS Nilgiri, INS Surat, and INS Vaghsheer Commissioned: A Leap in India's Naval Power

Context: In a landmark event, **three frontline vessels** were commissioned into the Indian Navy at the Naval Dockyard in Mumbai:

- **INS Nilgiri**, the lead ship of the Project 17A stealth frigates.

- **INS Surat**, the fourth and final vessel of the Project 15B stealth destroyers.

- **INS Vaghsheer**, the sixth and final Scorpene-class submarine under Project 75.

This commissioning strengthens **India's maritime capabilities**, showcasing the nation's advancements in naval defense.

INS Nilgiri: The Backbone of Project 17A

Next-Gen Stealth Frigates:

The **Nilgiri-class stealth frigates**, developed under **Project 17A**, are advanced successors to the Shivalik-class frigates. Designed for **blue-water operations**, they are built to counter both **conventional and asymmetric threats**.

Cutting-Edge Features:

- **Integrated Construction**: Reduces building time significantly.

- **Advanced Armament**: Equipped with **supersonic surface-to-surface missiles**, **Medium-Range Surface-to-Air Missiles (MRSAM)**, and **rapid-fire close-in weapon systems**.

- **Multi-Mission Capability**: Excels in **anti-surface**, **anti-air**, and **anti-submarine warfare**.

The Journey of INS Nilgiri

- **Keel Laid**: December 28, 2017.

- **Launched**: September 28, 2019.

- **Trials and Delivery**: Sea trials began in August 2023, and the ship was handed over to the Navy in December 2024.

Other Ships in the Class:

Six more frigates—**Himgiri, Taragiri, Udaygiri, Dunagiri, Vindhyagiri**—are under construction at **Mazagon Dock Shipbuilders Limited (MDL)** and **Garden Reach Shipbuilders and Engineers (GRSE)**.

INS Surat: India's AI-Enabled Stealth Destroyer

Overview of Project 15B:

INS Surat is the final **stealth-guided missile destroyer** under **Project 15B**, following its predecessors—**INS Visakhapatnam, INS Mormugao, and INS Imphal**. It is an **advanced variant of the Kolkata-class destroyers** under Project 15A.

Key Features of INS Surat:

- **AI-Enabled Operations**: India's first **AI-powered warship** for enhanced operational efficiency.

- **Impressive Specifications**:
  - **Displacement**: 7,400 tonnes.
  - **Length**: 164 meters.
  - **Speed**: Exceeds **30 knots (56 km/h)**.

- **Advanced Weapons Systems**: Equipped with **state-of-the-art surface-to-air missiles**, **anti-ship missiles**, torpedoes, and modern sensors.

Significance of Project 15B:

- Designed by the Indian Navy's **Warship Design Bureau** and built by MDL.

- Named after **major Indian cities**, representing the country's diverse regions.

- Enhances **offensive and network-centric warfare** capabilities.

INS Vaghsheer: The Silent Protector

The Kalvari-Class Submarine

INS Vaghsheer, the final submarine of the **Kalvari-class**, is built under **Project 75**. These submarines are designed for **stealth and versatility** in various naval operations.

Unmatched Capabilities

- **Scorpene-Class Design**: Developed in collaboration with the **French Naval Group**.

- **Diesel-Electric Attack Submarine**: Specializes in **anti-surface warfare**, **anti-submarine warfare**, and intelligence gathering.

- **Quiet and Lethal**: Known for its **silent operation**, making it one of the world's most advanced **hunter-killer submarines**.

- **Powerful Armament**: Equipped with **wire-guided torpedoes**, **anti-ship missiles**, and advanced sonar systems.

Historical Significance:

- Named after a **species of sandfish** found in the Indian Ocean.

- Reflects the legacy of India's **Foxtrot-class submarines**, marking the evolution of its submarine fleet.

Historic Commissioning Ceremony

A Landmark Event:

For the **first time in history**, a destroyer, a frigate, and a submarine were commissioned into the Indian Navy simultaneously. **Prime Minister Narendra Modi** presided over the ceremony, emphasizing India's commitment to maritime security.

Indigenous Construction:

All three vessels are proudly **Made in India**, demonstrating the country's growing **self-reliance in defense manufacturing**.

Strengthening Naval Power:

The addition of these platforms significantly boosts **India's maritime defense capabilities**, ensuring readiness to counter regional threats.

Enhancing Strategic Influence:

These vessels bolster India's role in the **Indian Ocean Region** and beyond, cementing its position as a **key player in global maritime security**.

A Proud Moment for India:

The commissioning of **INS Nilgiri, INS Surat, and INS Vaghsheer** marks a new chapter in India's naval history. These state-of-the-art vessels embody India's vision of a **self-reliant and secure maritime future**, ensuring its dominance in the waters for years to come.

Key Developments and Implications of the Gurpatwant Pannun Assassination Plot Case

Context: The Indian government is addressing allegations surrounding an **assassination plot** targeting **Gurpatwant Singh Pannun**, a Khalistan separatist leader, based on information shared by the United States.

- A **high-level committee**, set up by the **Ministry of Home Affairs (MHA)**, investigated the claims and recommended legal action.
- The timing of these developments is notable as it coincides with the transition to the **Trump administration in the United States**, making this a critical moment in bilateral relations.

The Gurpatwant Pannun Assassination Plot Case:

Background:

- The United States provided evidence alleging that **Vikash Yadav**, a former Indian official, was involved in a plot to assassinate Pannun.
- **Gurpatwant Singh Pannun** is a **US-Canada dual citizen** and the leader of **Sikhs for Justice (SFJ)**, a banned separatist organization in India.

Formation of the Investigation Committee:

- The Indian government created a **high-powered committee** to thoroughly probe the case:
  - Conducted **independent investigations**.
  - Worked closely with US authorities by **sharing evidence** and participating in collaborative visits.

Key Findings of the Committee:

- The committee identified **criminal links and activities** of the accused.
- It recommended **swift legal action** against the implicated individuals.
- It proposed **systemic reforms** to prevent such incidents in the future.

US Allegations and the Global Context:

US Indictment:

- **Vikash Yadav** and another Indian national, **Nikhil Gupta**, were accused of conspiring to pay $100,000 to assassinate Pannun in New York.
- Gupta was arrested in **Prague** and extradited to the US.
- Yadav, no longer affiliated with the government, also faces an **extortion case** in India.

Broader Context and Implications:

- The allegations follow **Canadian Prime Minister Justin Trudeau's claims** about Indian involvement in the killing of another separatist, **Hardeep Singh Nijjar**.
- While India rejected Trudeau's accusations, its **serious response to US allegations** demonstrates a contrasting approach.

Strategic and Political Implications:

Strengthening India-US Relations:

- India's careful handling of the case underscores its commitment to maintaining **strong bilateral ties** with the United States.

- Meetings with outgoing and incoming **US National Security Advisors** reflect India's intent to **insulate future engagements** from past controversies.

Commitment to Due Process:

- The investigation highlights India's **adherence to legal fairness**.

- By portraying the accused as a **rogue element**, India separates the individual's actions from state policy.

Responding to Accountability Demands:

- The committee's recommendations for **systemic reforms** emphasize India's focus on **transparency and accountability**.

- Improved **control mechanisms** aim to ensure such incidents do not recur.

Asserting Sovereignty:

- India's recommendation for **domestic legal action** against Yadav asserts its sovereignty.

- This move preempts any US attempts to **extradite or prosecute Yadav**, reinforcing India's jurisdiction over its citizens.

Rebuilding Canada Relations:

The report creates an opportunity for **future Canadian leadership** to mend relations strained by recent allegations.

Conclusion: Navigating Complex Geopolitics

India's calculated response to the **Pannun assassination plot** showcases its focus on:

- Balancing **international relations** with the United States and Canada.

- Ensuring **legal accountability** through thorough investigations.

- Strengthening **procedural safeguards** to address systemic gaps.

By navigating these challenges, India demonstrates its commitment to **upholding global credibility** and maintaining a responsible position in an evolving geopolitical landscape.

iSNR: Indian Sustainable Natural Rubber

Context: The **Rubber Board of India** has introduced two transformative initiatives—**iSNR (Indian Sustainable Natural Rubber)** and **INR Konnect**—aimed at boosting the global competitiveness of India's rubber industry and enhancing domestic productivity. These projects are designed to align with global sustainability standards and address challenges faced by the sector.

iSNR: Indian Sustainable Natural Rubber

- **Objective:**
  To align India's **natural rubber production** with the **European Union Deforestation Regulation (EUDR)** standards by introducing a **traceability certification system**.

- **Benefit:**
  Ensures **easier access** to European markets for stakeholders in the rubber supply chain, strengthening India's position in the global market.

INR Konnect: A Web-Based Productivity Platform

- **Objective:**
  Bridges the gap between **owners of underutilized rubber plantations** and **adopters**, with the goal of improving productivity.

- **Key Features:**

1. **Certified Network:** Ensures credibility by certifying **growers, adopters, and tappers** through the Rubber Board.

2. **Training Programs:** Provides **training** in sustainable practices and production management.

3. **Comprehensive Database:** Maintains a detailed list of **certified tappers** for easy access.

- **Significance:**
  Targets the 20–25% of **underutilized rubber plantations** in India, neglected due to factors like **low rubber prices** and **absentee ownership**, offering a solution to boost productivity.

India's Rubr Industry: An Overview

- **Global Position:** India ranks as the **third-largest producer** of natural rubber globally, following **Thailand** and **Indonesia**, and the **fourth-largest consumer**.

- **Key Production Regions:**

  o **Kerala** contributes over **90%** of India's natural rubber output.

  o Other states: **Tamil Nadu, Karnataka, Tripura, Assam, and Meghalaya**.

- **Challenges:**

  1. **Climate Change** affecting yields.

  2. **Competition** from other rubber-producing countries.

  3. **Labor shortages** due to declining interest in tapping.

- **Government Initiatives:**

  o **National Rubber Policy 2019:** Focuses on increasing production, improving productivity, and strengthening the domestic industry.

- o **Sustainable & Inclusive Development of Natural Rubber Sector Scheme:** Promotes **sustainable cultivation practices** and improves the livelihoods of growers.
- o **INROAD Project:** Aims to maximize the potential of untapped plantations.

About Rubber Plantations:

- **Scientific Name:** *Hevea brasiliensis.*
- **Origin:** Native to the **Amazon River Basin**, introduced to Asia and Africa by the British during colonial times.
- **Rubber Extraction Process:**
  - o Latex, a milky fluid, is tapped from the bark of the tree.
  - o Latex is collected and processed into natural rubber.
- **Climatic Requirements:**
  - o Annual rainfall of **200–300 cm**.
  - o Temperature range: **25°C to 34°C**.
  - o Grows best in **deep, well-drained lateritic soil** with good water retention and organic matter.

About the Rubber Board of India:

- **Introduction:**
  The **Rubber Board of India** is a **statutory body** under the **Ministry of Commerce and Industry**, established by the **Rubber Act, 1947**.
- **Headquarters: Kottayam, Kerala**.
- **Mission and Objectives:**
  1. Promote the **development and research** of the rubber sector.
  2. Stabilize prices and facilitate market access.
  3. Support **domestic and export markets** for natural rubber.
  4. Conduct research on **rubber cultivation, disease management**, and **high-yield varieties**.
  5. Offer **training programs** to growers, tappers, and processors.

Significance of the Initiatives:

The launch of **iSNR** and **INR Konnect** is a significant step toward ensuring **sustainability, transparency, and productivity** in India's rubber industry. These initiatives will help bridge the gap between global standards and domestic practices, enabling India to **cement its position as a global leader** in natural rubber production.

Lokpal of India Celebrates 1st Foundation Day

Context: On **January 16, 2025**, the **Lokpal of India** celebrated its **Foundation Day**, commemorating **11 years** since its establishment on **January 16, 2014**, under the **Lokpal and Lokayuktas Act, 2013**.

Historical Background:

The creation of the Lokpal is rooted in efforts to combat corruption, with notable milestones including:

- **First Administrative Reforms Commission (1966):** Recommended a **two-tier system**—Lokpal at the Union level and Lokayuktas at the State level.

- **Lokpal and Lokayuktas Act, 2013:** Enacted to establish statutory bodies aimed at tackling **corruption in public offices**.

- **Inception of Lokpal:** Officially constituted on **January 16, 2014**, with its first Chairperson, **Justice Pinaki Chandra Ghosh**, appointed in **2019**.

- **Global Commitment:** As a signatory to the **United Nations Convention Against Corruption (2005)**, India has reaffirmed its dedication to combating corruption.

Lokpal: Mandate and Performance

Legal Authority:

The **Lokpal** derives its powers from the **Lokpal and Lokayuktas Act, 2013**, which empowers it to:

- **Investigate corruption allegations** against public officials, including:
  - The **Prime Minister**, subject to safeguards involving **national security** and **public order**.
  - **Union Ministers**, **Members of Parliament**, and **all public servants**.
  - Organizations receiving **foreign contributions** exceeding ₹10 lakh.

- Exercise **supervisory authority** over the **CBI**, ensuring accountability in investigations.

Composition:

- **Chairperson:** Must be a former **Chief Justice of India**, **Supreme Court Judge**, or an **eminent person** with integrity and expertise.

- **Members:** Up to **8 members**, with at least **50% judicial representation** and **50% from underrepresented groups** (SC/ST/OBC, minorities, and women).

Appointment and Tenure:

- Appointed by the **President of India** based on recommendations from a **Selection Committee** comprising:
  - **Prime Minister** (Chairman).
  - **Speaker of the Lok Sabha**.
  - **Leader of Opposition in the Lok Sabha**.
  - **Chief Justice of India** or an **eminent jurist**.

- **Tenure:** 5 years or until the age of **70**, whichever is earlier.

Key Achievements:

- Established a **prosecution wing** to streamline corruption cases.

- Improved oversight of **public servants** and entities funded by the central government.

- Leveraged **technology-driven processes** to enhance transparency and accountability.

Key Challenges Facing Lokpal:

1. Delayed Appointments and Staffing:

- The first Lokpal, **Justice Pinaki Chandra Ghosh**, was appointed in **March 2019**, six years after the Act's passage.

- The current Lokpal, **Justice (retd) A.M. Khanwilkar**, was appointed in **March 2024**.

- Persistent delays in staffing critical positions, such as the **Director of Inquiry** and **Director of Prosecution**, hinder efficiency.

2. Procedural Hurdles in Investigations:

- Nearly **90% of complaints** filed over the last five years were rejected due to procedural errors or incorrect formats.

3. Coordination with Investigative Agencies:

- The Lokpal heavily relies on **external agencies** like the CBI for conducting probes. Ensuring smooth collaboration and avoiding bureaucratic delays remain major challenges.

Way Forward:

1. Strengthening Infrastructure:

- Enhance staffing levels, increase **budgetary allocations**, and provide technological support to ensure faster and more thorough investigations.

2. Improved Coordination:

- Strengthen partnerships with **anti-corruption agencies** like the CBI to expedite case resolution and streamline investigations.

3. Awareness Campaigns:

- Educate citizens about the **Lokpal's role**, jurisdiction, and procedural requirements to encourage **active public participation** in reporting corruption.

4. Promoting Transparency:

- Regularly disclose updates on investigations, within legal boundaries, to build **public trust** and demonstrate accountability.

Conclusion:

The **Lokpal of India** has emerged as a pivotal institution in the fight against corruption. By addressing infrastructure gaps, fostering better coordination with investigative agencies, and promoting transparency, the Lokpal can solidify its role as a **cornerstone of accountability** and governance in India. As it enters its 12th year, its journey reflects India's commitment to a **corruption-free society** and the rule of law.

Unrest Against Martial Law in South Korea

Context: South Korea has recently witnessed **political turmoil** following President **Yoon Suk-yeol's declaration of martial law**, a move that sparked widespread protests and political uncertainty.

Key Developments:

- **Impeachment of the President:** President Yoon Suk-yeol was **impeached on December 15**, following a series of controversies and public backlash.

- **Rising Criticism:** Since assuming office in **2022**, President Yoon faced criticism over:

  o **Domestic policies** and governance.

  o Allegations of **corruption involving his wife** and interference in related investigations.

  o **Foreign policy decisions** that polarized public opinion.

- **Martial Law Declaration:** The imposition of martial law was perceived as an **attempt to undermine democracy**, leading to large-scale protests. Yoon lifted martial law a day later, but the move significantly damaged his political standing.

Political History of South Korea:

Colonial Period (1910–1945):

- South Korea was under **Japanese colonial rule**, characterized by exploitation and oppression.

- Following **World War II**, the **United States and the Soviet Union** divided Korea along the **38th parallel**, with the North under Soviet control and the South under US control.

Post-Independence Era:

- **Rhee Syngman's Leadership:** Supported by the United States, Rhee became South Korea's first president in **1948** but ruled as an **authoritarian leader**.

- **Student Uprising (1960):** Public protests forced Rhee to resign, ending his 12-year autocratic rule.

Military Coups and Dictatorship:

- **Park Chung Hee (1961–1979):** Major-General Park led a **military coup** and ruled South Korea for 18 years under the **Yushin Constitution**, which centralized power. He was assassinated in **1979**.

- **Chun Doo-Hwan (1980–1987):** Chun seized power through another military coup and **extended martial law nationwide**.

  o **Gwangju Uprising (1980):** A student-led movement against Chun's government was brutally suppressed, leaving deep scars on South Korea's democracy.

  o Authoritarian rule continued until the **June Democratic Struggle of 1987**, which paved the way for democratization.

- **Democratic Transition (1988):** The appointment of **Roh Tae-woo** as president marked the beginning of South Korea's journey as a **liberal democracy**.

Impact on Yoon Suk-yeol:

The memories of dictatorship remain fresh in South Korea's collective consciousness. President Yoon's **declaration of martial law** has severely impacted his political credibility, despite his decision to **revoke it a day later**.

Understanding Martial Law:

Definition

Martial law involves **temporary military control** over civilian governance, often during:

- **Emergencies** like war, rebellion, or natural disasters.
- **Civil unrest** when governments are unable to maintain order.

Features:

- The military assumes responsibilities such as **policing**, **judicial functions**, and **administration**.
- While it is intended as a short-term measure, it can lead to:
    - **Abuse of power.**
    - **Suppression of dissent.**
    - **Prolonged authoritarian regimes.**

Countries with Martial Law Provisions:

Nations like **South Korea**, the **United States**, the **Philippines**, **Pakistan**, and **Thailand** have provisions for martial law.

Does India Have Martial Law?

Legal Framework

- The term **"martial law"** is not explicitly defined in the **Indian Constitution**, but **Article 34** allows restrictions on fundamental rights in areas where martial law is in force.
- India has never officially declared martial law since independence.

Emergency Provisions:

Instead of martial law, India relies on **constitutional emergency provisions**:

- **Article 352:** National Emergency.
- **Article 356:** President's Rule (State Emergency).
- **Article 360:** Financial Emergency.

Judicial Oversight:

The **Supreme Court** has ruled that even during emergencies, certain rights, such as **habeas corpus**, cannot be entirely suspended. This ensures that any invocation of martial law remains subject to judicial scrutiny.

Conclusion:

Martial law is a **double-edged sword**—while it can restore order during crises, it often leads to **erosion of democratic values** and **violations of fundamental rights**. The ongoing unrest in South Korea serves as a stark reminder of its **potential for misuse**. Understanding the implications of martial law is critical for citizens to safeguard their rights and hold leaders accountable.

National Broadband Mission 2.0: Transforming Digital Connectivity

Context: The **Department of Telecommunications (DoT)** recently unveiled the **vision document for National Broadband Mission (NBM) 2.0**, a roadmap aimed at enhancing digital connectivity across India. This initiative builds on the successes of **NBM 1.0 (2019–2024)** and sets ambitious targets for **2030**.

India's Broadband Landscape:

- As of **2023**, India recorded **83.22 crore broadband connections**, with:
  - **79.98 crore wireless connections**.
  - **3.23 crore wireline connections**.
- Between **2015 and 2021**, internet subscriptions grew by:
  - **200% in rural areas**.
  - **158% in urban areas**.
- **NBM 1.0** played a pivotal role in building digital infrastructure, especially in rural regions, bridging the **digital divide**.

Types of Broadband Connections:

1. **Wired Broadband:** Delivered through **optical fiber cables (OFC)**.
2. **Wireless Broadband:** Provided via **radio links**.
3. **Digital Subscriber Line (DSL):** Delivered using **copper lines**.

NBM 2.0: Vision and Objectives

NBM 2.0 aims to take digital connectivity in India to the next level by achieving **affordable**, **reliable**, and **high-speed broadband access** across the nation.

Key Objectives:

1. **Expanding Optical Fiber Connectivity**:
   - Extend **OFC coverage** to **2.70 lakh villages by 2030**, up from the current 50,000 villages.
   - Ensure **95% network uptime** for OFC systems.
2. **Connecting Anchor Institutions**:
   - Provide broadband access to **90% of anchor institutions** such as **schools**, **primary health centers (PHCs)**, **Anganwadi centers**, and **Panchayat offices**.
3. **Enhanced Broadband Speeds**:
   - Increase the **national average fixed broadband speed** to a minimum of **100 Mbps** by 2030.
4. **5G Rollout and 6G Preparedness**:
   - Facilitate a **nationwide 5G rollout** and prepare for **6G technologies**.
5. **Leverage Power Sector Infrastructure**:
   - Use **Optical Ground Wire (OPGW)** from the power sector to boost connectivity for **disaster management**, **emergency communication**, and **critical situations**.

NBM 2.0: Potential Impact:

1. **Digital Inclusion**: Address the **digital divide**, ensuring equitable access to **digital resources** in rural and underserved areas.

2. **Improved Education and Healthcare**: Enable **e-learning** and **telemedicine** services through broadband access in schools and healthcare facilities.

3. **Boost to the Economy**: Digital infrastructure development will create **employment opportunities** and stimulate **economic growth** in urban and rural areas.

4. **Disaster Resilience**: Strengthened communication networks, using **OPGW**, will improve responses during **natural disasters** and emergencies.

5. **Technological Leadership**: With the adoption of **5G and 6G technologies**, India can establish itself as a global leader in **digital innovation**.

The Road Ahead:

1. **Affordable Broadband Services:** Ensure internet services remain **affordable** to boost adoption across all income groups.
2. **Collaboration with the Private Sector:** Partner with **private players** to speed up digital infrastructure development.
3. **Digital Literacy Initiatives:** Launch programs to enhance **digital literacy**, empowering citizens to utilize broadband effectively.
4. **Policy and Process Reforms:** Streamline policies, such as **Right of Way (RoW)** approvals, to minimize delays in infrastructure deployment.

Conclusion:

National Broadband Mission 2.0 is a transformative step toward a **digitally connected India**. With a focus on **affordability**, **high-speed connectivity**, and **technological innovation**, it seeks to unlock opportunities for growth, bridge the digital divide, and position India as a global leader in the digital age.

Discovery of Semi-Dirac Fermions: A Breakthrough in Physics

Context: Physicists have proposed the existence of an extraordinary particle called the **Semi-Dirac Fermion**, unveiling a new realm of particle behavior.

What is a Semi-Dirac Fermion?

The **Semi-Dirac Fermion** is a **quasiparticle** with unique properties:

- It exhibits **dual behavior**, acting **massless in one direction** while having **mass in another direction**.
- This quasiparticle was discovered in **zirconium silicon sulfide**, a crystalline material.
- The phenomenon is driven by the particle's energy being almost entirely derived from its **motion**, making it behave as **pure energy traveling at the speed of light** in certain directions.
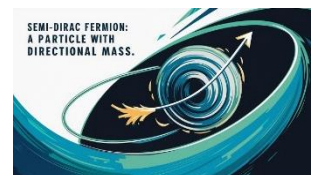
Understanding Quasiparticles:

- **Quasiparticles** are not actual particles but represent the **collective behavior of multiple particles** in a system.
- They are theoretical constructs used to simplify the understanding of complex particle interactions.
- A **Semi-Dirac Fermion** is one such quasiparticle with highly unusual and fascinating properties.

Classification of Particles:

1. Elementary Particles:

- These are the most **fundamental building blocks** of matter.
- Examples include **quarks**, **leptons**, and **gauge bosons**.

2. Composite Particles:

- These particles are formed by combining **elementary particles**.

Common examples are **protons** and **neutrons**, which are made of quarks.

Particle Fundamentals:

Particles are classified into two main categories:

1. Fermions:

- **Matter-forming particles** with **half-integer spins** (e.g., **electrons**, **protons**, and **neutrons**).
- Fermions follow the **Pauli Exclusion Principle**, meaning no two fermions can occupy the same quantum state simultaneously.

2. Bosons:

- **Force-carrier particles** with **integer spins**.
- They mediate fundamental forces of nature, such as:
  - **Photons** for electromagnetic force.
  - **Gluons** for strong nuclear force.
  - **Gravitons** (theorized) for gravitational force.

Significance of the Discovery:

To the Point
Weekly Current Affairs
NEWS
19 to 25 Jan 2025
freedom UPSC
TOGETHER WE SCALE HEIGHTS

The discovery of **Semi-Dirac Fermions** opens up new avenues in quantum mechanics and material science. These particles could potentially:

- Revolutionize **high-speed energy transfer systems**.

- Provide deeper insights into **quantum material properties**.

- Enable advancements in **next-generation electronics** and **quantum computing**.

Conclusion:

The **Semi-Dirac Fermion** represents an exciting breakthrough in physics, showcasing how fundamental research continues to unveil new aspects of the universe. Its dual nature as both **massless and massive** in different directions underscores the complexities of particle behavior and promises to inspire further exploration into the quantum realm.

Third Launch Pad at Satish Dhawan Space Centre: A Major Boost for India's Space Missions

Context: The **Union Cabinet**, chaired by **Prime Minister Narendra Modi**, has approved the establishment of the **Third Launch Pad (TLP)** at the **Satish Dhawan Space Centre (SDSC)** in Sriharikota, Andhra Pradesh.

What is a Launch Pad?

A **launch pad** is a designated platform used for launching rockets or space vehicles into orbit.

- India currently operates two launch pads:
    - **First Launch Pad (FLP):** Operational for over 30 years, supporting **PSLV** and **SSLV** launches.
    - **Second Launch Pad (SLP):** Active for 20 years, handling **GSLV**, **LVM3**, and preparations for the **Gaganyaan human spaceflight mission**.

Third Launch Pad (TLP): A New Milestone

The upcoming **Third Launch Pad (TLP)** is designed to:

- Support **Next Generation Launch Vehicles (NGLV)**.
- Facilitate **LVM3 launches** with semi-cryogenic stages.
- Accommodate **scaled-up configurations** of NGLVs.
- Serve as a **standby** for SLP, ensuring uninterrupted operations.

Key Features of TLP

- **Industry Participation:** The project will leverage ISRO's expertise while encouraging private sector involvement.
- **Timeline:** Targeted for completion within **48 months (4 years)**.
- **Cost:** Total expenditure is estimated at ₹**3,984.86 crore**.

Benefits of TLP:

- **Higher Launch Capacity:** Enables increased launch frequencies for national and international missions.
- **Support for Human Spaceflight:** Plays a pivotal role in upcoming human space exploration missions.
- **Backup Facility:** Acts as a reliable standby for **SLP**.
- **Future-Ready Infrastructure:** Designed to meet India's space transportation needs for the next 25-30 years.

Satish Dhawan Space Centre (SDSC): India's Gateway to Space

Location:

- Situated in **Sriharikota, Andhra Pradesh**, between **Pulicat Lake** and the **Bay of Bengal**.
- Chosen for its **East Coast location**, which optimizes rocket launches eastward, leveraging Earth's rotation.
- Its proximity to the **equator** enhances the efficiency of geostationary satellite launches.

History:

- **Renamed in 2002** to honor **Prof. Satish Dhawan**, a visionary leader in India's space program.

- Became operational on **October 9, 1971**, with the launch of **Rohini-125**, a sounding rocket.

Significance:

- Provides **world-class launch infrastructure** for satellite and rocket missions.

- Plays a critical role in ISRO's achievements, from **telecommunication satellites (INSAT)** to **remote sensing satellites (IRS)**.

Future Vision for India's Space Program:

India's expanded space ambitions include:

- **Bharatiya Antariksh Station (BAS)** by **2035**.

- **Indian Crewed Lunar Landing** by **2040**.To achieve these goals, India needs:

- **Advanced launch vehicles** with heavier payload capabilities.

- **TLP** to accommodate the demands of future missions.

Do You Know?

- **Satish Dhawan**, born in **Srinagar**, was a celebrated **Indian rocket scientist**, often called the **'Father of Experimental Fluid Dynamics'** in India.

- He succeeded **Vikram Sarabhai** as ISRO Chairman in **1972**.

- Under his leadership, ISRO developed operational systems like **INSAT**, **IRS**, and **PSLV**, propelling India into the ranks of space-faring nations.

The establishment of the **Third Launch Pad** marks a significant step toward solidifying India's position as a leader in space exploration and technology.

ILO Report: Global Estimates on International Migrant Workers

Context: The **International Labour Organization (ILO)** recently released the fourth edition of its **Global Estimates on International Migrant Workers**. This report highlights the vital contributions and challenges faced by international migrants in the global labor market.

Key Findings of the Report:

Global Economic Contributions:

- **International migrants** accounted for **4.7%** of the global labor force in 2022, amounting to **167.7 million individuals** (employed and unemployed).

- This marks an increase of over **30 million** since 2013.

Regional Distribution:

- **High-income countries** host the majority of international migrants, absorbing **68.4%** (114 million people). Key sectors include **services**, particularly the **care economy**.

- **Upper-middle-income countries** accounted for **17.4%** (29.2 million).

- In regions like **Northern, Southern, and Western Europe**, migrants formed **23.3%** of the labor force, while in **Northern America**, they constituted **22.6%**.

Employment Sectors:

- **Services sector**: Represents the largest share of migrant employment at **68.4%** (compared to non-migrants):
  - **Women**: 80.7%
  - **Men**: 60.8%
  - **Care economy**:
    - **Migrant women**: 28.8%
    - **Migrant men**: 12.4%

- **Industry sector**: 24.3%

- **Agriculture**: 7.4% (significantly lower than the **24.3%** share for non-migrants).

Age Distribution:

- **Prime-age adults (25-54 years)**: Comprise **74.9%** of migrant workers (125.6 million).

- **Youth (15-24 years)**: **9.3%** (15.5 million).

- **Older workers (55-64 years)**: **12.5%**.

- **Above 65 years**: **3.4%**.

Gender Dynamics:

- **Men** made up **4.7%** of total male employment globally.

- **Women** represented **4.4%** of total female employment.

- The number of **women migrants** has consistently increased since 2015.

Significance of International Migrants:

- Addressing **labor shortages** in host countries and contributing significantly through **remittances**.
- In **2024**, **India** received **$129.1 billion in remittances**, the highest for any country in a year. These funds support families, boost local economies, and drive national development.

Challenges Highlighted in the Report:

1. **Growth Rate Decline**: The annual growth rate of international migrants fell to less than **1%** between 2019 and 2022 due to the **COVID-19 pandemic**.

2. **Gender Disparities**:

   o **Higher unemployment** for migrant women (**8.7%**) compared to men (**6.2%**).

   o Employment-to-population ratio:

     ▪ **Migrant women**: **48.1%**

     ▪ **Migrant men**: **72.8%**

   o Contributing factors include **language barriers**, **discrimination**, **unrecognized qualifications**, **limited childcare options**, and **gender-based expectations**.

3. **Unemployment Rates**:

   o Migrants face a higher unemployment rate (**7.2%**) compared to non-migrants (**5.2%**), with women being more affected.

Policy Recommendations:

To optimize the benefits of labor migration, the ILO emphasizes:

- Comprehensive policies to enhance **labor mobility** and **inclusive growth**.
- Protecting **workers' rights** and ensuring **economic well-being**.
- Addressing specific needs of migrants, focusing on their **safety** and **dignity**.

About the International Labour Organization (ILO):

- Established in **1919** under the **Treaty of Versailles**.
- Became the first **specialized agency** of the UN in **1946**.
- The **only tripartite UN agency**, involving **governments**, **employers**, and **workers**.
- **Headquarters**: Geneva, Switzerland.
- **Member States**: 187.

Major Reports by ILO:

- **World Employment and Social Outlook (WESO)**
- **Global Wage Report**
- **World Social Protection Report**
- **World Employment and Social Outlook for Youth**
- **World of Work Report**

This report underscores the crucial role of migrants in the global labor market and the need for inclusive policies to ensure their equitable integration and contribution.

TRAI Adopts Ledger Technology to Combat Spam

Context: The **Telecom Regulatory Authority of India (TRAI)** is leveraging **distributed ledger technology (DLT)** to strengthen the fight against spam and enhance customer experience.

Overview:

TRAI plans to tighten regulations to ensure that commercial messages are **traceable**, thereby addressing the growing concerns of **spam messages and calls**—unwanted, unsolicited communications often used for **advertising**, **scams**, or other malicious activities.

Key Concerns of Spam

1. **Privacy Invasion**: Spam often leads to a breach of **personal privacy**, exposing sensitive information without consent.

2. **Scams and Fraud**: Many spam messages aim to deceive individuals into sharing **sensitive data** (e.g., bank details), resulting in **financial losses** and **identity theft**.

3. **Overload and Disruption**: The sheer volume of spam causes **annoyance**, disrupts daily activities, and overwhelms users.

4. **Regulatory Challenges**: Despite existing laws, **spammers** continuously evolve their tactics, making it hard to enforce regulations effectively.

5. **Lack of Awareness**: Many individuals, particularly in **rural areas**, lack knowledge of how to block or report spam, leaving them vulnerable to scams.

Spam Regulations in India:

TRAI has implemented several measures to regulate **Unsolicited Commercial Communications (UCC)**:

- **DND Registry**: Initiated in **2007**, this registry allows telecom customers to opt-out of spam calls and messages.

- **TCCCPR 2018**: Under the **Telecom Commercial Communication Customer Preference Regulation (TCCCPR)**, telemarketers targeting DND-registered customers receive **warnings**, and repeat offenders can be **blacklisted**.

- **2024 Mandate**: TRAI directed telecom providers to integrate DND reporting into their apps for easier accessibility.

Adopting Distributed Ledger Technology (DLT):

TRAI mandated the use of **blockchain technology** to combat spam effectively.

- **Key Features**:
  - Maintains a **constantly-updated list** of approved SMS senders.
  - Requires telcos to pre-approve **specific message formats**.
  - Ensures **immutability** of records, preventing unauthorized tampering.

- **Significance**:
  - Telcos will have a **complete record** of the source of a message before it reaches the **SMS gateway**.

o This measure plugs a critical system flaw, preventing unauthorized entities from registering on the blockchain.

Additional Measures to Combat Spam:

1. **Sanchar Saathi Portal**

   o Includes a reporting feature called **Chakshu**, allowing users to report **fraudulent calls and messages**.

   o **Collaboration**: Partners with law enforcement, banks, and other stakeholders to address spam.

2. **Suspicious Number Cancellation:**

   o The Department of Telecommunications (DoT) has canceled **lakhs of numbers** linked to unauthorized telemarketers and scammers.

3. **Telecom Security Operations Centre:**

   o A centralized system in **New Delhi** to monitor **suspicious internet traffic** in real-time.

4. **AI-Powered Spam Identification:**

   o Telcos like **Airtel** label suspicious calls as **"Suspected Spam"**, a practice being adopted by other providers.

   o **International Call Labelling**: Telcos now identify **international calls** on smartphones.

Benefits of the Initiative:

- Enhanced **customer safety** and **privacy protection**.

- Improved **traceability** and accountability for all commercial messages.

- A significant step toward curbing **fraudulent activities** and **spam overload**.

By implementing these stringent measures, TRAI is setting an example globally in tackling the menace of spam while leveraging cutting-edge technology like blockchain for effective regulation.

Fast Track Immigration: Trusted Traveller Programme (FTI-TTP)

Context: The **Fast Track Immigration – Trusted Traveller Programme (FTI-TTP)** is a transformative initiative aimed at simplifying and securing international travel for Indian nationals and Overseas Citizens of India (OCI). The programme aligns with India's vision for development, offering world-class immigration facilities with advanced technologies.

Why in News?

On **January 16, 2025**, Union Home Minister **Amit Shah** inaugurated the **FTI-TTP** at **seven airports**:

- **Mumbai, Chennai, Kolkata, Bengaluru, Hyderabad, Cochin, and Ahmedabad.**

Initially launched **seven months ago** at Delhi's IGI Airport, the FTI-TTP aims to provide **accelerated immigration pathways**, including **automated e-gates** for quicker screening of international travellers.

Fast Track Immigration – Trusted Traveller Programme (FTI-TTP)

FTI-TTP and 'Viksit Bharat @2047' Vision

This programme supports the **'Viksit Bharat @2047'** agenda, envisioning India as a **developed nation** by its **centenary of independence**.

Launch and Objectives:

- **First introduced**: June 2024 at IGI Airport Terminal 3.
- **Goal**: To facilitate faster, smoother, and secure immigration for **Indian nationals** and **OCI passengers** arriving from abroad.

Key Features of FTI-TTP:

- **Free of Cost**: Initially offered **gratis** to Indian citizens and OCI cardholders.
- **Enhanced International Mobility**: Automates and streamlines immigration processes for better efficiency.

Implementation:

The **Bureau of Immigration** under the **Ministry of Home Affairs** oversees the implementation of the programme.

How FTI-TTP Works:

Enrollment Process:

Applicants register online via the **official portal**: https://ftittp.mha.gov.in.

1. Submit necessary details and documents for verification.
2. Approved applicants are added to the **Trusted Travellers Whitelist** for seamless e-gate access.

Biometric Verification:

- Biometric data is collected either at the **Foreigners Registration Office (FRRO)** or during airport transit.
- Registration is valid until the **passport expires** or for **five years**, whichever is earlier.

Immigration Clearance Process:

1. **Boarding Pass Scan**: Registered travellers scan their boarding pass at e-gates.
2. **Passport Verification**: The passport is scanned to confirm identity.
3. **Biometric Authentication**: Traveller's biometrics are verified at e-gates.
4. **Automated Clearance**: E-gates open upon successful verification, completing the process.

Implementation Phases:

1. **Phase 1**:
   o Covers **Indian citizens** and **OCI cardholders**.
   o Implemented at **seven airports**, including **Mumbai, Chennai, Kolkata, Bengaluru, Hyderabad, Cochin, and Ahmedabad**.
2. **Phase 2**:
   o Expands to **foreign travellers**.
   o Targets rollout across **21 major airports nationwide**.

Global Fast-Track Immigration Programmes:

India joins several countries in adopting fast-track immigration systems to enhance global mobility.

1. **United States: Global Entry Programme (2008)**
   o **Expedited clearance** for pre-approved, low-risk travellers.
   o Utilises **self-service kiosks** for passport and fingerprint scans.
   o Requires a **detailed background check** and **in-person interview**.
2. **United Kingdom: Registered Traveller Service (2015)**
   o Fast-track access for frequent visitors from specific countries.
   o Enables use of **eGates** at major UK airports.
3. **European Union: Smart Borders Initiative (2016)**
   o Implements the **Entry/Exit System (EES)** to pre-register data, including biometrics, for non-EU nationals.
   o Enhances **security** and **efficiency** for Schengen Area entry.
4. **Australia: SmartGate System (2007)**
   o Automated kiosks for verifying identity using **passport scans and photographs**.
   o Initially limited to Australian and New Zealand passport holders but now includes select foreign nationals.
5. **Saudi Arabia: Smart Travel System (2019)**
   o **e-Gates** for faster immigration clearance using **biometric verification** (facial recognition and fingerprints).
   o Expanded under the **Vision 2030** initiative to cater to increasing international visitors.

Significance of FTI-TTP

- **Faster Immigration**: Reduces waiting times for international travellers.
- **Enhanced Security**: Ensures thorough verification with **biometric authentication**.

India's Position in the QS World Future Skills Index

Context: India's ranking in the **QS World Future Skills Index** highlights its growing potential and challenges in adapting to the rapidly evolving global job market. The country stands out for its strengths in digital readiness and workforce youth but faces hurdles in innovation and skill alignment.

Understanding the QS World Future Skills Index:

The **QS World Future Skills Index**, developed by **Quacquarelli Symonds (QS)**—globally recognized for its university rankings—evaluates countries on their readiness to tackle future job market demands.

The index focuses on **four key dimensions**:

1. **Skills Fit**: How well workforce skills align with market needs.

2. **Academic Readiness**: The ability of educational institutions to prepare graduates for future jobs.

3. **Future of Work**: The adoption of emerging skills and technologies.

4. **Economic Transformation**: The adaptability of economies to thrive in evolving paradigms.

The inaugural **QS Future Skills Index 2025** sheds light on how countries are preparing for trends like **Artificial Intelligence (AI)**, **green technologies**, and **digital transformation**.

Key Highlights from the QS Index:

1. **India's Rank and Category:**

   o Ranked **25th overall**, India is classified as a **"contender,"** indicating steady progress in future skill preparedness.

2. **Strengths:**

   o **Future of Work**: India scored an impressive **99.1**, the **second-highest globally**, showcasing readiness for digital roles.

   o **Youth Demographics**: A large, young population and a thriving **start-up ecosystem** provide a strong foundation for economic growth.

   o **Digital Integration**: Alongside Mexico, India ranks among the most prepared nations for integrating talent into **digital roles**.

3. **Weaknesses:**

   o **Innovation for the Future**: Low scores in **sustainability** and forward-thinking solutions hinder progress.

   o **Academia-Industry Misalignment**: Significant gaps remain in equipping graduates with skills in **AI**, **green technologies**, and **digital sectors**.

   o **R&D Investment**: India's **R&D spending (0.6% of GDP)** is far below the global average of **2.7%**.

Challenges in Skill Development:

1. **Skilled Workforce Gap**

   o A **National Skill Development Corporation (NSDC)** report highlights a demand-supply gap of **29 million skilled workers**, particularly in sectors like **healthcare**, **AI**, **semiconductor manufacturing**, and **green jobs**.

2. **Employability Standards:**

   o   Only **25% of management professionals**, **20% of engineers**, and **10% of graduates** meet employability standards, as per the **World Economic Forum**.

   o   The **International Labour Organization (ILO)** reports that **47% of Indian workers**, including **62% of women**, are underqualified for their roles.

3. **Limited Access to Education:**

   o   Many Indian youth, especially in rural areas, struggle to access **tertiary education** in skills-intensive fields.

Opportunities for Growth:

1. **Demographic Advantage:**

   o   India's youthful population positions it to become a **global leader in skill-based industries**, while other nations face challenges of an aging workforce.

2. **Policy Initiatives:**

   o   **National Education Policy (NEP) 2020**: Promotes modular education and reskilling.

   o   **ULLAS (Understanding of Lifelong Learning for All in Society)**: Aims to make education and training accessible to all regions.

3. **Technological Integration:**

   o   Leveraging **digital learning platforms** and **AI** to align academic curricula with industry needs.

Recommendations for Improvement:

1. **Align Academia with Industry:**

   o   Universities and training institutions must focus on delivering future-ready skills in **AI**, **green technologies**, and **digital sectors**.

2. **Boost R&D Investment:**

   o   Increasing **R&D funding** is crucial to drive innovation and promote sustainable practices.

3. **Expand Educational Access:**

   o   Address regional disparities in education through **flexible learning pathways**.

4. **Foster Collaboration:**

   o   Strong partnerships between **government**, **academia**, and the **private sector** are essential for targeted skill development.

Conclusion:

India's performance in the **QS World Future Skills Index** demonstrates significant potential to lead the global job market in emerging skills. While the country excels in digital readiness, its youthful workforce, and start-up ecosystem, addressing challenges in education, sustainability, and innovation is vital.

By closing these gaps, India can achieve sustainable growth and establish itself as a global powerhouse for **future-ready skills**.

GS Paper 3 – International Relation

Impact of Proposed US Sanctions on Russian Oil and India's Energy Landscape

Context: The proposed sanctions were announced by **Scott Bessent**, the US President-elect's nominee for Treasury Secretary, during a Senate confirmation hearing. The strategy underscores the United States' intent to tighten pressure on Russia amidst the ongoing Ukraine conflict, with major consequences for global oil prices and trade dynamics.

New Sanctions on Russian Oil:

1. **Tightened Restrictions:**
   - On **January 10, 2024**, the Biden administration introduced new sanctions targeting Russia's oil sector.
   - The incoming administration is likely to further intensify these measures, focusing on **Russian oil majors** and their global operations.

2. **Scope of Sanctions:**
   - **Targeted Entities**: Companies like **Gazprom Neft** and **Surgutneftegas** are directly impacted.
   - **Vessels Affected**: Sanctions extend to 183 tankers in Russia's "shadow fleet."
   - **Service Providers**: Restrictions on Russia-based **oilfield service providers** are included.
   - **Objective**: To sever the revenue streams funding Russia's military actions.

3. **Compliance Deadline:**
   - The US **Office of Foreign Assets Control (OFAC)** has set a deadline of **February 27, 2024**, for crude oil deliveries loaded before the sanctions came into effect.

Implications for India and Its Strategic Response:

Impact on India:

- **Bilateral Trade Growth**: India-Russia trade reached **$65.7 billion** in 2023-24, reflecting a significant surge.
- **Crude Oil Dependency**: Russia now accounts for **38% of India's oil imports**, up from negligible levels before the Ukraine conflict.
- **Price Cap Dynamics**: The **$60-per-barrel price cap** imposed by G7 nations redirected Russian oil exports to Asian markets, primarily **India** and **China**.
- **Energy Security Risks**: Over **85% of India's crude oil** is imported, making cost-effective and reliable Russian oil critical to its energy strategy.

India's Response:

1. **Commitment to Energy Security:**
   - India has prioritized energy security over geopolitical pressures.
   - External Affairs Ministry spokesperson **Randhir Jaiswal** affirmed that India would continue importing Russian oil based on economic and energy needs.

2. **Accelerated Payments for Russian Oil:**
   - Indian refiners are expediting payments to avoid potential US penalties.

  o Payments for **Gazprom Neft crude** are now being processed in **Rubles**, bypassing the **$60-a-barrel price cap** introduced in 2022.

Examining Rupee Internationalisation Amid Sanctions:

Challenges in Rupee Trade:

- Efforts to settle India-Russia oil trade in **rupees** face obstacles, especially as stricter sanctions could hinder negotiations.

- In contrast, **Russia-China trade** in non-dollar currencies has boosted the **yuan's global presence**.

Global Reserve Currency Trends:

- **US Dollar Dominance**: The US dollar remains the **world's leading reserve currency**, but **BRICS nations** are intensifying efforts to develop alternatives.

- **Impact of SWIFT Ban**: The US excluded Russia from **SWIFT** in 2022, accelerating global efforts to explore non-dollar transactions.

US Perspective:

- **Scott Bessent** emphasized the need to safeguard the dollar's status as the **global reserve currency**.

- Former President Trump had previously warned **BRICS nations** of economic repercussions if they pursued a rival reserve currency.

Conclusion:

India's strategic engagement with the US and Russia highlights its balanced approach to securing energy needs amidst geopolitical tensions. As one of Russia's top oil buyers, India continues to prioritize its **economic stability** and **energy security** while adapting to the evolving global dynamics.

By maintaining this delicate balance, India aims to navigate international sanctions while ensuring a stable and sustainable energy future.

Cabinet Approves Refarming of 687 MHz Spectrum for Mobile Services in India

Context: The recent decision by the Union Cabinet to refarm 687 MHz of spectrum marks a significant step toward meeting India's growing demand for mobile services and advanced connectivity solutions.

Why in News?

The **Union Cabinet** has approved the **refarming of 687 MHz spectrum**, increasing the total available spectrum to **1,587 MHz**. Of this, **320 MHz will be released immediately**, while the remaining will be released by **2028-29**.

- **Key Contributors**: The refarmed spectrum primarily comes from the **Ministry of Defence** and **ISRO**.

- **Future Requirements**: Union Telecom Minister highlighted that by 2030, mobile services in India will require **2,000 MHz of spectrum**, leaving a gap of **1,100 MHz** from current availability.

- **Purpose**: This move aligns with the demand for efficient use of **mid-band spectrum** (1,000–6,000 MHz), crucial for 4G and 5G connectivity.

Understanding Airwaves/Spectrum:

What are Airwaves?

Airwaves refer to **radio frequencies** within the **electromagnetic spectrum** used for wireless communication, including mobile services, broadcasting, and more. The government regulates, manages, and auctions these airwaves to operators.

Types of Spectrum Bands:

1. **Low-Band Spectrum (<1 GHz):**

   o Examples: **600 MHz, 700 MHz, 800 MHz, 900 MHz**.

   o **Advantages**:

      ▪ Wide coverage over long distances.

      ▪ Effective for in-building penetration.

   o **Usage**: Ideal for **commercial mobile services** and **broadcasting**.

2. **Mid-Band Spectrum (1 GHz–6 GHz):**

   o Examples: **1800 MHz, 2100 MHz, 2300 MHz**.

   o **Advantages**:

      ▪ Balances **coverage** and **data capacity** over significant distances.

   o **Usage**: Vital for modern telecom services, including **4G** and **5G**.

3. **High-Band Spectrum (24 GHz–40 GHz):**

   o Also known as the **millimeter-wave spectrum**.

   o **Advantages**:

      ▪ Supports ultra-high-speed networks over short distances.

Challenges:

- Susceptible to interference from dense objects.

Spectrum Needs for Telecom Companies:

1. **Optimal Range**: The **400 MHz–4 GHz** range is deemed most suitable for telecom services by the GSM Association.

2. **Frequency Bands in India**:
   - **2G**: 900 MHz, 1800 MHz.
   - **3G**: 900 MHz, 2100 MHz.
   - **4G**: 850 MHz, 1800 MHz, 2300 MHz, 2500 MHz.
   - **5G**: 700 MHz, 3.5 GHz.

3. **Key Bands**:
   - **900 MHz**: Widely used for GSM voice calls and 4G broadband services.
   - **1800 MHz**: Essential for GSM services and a core band for **4G LTE**.

Spectrum Refarming:

What is Spectrum Refarming?

Spectrum refarming is the process of reallocating spectrum bands from older technologies (e.g., 2G) to newer, more efficient technologies like **4G** or **5G**.

- Example: Allocating a portion of the **900 MHz band** previously used for **2G services** to LTE (4G) for meeting higher data demand.

Why is Refarming Important?

- **Efficient Utilization**: Ensures better use of the **scarce spectrum resource** amidst rising demand.
- **Network Modernization**: Enables service providers to transition from **legacy networks** to advanced networks.
- **Support for Future Technologies**: Critical for addressing the growing demand for **mobile broadband** and **5G services**.

Benefits of Spectrum Refarming

- **Increased Network Capacity**: Accommodates more users and higher data speeds.
- **Improved Network Performance**: Delivers superior quality of service.
- **Cost-Effectiveness**: Eliminates the need to purchase additional spectrum for upgrades.

Challenges of Spectrum Refarming:

1. **Service Continuity**: Ensuring uninterrupted services during the transition.
2. **Device Compatibility**: Older devices may not support reallocated spectrum.
3. **Channel Interference**: Avoiding overlaps between new and old frequency bands.
4. **Contiguous Spectrum**: Adequate contiguous blocks are essential for operating multiple technologies.

Coclusion:

The approval of **687 MHz spectrum refarming** is a forward-thinking move by the Indian government to bridge the gap between current spectrum availability and future needs. By reallocating spectrum for modern technologies, India is paving the way for **enhanced mobile services**, **efficient 5G deployment**, and **improved connectivity** for its citizens.

While challenges remain in terms of service continuity and device compatibility, the benefits of refarming, including increased capacity and network performance, are significant for India's telecom sector as it gears up for a data-driven future.

India's 6-Point Plan to Strengthen Economic Ties with the EU

Context: India has introduced a comprehensive **6-point plan** aimed at enhancing its economic partnership with the **European Union (EU)**. This initiative focuses on fostering trust, promoting fair trade, and driving technological and sustainable growth.

The 6-Point Plan:

1. Trusted Partnership:

- Foster stronger economic ties between India and the EU, benefiting a combined population of **2 billion people**.
- Build a foundation of **mutual trust** to ensure sustained cooperation and growth.

2. Fair Trade Agenda:

- Work towards a mutually beneficial **Free Trade Agreement (FTA)** to eliminate **tariff** and **non-tariff barriers**.
- Prioritize the inclusion of **small enterprises, farmers, and fishermen** to ensure equitable trade practices.

3. High-Quality Production:

- Adopt **EU best practices** to harmonize manufacturing standards under the vision of **"zero defect, zero effect"**.
- Focus on producing high-quality, sustainable goods for global markets.

4. Technological Collaboration:

- Jointly develop **cutting-edge technologies** and secure **critical raw material supply chains**.
- Promote **fair technology sharing** to enhance resilience against non-market economies.

5. Sustainable Development:

- Align trade and economic policies with **Sustainable Development Goals (SDGs)**, adhering to the principle of **common but differentiated responsibility**.
- Collaborate in areas like **renewable energy**, **green technologies**, and **environmental protection**.

6. Mutual Growth:

- Leverage India's **talent pool** as a "**living bridge**" to drive shared innovation and prosperity.
- Enhance cultural and economic exchanges for mutual benefit.

India-EU Relations: An Overview:

Political Cooperation:

- **Historic ties**: India-EU relations date back to the 1960s, strengthened by the **1994 Cooperation Agreement**.
- **Milestones**:
    o **2000**: First India-EU Summit.
    o **2004**: Upgraded to a **Strategic Partnership** at the 5th Summit in The Hague.

Economic Cooperation:

- **Bilateral trade**: Reached **USD 137.41 billion** (2023-24), with the EU as India's largest trading partner in goods.
- **Services trade**: Valued at **USD 51.45 billion** in 2023.

Sectoral Collaborations:

- **Water Management**: The **India-EU Water Partnership (IEWP)** (2016) focuses on sustainable water frameworks.
- **Nuclear Energy**: Agreement signed in 2020 for R&D on the peaceful use of nuclear energy.
- **Trade and Technology Council (TTC)**: Launched in 2023 to advance collaboration on trade, technology, and security.

Challenges in India-EU Collaboration:

1. **Legacy Trade Issues:**
   - Persistent disputes over **tariffs**, **non-tariff barriers**, and **standards harmonization**.
2. **Technology Transfer:**
   - Misalignment in **intellectual property rights (IPR)** and challenges in equitable technology sharing.
3. **Critical Raw Materials:**
   - **Geopolitical tensions** and competition for resources hinder smooth cooperation in securing vital materials.

Way Forward:

1. **Accelerate FTA Negotiations:**
   - Address key issues like **market access**, **trade facilitation**, and **dispute resolution mechanisms**.
2. **Enhanced R&D Partnerships:**
   - Establish **joint research centers** and **innovation hubs** to drive technological progress.
3. **Sustainability Focus:**
   - Invest in **green technologies** and **renewable energy** to achieve long-term economic and environmental benefits.

Conclusion:

India's **6-point plan** offers a clear and strategic framework for deepening its partnership with the EU. By addressing core challenges such as trade barriers, technology sharing, and sustainability, this collaboration can unlock immense potential for **global economic stability** and **resilience**. Together, India and the EU have the capacity to shape a more equitable, sustainable, and prosperous future.

NEWS

To the Point
Weekly Current Affairs

19 to 25 **Jan** 2025

freedom UPSC
TOGETHER WE SCALE HEIGHTS

India's Strategic Response to Trump's Presidency

Context: India's External Affairs Minister, **S. Jaishankar**, has embarked on a crucial mission to Washington, prioritizing bilateral ties, regional security, and economic collaboration as key pillars of India-U.S. relations during the Trump presidency.

Key Priorities for Jaishankar's Washington Visit:

1. Early Modi-Trump Meeting:

- Strengthen the **personal rapport** between Prime Minister **Narendra Modi** and President **Donald Trump**, established during Trump's first term.
- Focus on **defense cooperation**, **energy security**, and **counter-terrorism** to lay the groundwork for high-level bilateral engagements in the coming years.

2. Quad Summit and Regional Security:

- Reinforce the **Quad alliance** (India, U.S., Japan, and Australia) to ensure a **free and open Indo-Pacific**, aligning with India's **Act East Policy**.
- Promote **peace, stability, and connectivity** in the Indo-Pacific region to counterbalance China's growing influence.

3. Trade and Economic Collaboration:

- Address unresolved **tariff issues**, such as U.S. duties on Indian **steel and aluminum**, and advocate for fair trade practices.
- Explore synergies in **emerging technologies** like artificial intelligence, semiconductors, and cybersecurity.

4. Immigration and Talent Mobility:

- Advocate for **smoother visa processing** and address restrictions impacting **Indian professionals** working in the U.S.
- Strengthen ties with the **Indian-American diaspora**, a vital link in the India-U.S. relationship.

Strategic Significance of the Agenda:

1. Addressing Geopolitical Shifts:

- Counter China's **assertiveness in Asia**, particularly in the **Indo-Pacific** region, by enhancing Quad cooperation.
- Promote **regional peace and connectivity** through a strong maritime security framework.

2. Economic Synergy:

- Expand collaboration in emerging sectors like **artificial intelligence**, **semiconductors**, and **renewable energy**, leveraging India's growing status as a **global tech hub**.

3. Reinforcing Shared Values:

- Reaffirm India and the U.S.'s commitment to **democracy** and a **rules-based international order**, strengthening their strategic partnership.

Challenges Ahead:

1. **Trade and Tariff Disputes:** Persistent disagreements over **tariffs** and **non-tariff barriers** remain unresolved.

2. **Immigration Restrictions:** Challenges such as **U.S. visa caps** and delays hinder the mobility of Indian professionals.

3. **Geopolitical Divergences:** Differences in **global conflict stances**, like on **Russia**, may test bilateral cooperation.

4. **Technology Barriers:** Restrictions on **sensitive technology transfers** limit potential in defense collaboration.

5. **Domestic Pressures:** Political and economic constraints in both nations could impact policy priorities.

Way Forward:

1. **Streamline Trade Agreements:** Focus on reducing trade barriers to maximize **mutual economic benefits**.

2. **Advance Immigration Reforms:** Develop frameworks to enhance **talent mobility** and improve **visa efficiency**.

3. **Strengthen Quad Engagement:** Expand cooperation on **regional connectivity** and **maritime security initiatives**.

4. **Promote Renewable Energy Ventures:** Collaborate on **clean and sustainable energy technologies**, aligning with global climate goals.

5. **Frequent High-Level Dialogues:** Establish regular **high-level engagements** to address emerging challenges and seize opportunities.

Conclusion:

Minister **S. Jaishankar's Washington agenda** reflects India's **strategic vision** to enhance its relationship with the U.S. by tackling critical issues like trade, immigration, and regional security. This forward-looking approach underscores India's commitment to a **robust partnership**, turning challenges into opportunities and fostering a future of **shared prosperity and global leadership**.

First Executive Orders by Donald Trump (47th President of the U.S.)

Context: On his first day in office, Donald Trump, as the **47th President of the U.S.**, signed a series of impactful executive orders, signaling his administration's policy priorities.

About Executive Orders:

- **Definition**: Official directives issued by the President to manage the federal government, enforce laws, or set significant policy initiatives.
- **Scope**: Can range from routine administrative tasks to major policy shifts, bypassing the need for Congressional approval.
- **Usage**: Often employed to achieve goals that face legislative hurdles.

Key Highlights of Trump's Executive Orders:

1. Pardons:

- Pardoned **1,500 individuals**, including:
  - Participants in the **January 6, 2021 Capitol riot**, such as members of the **Proud Boys** and **Oath Keepers**.

2. Immigration:

- **Reversed Biden-era policies**, prioritizing deportation of all undocumented immigrants.
- Suspended the **U.S. refugee resettlement program** for four months.
- Declared a **national emergency** on the U.S.-Mexico border, deploying troops for immigration enforcement.
- Proposed ending **birthright citizenship**, anticipating legal challenges.

3. Undoing Biden Policies:

- Revoked **78 executive orders** signed by Biden, including:
  - COVID-19 relief measures.
  - Diversity, equity, and inclusion (DEI) initiatives.
  - Clean energy policies.
- Directed federal agencies to preserve records related to **alleged political persecutions**.

4. Diversity and Inclusion: Rescinded Biden's executive orders promoting **DEI** and **LGBTQ+ protections**.

5. Government Efficiency:

- Created the **Department of Government Efficiency (DOGE)**, led by **Elon Musk**, to streamline federal operations.
  - Faced immediate legal challenges over its scope and jurisdiction.

6. Climate and Energy:

- Withdrew from the **Paris Climate Agreement**.
- Reversed restrictions on **oil drilling** in the Arctic and on federal lands, focusing on **energy independence**.

- Declared a **national energy emergency** to boost domestic oil and gas production.

7. Inflation and Economy:

- Ordered departments to implement measures to combat inflation, attributing it to Biden's policies.

- Proposed **25% tariffs** on Canada and Mexico.

- Directed agencies to assess **China's compliance** with trade agreements.

8. Foreign Policy and Aid:

- Paused **foreign development assistance** for 90 days to ensure alignment with U.S. interests.

- Rejected the **OECD global minimum corporate tax deal**, citing the need for Congressional approval.

9. Free Speech: Signed an order to restore **freedom of speech** and end federal censorship of online platforms.

10. Health Policy: Withdrew from the **World Health Organization (WHO)**, citing its handling of the COVID-19 pandemic.

Implications for U.S.-India Relations:

1. Trade Policies:

- **Protectionist stance**: Higher tariffs on Indian exports could strain trade relations, as the U.S. is India's largest export market.

- **WTO violations**: Trump's trade policies could lead to disputes at the **World Trade Organization**, complicating bilateral relations.

2. Opportunities in Manufacturing:

- **Anti-China stance**: India could benefit from shifting supply chains, particularly through **production-linked incentives (PLIs)**.

- **Challenges**: India must implement structural reforms to maximize these opportunities.

3. Technology and Innovation:

- India's **STEM talent** could gain from U.S. investments in emerging technologies such as **AI** and **quantum computing**.

- **IT sector growth**: Potential expansion in India's IT services, although restrictions on **H-1B visas** may pose risks.

4. Immigration and Visas:

- Stricter immigration policies, including **H-1B visa restrictions**, could negatively impact Indian professionals.

- **IT firms**: May face difficulties in deploying talent to the U.S. market.

5. Energy and Climate:

- **Divergence**: Trump's focus on fossil fuels contrasts with India's renewable energy goals, complicating cooperation in climate initiatives.

Conclusion and Way Forward:

Donald Trump's presidency signals a potential reshaping of **global economic dynamics**, including U.S.-India relations. While challenges such as **protectionist trade policies**, **immigration restrictions**, and **divergent energy priorities** may arise, opportunities exist in areas like **manufacturing**, **technology**, and **regional security**.

RBI Issued Norms for Asset Reconstruction Companies (ARCs)

Context: The Reserve Bank of India (RBI) has introduced revised norms for **Asset Reconstruction Companies (ARCs)** to enhance transparency and efficiency in the settlement of dues with borrowers.

Key Features of the Guidelines:

1. Framework for Settlement of Dues:

- ARCs are required to adopt a **Board-approved policy** to govern settlement practices.

- Policies should outline transparent and consistent procedures for settling dues with borrowers.

2. Differentiated Approach Based on Loan Size:

- **For dues above 1 crore**:

  o Approval must come after recommendations from an **Independent Advisory Committee (IAC)**.

  o The IAC should include experts in technical, financial, or legal domains to ensure impartiality.

- **For dues up to 1 crore**:

  o Settlement proposals can be approved by **officials not involved** in acquiring the concerned financial asset to avoid conflicts of interest.

3. Recovery Safeguards:

- Settlements must ensure that the **Net Present Value (NPV)** of the settlement is not lower than the **realisable value of securities**.

What is an Asset Reconstruction Company (ARC)?

ARCs are specialized financial institutions that purchase **non-performing assets (NPAs)** from banks and financial institutions. This allows lenders to clean their balance sheets and focus on fresh credit.

Key Points about ARCs:

- **Introduction**: The **Union Budget 2021-22** announced the establishment of ARCs to tackle India's mounting NPA crisis.

- **Regulation**: ARCs are governed by the RBI under the **SARFAESI Act, 2002**.

- **Role**: They play a pivotal role in resolving stressed financial assets, enhancing the overall stability of the financial system.

Non-Performing Assets (NPAs):

- **Definition**: Loans or advances that have stopped generating income for the lender.

- **Criteria**: A loan is classified as an NPA when the borrower fails to make payments on the **principal or interest** for at least **90 days**.

National Asset Reconstruction Company Ltd (NARCL):

- **Formation**: Established in 2021 as a **government-backed ARC**.

- **Ownership**:

  o Majority stake held by **Public Sector Banks (PSBs)**.

  o Remaining stake held by private banks, with **Canara Bank** as the sponsor bank.

- **Regulation**: Registered under the **SARFAESI Act, 2002**.
- **Objective**: To facilitate the resolution of large-value stressed assets by acquiring and managing them effectively.

Functions of ARCs:

1. Acquisition of Bad Loans:

- ARCs purchase NPAs from banks and financial institutions at a discounted price, enabling lenders to clean up their balance sheets.

2. Resolution of Stressed Assets:

- After acquiring bad loans, ARCs employ various strategies to recover dues, including:

    o **Restructuring** of loans.

    o **One-time settlements**.

    o **Asset liquidation**.

3. Securitization of Loans:

- ARCs can issue securities or bonds to investors.
- These securities are backed by the underlying NPAs, helping ARCs raise funds for further asset acquisitions.

Concluding Remarks:

- ARCs are essential components of India's financial system, addressing the critical issue of **non-performing assets (NPAs)** and enhancing the health of the banking sector.
- By streamlining asset recovery and resolution, ARCs enable banks to focus on **fresh credit**, contributing to **financial stability** and **economic growth**.
- The revised RBI norms strengthen governance, transparency, and operational efficiency within ARCs, ensuring their pivotal role in India's financial ecosystem remains robust.

India Became the 7th Largest Producer of Coffee

Context: India has emerged as the **seventh-largest coffee producer globally**, with coffee exports reaching **$1.29 billion** in the last financial year. This marks a significant increase compared to **$719 million** in exports during 2020-21.

Key Highlights:

Export Insights:

- **Top Buyers**: Italy, Belgium, and Russia are the primary importers of Indian coffee.
- **Unroasted Coffee Beans**: India primarily exports unroasted coffee beans; however, demand for **value-added products** like roasted and instant coffee is increasing.

Domestic Consumption:

- The growing popularity of **café culture**, rising **disposable incomes**, and a shift in preferences toward coffee are driving domestic consumption in India.

Coffee Production in India:

Types of Coffee Grown:

- **Arabica**: Known for its mild flavor and higher market value.
- **Robusta**: More robust and less acidic, often used in instant coffee production.

Export-Oriented Commodity:

- **65%-70%** of coffee produced in India is exported, showcasing its export-oriented nature.

Regions of Cultivation:

1. **Traditional Areas**:
   - **Western Ghats** in **Karnataka, Kerala, and Tamil Nadu** account for most of India's coffee production.
2. **Non-Traditional Areas**:
   - **Andhra Pradesh, Odisha**, and the **North-East states** are emerging coffee-growing regions.

Leading States:

- **Karnataka**: The top coffee-producing state in India.
- **Kerala**: Second-largest producer.
- **Tamil Nadu**: Third-largest contributor.

Climatic and Agricultural Practices:

Climatic Conditions:

- Coffee thrives in temperatures between **15°C and 24°C**.
- **Extreme temperatures** outside this range adversely affect yield.

Unique Cultivation Practices:

- Indian coffee is cultivated under a **two-tier mixed shade canopy** of evergreen leguminous trees.
- **Benefits of Shade Cultivation**:

- o Prevents soil erosion on sloping terrains.
- o Enriches soil by recycling nutrients.
- o Protects coffee plants from temperature fluctuations.

Coffee Board of India:

Establishment:

- Created under the **Coffee Act VII of 1942**, the Coffee Board operates under the Ministry of Commerce and Industry.

Structure:

- Comprises **33 members**, including the **Chairman** and the **Secretary & CEO**.

Role:

- Promotes coffee production in India.
- Facilitates research, marketing, and support for coffee growers and exporters.

Global Context:

- **Largest Coffee Producers**:
    1. **Brazil**: Accounts for **40%** of global coffee production.
    2. **Vietnam**: Second-largest producer.
- India's recent rise to the **seventh-largest producer** reflects its growing presence in the global coffee industry.

Conclusion:

India's coffee sector is experiencing robust growth, driven by rising exports and domestic consumption. With its unique cultivation methods, favorable climatic conditions, and increasing demand for value-added products, India is well-positioned to strengthen its global coffee footprint.

Further investment in **value addition, branding, and sustainable practices** can unlock additional opportunities for the coffee industry, ensuring continued growth and competitiveness on the global stage.

World Bank on Indus Water Treaty Dispute

Context: The World Bank-appointed **Neutral Expert** has declared their competence to resolve differences between **India** and **Pakistan** regarding hydroelectric projects on the **Indus** and its tributaries.
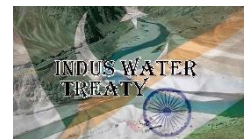
Indus Water Treaty (IWT):

Overview:

- Signed in **1960**, the **Indus Water Treaty** governs water-sharing arrangements between **India** and **Pakistan**.
- The treaty was brokered by the **World Bank**.

Allocation of Rivers:

1. **Eastern Rivers (India)**: **Ravi**, **Beas**, and **Sutlej** allocated exclusively to India.
2. **Western Rivers (Pakistan)**:
   o **Indus**, **Jhelum**, and **Chenab** allocated to Pakistan, with limited usage rights for India, including:
      ▪ **Non-consumptive use** (e.g., navigation, fisheries).
      ▪ **Domestic use**.
      ▪ **Agricultural use**.
      ▪ **Hydroelectric power generation** (under specific conditions).

Key Features:

1. **Allocation of Water**: Pakistan receives **80%** of the Indus system's water.
2. **Permanent Indus Commission (PIC)**: Comprising representatives from both countries to oversee treaty implementation and resolve disputes.
3. **Dispute Resolution Mechanism**:
   o **Questions**: Addressed by the PIC.
   o **Differences**: Handled by a **Neutral Expert**.
   o **Disputes**: Resolved by a **Court of Arbitration (CoA)**.
   o The **World Bank's role** includes appointing officials for these mechanisms when requested.

Key Disputes Between India and Pakistan:

Pakistan's Objections:

- Pakistan opposes several Indian hydroelectric projects, claiming potential violations of treaty provisions.
- Major disputes involve:

1. **Kishanganga Hydroelectric Project**: Located on the **Kishanganga River** (Neelum, a tributary of Jhelum).
2. **Ratle Hydroelectric Project**: Located on the **Chenab River**.

NEWS
To the Point
Weekly Current Affairs
19 to 25 Jan 2025
freedom UPSC
TOGETHER WE SCALE HEIGHTS

- The disagreement centers on whether the technical details of these projects adhere to treaty guidelines.

World Bank's Role:

- The **Neutral Expert**'s recent declaration prevents escalation to a **Court of Arbitration (CoA)**, as sought by Pakistan.

- India has welcomed the Neutral Expert's involvement as a constructive step toward resolution within the framework of the treaty.

Indus River System:

Origin of the Indus River:

- The **Indus River** originates at **Bokhar Chu** in the Tibetan region, near **Mansarovar Lake**.

- Locally known as **Singi Khamban** (Lion's Mouth).

- It enters **India** at **Demchok** in the **Ladakh** region.

Tributaries:

1. **Left Bank Tributaries**: **Zaskar**, **Suru**, **Soan**, **Jhelum**, **Chenab**, **Ravi**, **Beas**, **Sutlej**, and **Panjnad Rivers**.

2. **Right Bank Tributaries**: **Shyok**, **Gilgit**, **Hunza**, **Swat**, **Kunnar**, **Kurram**, **Gomal**, **Tochi**, and **Kabul Rivers**.

Key Hydroelectric Projects on Western Rivers:

Indus River:

- **Nimmo-Bazgo** (Leh).

- **Stakna** (Leh).

Chenab River:

- **Baglihar Stage-I** (Doda).

- **Chenani Project** (Tawi River, Udhampur).

- **Dulhasti** (Doda).

Jhelum River:

- **Uri-I & II** (Baramulla).

- **Ganderbal** (Srinagar).

- **Upper Sindh I & II** (Sindh Nallah, tributary of Jhelum).

Implications of the Dispute:

1. **India's Stance**: Neutral Expert's involvement reaffirms India's adherence to the treaty.

2. **Pakistan's Concerns**: Fear of water shortages due to Indian hydroelectric projects.

3. **Bilateral Relations**: The dispute continues to strain India-Pakistan ties.

Conclusion:

The **Indus Water Treaty** remains a vital framework for India-Pakistan water-sharing. While disputes have tested its resilience, the involvement of the **World Bank** and its Neutral Expert offers an opportunity for peaceful resolution. Both nations must prioritize cooperation to ensure sustainable and equitable water management in the region.

Status of the Smart Cities Mission

Context: India's **Smart Cities Mission** aims to transform urban centers into sustainable, innovative, and economically vibrant hubs, addressing the challenges of rapid urbanization.

Key Features:

1. **Objective**:
   o Improve urban living by providing **core infrastructure**, ensuring a **clean environment**, and enhancing the **quality of life**.
   o Drive **economic growth** and promote **sustainability** through integrated development in social, economic, physical, and institutional spheres.

2. **Operational Framework**:
   o **Selection Process**:
     ▪ 100 cities were chosen via a **two-stage competition**.
   o **Implementation**:
     ▪ Managed by **Special Purpose Vehicles (SPVs)** to ensure focused execution.
   o **Funding**:
     ▪ **Centrally Sponsored Scheme** with ₹48,000 crore allocated over five years.
     ▪ ₹100 crore per city annually from the central government, matched by states or **Urban Local Bodies (ULBs)**.
     ▪ Additional funding through **municipal bonds**, **public-private partnerships (PPP)**, and other government programs.
   o **Timeline**:
     ▪ Extended to **March 31, 2025**, for project completion.

Status of the Smart Cities Mission:

1. **Achievements**:
   o Over **8,000 projects** launched with an investment of ₹1.6 lakh crore.
   o As of **July 2024**:
     ▪ **7,188 projects (90%)** completed.
     ▪ 75% project completion in **75 cities**.
     ▪ **17 cities** achieved 100% project completion.

2. **Highlights**:
   o Focus areas include **urban mobility**, **smart governance**, **renewable energy**, **water supply**, and **sanitation**.
   o Integration of technologies such as the **Internet of Things (IoT)** and **GIS-based systems** for real-time monitoring.

Need for Smart Cities:

1. **Urban Growth**:
   o **31% of India's population** resides in urban areas, contributing **63% of GDP** (Census 2011).
   o By **2030**, urban areas are projected to house **40%** of the population, contributing **75%** of GDP.

2. **Sustainable Development**:
   o Balanced growth requires infrastructure development across physical, institutional, social, and economic domains.

Challenges:

1. **Implementation Hurdles**:
   o **10% of projects delayed** due to legal disputes, delays in clearances, and resource allocation.

2. **Technological Barriers**:
   o Deployment of advanced technologies like **IoT** is hindered in areas lacking basic infrastructure.

3. **Funding and Engagement**:
   o Challenges in securing funding, fostering **private sector participation**, and ensuring **citizen involvement**.

4. **Integration Issues**:
   o Achieving seamless integration across diverse systems and stakeholders remains a significant challenge.

Conclusion and Way Forward:

The **Smart Cities Mission** holds transformative potential to propel India toward becoming a **$10 trillion economy**. Its success hinges on:

1. **Innovative Funding Mechanisms**:
   o Mobilizing resources through municipal bonds, PPPs, and international partnerships.

2. **Private Sector Collaboration**:
   o Leveraging private expertise and investment for faster project execution.

3. **Citizen-Centric Policies**:
   o Ensuring public participation and addressing local needs.

4. **Technology and Infrastructure**:
   o Efficient use of advanced technologies to ensure long-term sustainability.

Ultimately, the success of the mission will be measured by its ability to improve urban living standards, create economic opportunities, and drive India's urban transformation. Bold action and visionary planning will shape the nation's urban future.

Uniform Civil Code (UCC) Rules in Uttarakhand

Context: The **Uttarakhand Cabinet** has approved rules for implementing the **Uniform Civil Code (UCC)**, marking a significant step toward legal uniformity in personal matters.

Background:

- **Historic Legislation**:
  - In **2024**, Uttarakhand became the first Indian state post-independence to adopt a UCC through the **Uniform Civil Code of Uttarakhand Act, 2024**.

- **Key Provisions**:
  - **Marriage and Divorce**:
    - Bans **polygamy**, **nikah halala**, **child marriage**, and **extrajudicial divorces**.
    - Establishes uniform marriageable ages (**21 years for men**, **18 years for women**).
  - **Property Rights**:
    - Grants **equal property rights** to women, while retaining personal laws on **guardianship** and **Hindu Undivided Families**.
  - **Live-in Relationships**:
    - Recognizes **live-in relationships** as quasi-marriages, ensuring the legitimacy of offspring.

What is the Uniform Civil Code (UCC)?

A **Uniform Civil Code** refers to a unified set of laws that apply to all citizens, irrespective of religion, for personal matters such as marriage, divorce, inheritance, and adoption.

- **Objective**:
  Replace diverse personal laws with a common legal framework for equitable governance and social harmony.

Constitutional Provisions:

1. **Article 44**:
   - Part of the **Directive Principles of State Policy (DPSP)**, it urges the state to work toward implementing a UCC across the country.
   - Though not enforceable by courts, DPSPs guide governance to ensure justice and equity.

2. **Other References**:
   - **Article 25 and 26**: Guarantee the right to freely practice and manage religious affairs.
   - The **Sixth Schedule** protects the autonomy of tribal communities.

UCC in India:

- **Goa as a Precedent**:
  - Goa follows the **Portuguese Civil Code of 1867**, ensuring uniformity in laws governing marriage, divorce, and succession across all religions.

o The **Goa Daman and Diu Administration Act of 1962** allowed the continuation of this Civil Code after Goa joined India.

Arguments in Favor of UCC:

1. **Uniformity in Governance**: Streamlines legal systems and administrative processes, ensuring fair and efficient justice.

2. **Women's Rights**: Eliminates discriminatory practices in personal laws, providing an egalitarian framework for gender equality.

3. **Secularism**: Reinforces the secular fabric of the nation by treating citizens equally, regardless of religion.

4. **Judicial Support**: The **Supreme Court**, in cases like **Mohd. Ahmed Khan vs Shah Bano Begum (1985)**, has called for UCC implementation to promote equality.

5. **National Integration**: Promotes a shared legal platform for all communities, fostering unity and national spirit.

Arguments Against UCC:

1. **Diversity in Laws**: Critics argue that India's pluralistic society makes "one nation, one law" challenging to implement, given existing variations in codified civil and criminal laws.

2. **Implementation Issues**: Practical difficulties in harmonizing laws across communities with distinct traditions and practices.

3. **Threat to Tribal Customs**: Tribal communities fear their unique marriage and death rituals may be restricted under a uniform code.

4. **Potential Unrest**: The UCC could be perceived as **tyranny of the majority**, sparking social and political unrest.

5. **Constitutional Concerns**: Opponents view UCC as infringing on religious freedoms guaranteed under **Articles 25 and 26**.

6. **Law Commission's Stand**: The **Law Commission of India** has stated that a UCC is **"neither necessary nor desirable"** at this stage and emphasized reforming discriminatory practices within existing personal laws.

Way Forward:

1. **Inclusive Dialogue**: Authorities must consult diverse communities, legal experts, and stakeholders to foster inclusivity and transparency.

2. **Focus on Internal Reform**: Address inequalities **within communities** rather than forcing uniformity **between communities**, as recommended by the Law Commission.

3. **Gradual Implementation**: Pilot programs in willing states like Uttarakhand can provide a roadmap for scaling UCC nationwide.

4. **Educational Campaigns**: Raise awareness about UCC to dispel misconceptions and ensure public participation.

Conclusion:

The implementation of the **Uniform Civil Code** in Uttarakhand marks a significant step toward legal uniformity and social reform. However, its national adoption requires careful balancing of constitutional freedoms, cultural diversity, and societal consensus. A collaborative and inclusive approach will be essential to ensure that the UCC fosters equality, justice, and unity in India's diverse landscape.

Accessibility of Antivenoms in India

Context: India, despite being the largest producer and consumer of antivenoms, accounts for nearly **50% of global snakebite deaths**, emphasizing the urgent need to address challenges in antivenom accessibility and efficacy.
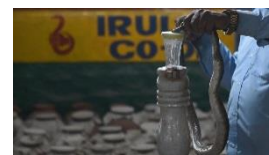
Snakebite Envenoming:

- **WHO Classification**:
  - Recognized as a **high-priority neglected tropical disease** by the World Health Organization (WHO).
  - Globally, **1.8–2.7 million people** are envenomed annually.

- **Snakebite Scenario in India**:
  - Around **58,000 deaths** are reported annually from **3-4 million snake bites**.
  - **90% of snakebites** are caused by the "big four":
    - **Common krait**, **Indian cobra**, **Russell's viper**, and **saw-scaled viper**.

Antivenom Production and Use:

1. **Antivenoms**:
   - Purified antibodies designed to **neutralize snake venom toxins**.
   - Listed as essential medicines by the WHO.

2. **Production Process**:
   - Horses are injected with controlled venom doses, prompting their immune systems to produce antibodies.
   - Antibodies are collected, purified, and formulated into antivenoms for human use.

Challenges in Accessing Antivenoms:

1. **Geographical Barriers**:
   - Rural and remote areas often lack **healthcare facilities** equipped with antivenoms.

2. **Limited Venom Coverage**:
   - Indian antivenoms primarily target the "**big four**" snakes.
   - Other venomous species, such as **king cobras** and **pit vipers**, are not covered, leading to ineffective treatment.

3. **Cultural and Social Factors**:
   - Superstitions and delayed medical intervention due to **traditional practices** in rural areas worsen outcomes.

4. **Economic Constraints**:
   - **High production costs** make antivenoms inaccessible to economically disadvantaged populations.

5. **Infrastructure and Logistics**:

o **Cold storage requirements** remain unmet in rural areas due to power and infrastructure deficits.

o Improper storage reduces the **efficacy** of antivenoms.

Role of the Irular Community:

- The **Irular tribe** is renowned for its expertise in **snake-catching**.

- Their ability to extract venom safely in controlled environments ensures a **steady supply** of high-quality venom for antivenom production in India.

Way Forward:

1. **National Action Plan for Snakebite Envenoming (NAP-SE)**:

   o Aims to reduce **snakebite deaths** and **disabilities by 50% by 2030**.

   o Focuses on prevention, timely treatment, and rehabilitation.

2. **Innovative Antivenom Development**:

   o Use of **recombinant DNA technology** to produce synthetic antivenoms free from animal-derived proteins.

   o Ensures greater **safety** and **efficacy**.

3. **Diagnostic Advancements**:

   o Introduction of **portable venom-detection kits** and rapid diagnostic tools for precise and timely treatment.

4. **Awareness Campaigns**:

   o Educating rural populations to overcome **superstitions** and seek immediate medical attention after snakebites.

5. **Improving Infrastructure**:

   o Ensuring **cold storage** and proper distribution channels for antivenoms in remote areas.

Conclusion:

Addressing the challenges in antivenom accessibility requires a **multi-faceted approach**, including technological advancements, enhanced infrastructure, and public awareness. With the **NAP-SE** and innovative strategies, India has the potential to significantly reduce snakebite-related mortality and morbidity, transforming the lives of millions.

GS Paper 3 – Environment and Sustainable Development

Policy Framework for Affordable Bioethanol Fuel in India

Context: India holds a unique opportunity to transition towards **carbon neutrality**, but a key barrier remains the **high cost** of bioethanol fuel. According to **Honda Motor Co. Ltd**, while India can significantly contribute to reducing its carbon footprint, it needs government support to make **bioethanol pricing** more **affordable** for widespread adoption.

Key Policy Recommendations for Affordable Bioethanol:

1. **Government Pricing Mechanism:**

   o **Subsidies & Tax Reductions**: The government must introduce policies that **reduce taxes** on bioethanol, making it more competitive with conventional **gasoline**. Direct **subsidies** can help lower the cost burden, ensuring bioethanol is more **economical** for consumers.

   o **Price Stabilization Strategies**: A **stabilization fund** could mitigate price volatility, ensuring that ethanol prices remain steady despite market fluctuations.

2. **Incentivizing Bioethanol Production:**

   o **Farmer Support**: Increase incentives for farmers to grow **ethanol feedstocks** like **sugarcane, maize,** and **wheat**. Policies could include **higher minimum support prices (MSPs)** or direct subsidies to encourage large-scale production.

   o **Research & Development**: The government should fund **R&D** to enhance the **efficiency** of ethanol production, focusing on non-food feedstocks to reduce costs and reliance on crops like sugarcane.

3. **Promoting Higher Ethanol Blends:**

   o **Accelerating E20 Implementation**: The rollout of **E20** (20% ethanol blend) should be prioritized, with a focus on infrastructure investments such as **blending stations** and **fuel distribution networks** to make this blend widely available.

   o **Flex-fuel Vehicle Adoption**: Introduce incentives to encourage manufacturers to produce **flex-fuel vehicles** capable of running on higher ethanol blends. Tax relief and purchase subsidies could increase the adoption of these vehicles.

4. **Enhancing Fuel Efficiency in Vehicles:**

   o **Collaborations for Innovation**: Vehicle manufacturers should be encouraged to invest in **innovative technologies** that optimize fuel efficiency, enabling vehicles to run smoothly on higher ethanol blends.

   o **Consumer Incentives for Green Vehicles**: Providing tax benefits for consumers who purchase **ethanol-compatible vehicles** will stimulate demand for greener alternatives.

5. **Public Awareness & Education:**

   o **Nationwide Campaigns**: To ensure **consumer acceptance**, the government should launch **educational campaigns** that highlight the **environmental benefits** and long-term cost savings of ethanol as an alternative fuel.

- o **Transparency in Fuel Efficiency**: Providing clear information on fuel efficiency for vehicles using ethanol blends will help consumers make informed decisions.

6. **Developing Infrastructure:**

- o **Building Blending Stations**: Invest in the establishment of **ethanol production plants** and **blending units** to support increased demand for ethanol-based fuels.

- o **Improving Distribution Networks**: The expansion of **supply chains** will ensure that bioethanol fuel is readily available in both urban and rural areas.

7. **Sustainability and Environmental Impact:**

- o **Monitoring Sustainability**: Establish an independent body to oversee **ethanol production** and ensure it is sustainable, balancing environmental and agricultural needs.

- o **Cleaner Alternative to Gasoline**: Position ethanol as a **clean-burning** fuel that helps reduce **greenhouse gas emissions** and **air pollution**, aligning with India's long-term environmental goals.

8. **Encouraging Private Sector Participation:**

- o **Fostering Private Investment**: Incentives like **tax breaks** and **financial support** for private companies willing to invest in ethanol infrastructure and production will drive growth in the sector.

- o **Public-Private Partnerships (PPP)**: Strong partnerships between the **government** and **private players** can lead to better resource mobilization and implementation of large-scale ethanol projects.

9. **International Collaboration & Best Practices:**

- o **Exporting Surplus Ethanol**: India can explore opportunities to **export ethanol** to other countries, thus improving the domestic supply chain and boosting the economy.

- o **Global Partnerships**: By engaging with countries successfully running ethanol blending programs, India can adopt **global best practices** and accelerate its own bioethanol objectives.

10. **Continuous Monitoring & Program Evaluation:**

- o **Ethanol Program Oversight: Establish a dedicated body to monitor the progress of the Ethanol Blended Petrol (EBP) program, ensuring targets are met and potential challenges are addressed proactively.**

Conclusion:

India's **Ethanol Blended Petrol Program** is a critical step towards achieving **energy security**, **carbon neutrality**, and a **self-reliant energy future**. By implementing a comprehensive policy that addresses **pricing affordability**, **supply chain expansion**, and **consumer adoption**, India can harness the full potential of bioethanol and reduce its dependency on fossil fuels. This approach will not only benefit the environment but also support the agricultural sector and enhance national security.

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US Withdrawal from the Paris Agreement: Implications and Global Consequences

Context: In a controversial move, **US President Donald Trump** once again decided to withdraw the United States from the **Paris Agreement**, a decision he initially made in 2017. This decision marks a significant shift in the US's approach to climate action, as it reverts to a policy that prioritizes national energy production over global environmental commitments.

Trump's Climate Policy: A Reversal of Progress:

On his first day in office, **Trump** also ordered the **revocation** of all climate finance commitments made by the US, undoing the progress made under his predecessor, **Barack Obama**. He emphasized his goal to **extract more oil and gas** for America's energy needs, while rolling back several climate-friendly policies enacted in previous years.

Background: Shifting Positions on Global Climate Agreements

While Trump took the US out of the Paris Agreement, his successor, **Joe Biden**, rejoined the accord in 2021. The US also had a longstanding history of resistance to international climate protocols—**the Kyoto Protocol (1997)**—which it signed but never ratified.

The Paris Agreement: A Global Climate Commitment:

The **Paris Agreement**, adopted in 2015 during COP21 under the **UN Framework Convention on Climate Change (UNFCCC)**, is a **legally binding** treaty designed to combat climate change. Its primary goals are to limit global warming to **below 2°C** above pre-industrial levels, with an aspirational goal of limiting it to **1.5°C**.

- **Nationally Determined Contributions (NDCs)**: Countries must outline and update their climate actions every five years to progressively enhance efforts.
- **Withdrawal Procedure**: According to **Article 28**, a country may withdraw after three years from the agreement's enforcement by providing a written notification.

Trump's Rationale: Unfair Global Regulations:

Trump's decision to exit the agreement was largely motivated by his belief that **international climate regulations** were **unfair** to the US. He specifically criticized the lack of similar restrictions placed on **China**, which, as a developing nation, had fewer binding commitments under the agreement.

Implications of the US Withdrawal

1. **Emission Targets and Climate Goals:**
   o The US had set ambitious **emission reduction targets**, aiming for a **50-52%** decrease by 2030 (from 2005 levels) and **62-66%** by 2035. However, under Trump's policies, the US is on track to miss these goals, potentially making it almost impossible to meet them within the given timeframe.

2. **Impact on Global Emissions:**
   o As the **second-largest emitter** of greenhouse gases globally, the **US's** full participation is essential to the success of the **Paris Agreement**. Without it, the global effort to reduce **carbon emissions** faces an uphill battle.

NEWS
To the Point
Weekly Current Affairs
19 to 25 **Jan**
2025
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3. **Fossil Fuel Production Surge:**

   o Trump's explicit commitment to **increase fossil fuel production**—including drilling for **oil and gas** in previously restricted areas—may lead to a rise in emissions and an overall **increase in global warming**.

4. **Climate Finance for Developing Nations:**

   o The US plays a central role in **funding climate action** for developing countries. Trump's policies may undermine the flow of **climate finance**, putting vulnerable nations at greater risk of environmental disaster.

5. **Global Impact: A Ripple Effect:**

   o Experts fear that the **US withdrawal** could encourage other major **emitters**, particularly **China**, to ease off their own climate commitments, undermining global progress on **carbon reduction**.

The Urgent Need for Climate Action:

As global temperatures rise, the world has already warmed by approximately **2.3°F (1.3°C)** since the mid-1800s. The year 2020 recorded the **warmest** year on record, with temperatures surpassing **2.7°F** (1.5°C) above pre-industrial levels.

- The **US's contribution** to global warming is substantial—accounting for nearly **22%** of global carbon emissions since 1950, making it one of the largest historical polluters. With this immense responsibility, the US must be a key player in **combating climate change**.

Conclusion: The Path Forward

While **Trump's** withdrawal from the Paris Agreement represents a setback, the **US** can still play a pivotal role in combating climate change. Focusing on the **clean energy industry**, **innovation in energy technologies**, and **reducing energy costs** could drive the US toward a more sustainable and climate-conscious future. The world will be watching to see if the US shifts its stance back to **climate leadership** in the coming years.

National Tribal Health Conclave 2025: Advancing Healthcare for Tribal Communities

Context: The **National Tribal Health Conclave 2025** was recently held at **Bharat Mandapam, New Delhi**, bringing focus to the health and well-being of tribal communities across India.

Tribal Communities: Custodians of Rich Traditions

Who are Tribal Communities?

Tribal communities in India are known for their **vibrant traditions, unique lifestyles, and rich cultural heritage**. These groups often live in **geographical isolation**, maintaining a **self-contained, homogeneous** way of life compared to non-tribal populations.

Tribal Presence in India:

- India is home to one of the **largest tribal populations** in the world, with nearly **100 million tribal people**, often referred to as **"Adivasis"** (original inhabitants).

- The term **"Adivasi"** is internationally recognized, with the **International Labour Organization (ILO)** classifying them as **indigenous peoples**.

- According to **Census 2011**, tribes account for **8.9% of India's population**.

Settlement Patterns:

- **Northeastern Tribes**: Found in states like Nagaland, Mizoram, and Manipur, they live in **relative isolation**, preserving distinct ethnic identities.

- **Central and Southern Tribes**: Constituting over **80%** of the tribal population, they interact more frequently with non-tribal communities.

Historical Significance of Tribal Communities:

- Tribal groups have played a pivotal role in **Indian history** since the eras of the **Ramayana** and **Mahabharata**.

- Their contribution to the **freedom struggle** includes iconic movements such as the **Khasi-Garo**, **Mizo**, and **Kol uprisings**.

- Adivasi leaders like **Gond Maharani Veer Durgavati**, **Rani Kamalapati**, and the **Bhils**, who supported **Maharana Pratap**, exemplify their courage.

- To honor tribal contributions, **November 15** is celebrated as **Janjatiya Gaurav Divas**, marking the birth anniversary of **Bhagwan Birsa Munda**.

Key Government Initiatives for Tribal Welfare:

Empowering Tribal Development:

1. **TRIFED (Tribal Cooperative Marketing Development Federation of India Limited)**: Established in 1987 under the **Ministry of Tribal Affairs**, TRIFED supports tribal livelihoods.

2. **Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY)**: Focuses on improving infrastructure in villages with a significant tribal population.

3. **PM JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan)**: Launched in 2023, this initiative targets the socio-economic upliftment of **Particularly Vulnerable Tribal Groups (PVTGs)**.

Improving Tribal Health:

- **National Tribal Health Conclave**: Jointly organized by the **Ministry of Tribal Affairs (MoTA)** and the **Ministry of Health and Family Welfare (MoH&FW)**, it aims to enhance health services for tribal populations.

- **National Sickle Cell Elimination Mission**: Launched by **Prime Minister Narendra Modi** to eliminate **sickle cell anemia** by 2047.

- **Bhagwan Birsa Munda Chair of Tribal Health and Haematology**: Established at **AIIMS Delhi** for dedicated research on tribal health issues.

Constitutional Safeguards for Tribal Communities:

The **Indian Constitution** ensures special provisions to protect the rights and promote the welfare of tribal groups:

- **Article 275(1)**: Allocates funds to states for tribal welfare and development programs.

Challenges Faced by Tribal Communities:

Key Issues:

1. **Economic Disparities**: Many tribes face **poverty**, **unemployment**, and limited access to **education** and **healthcare**.

2. **Cultural Erosion**: Loss of **traditional knowledge** and challenges in preserving **cultural heritage**.

3. **Discrimination and Representation**: Tribes often encounter **marginalization** and lack sufficient **representation** in decision-making processes.

The Road Ahead: Comprehensive Development for Tribal Communities

A Holistic Approach:

1. **Respect for Cultural Heritage**: Recognizing and preserving the **unique identity** and **traditional practices** of tribal groups.

2. **Inclusive Decision-Making**: Involving tribal communities in **policy-making** related to their **lands** and **resources**.

3. **Enhanced Healthcare Access**: Strengthening health infrastructure and delivery systems to address **tribal-specific challenges**.

4. **Focused Government Policies**: Continued support through **targeted programs** for education, employment, and healthcare.

By addressing these issues, India can ensure that its **tribal communities** not only thrive but also contribute significantly to the nation's progress. As custodians of ancient traditions and wisdom, their development is essential for building a more **inclusive and equitable society**.