



Monthly Editorial Consolidation



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Transforming India's Logistics Landscape

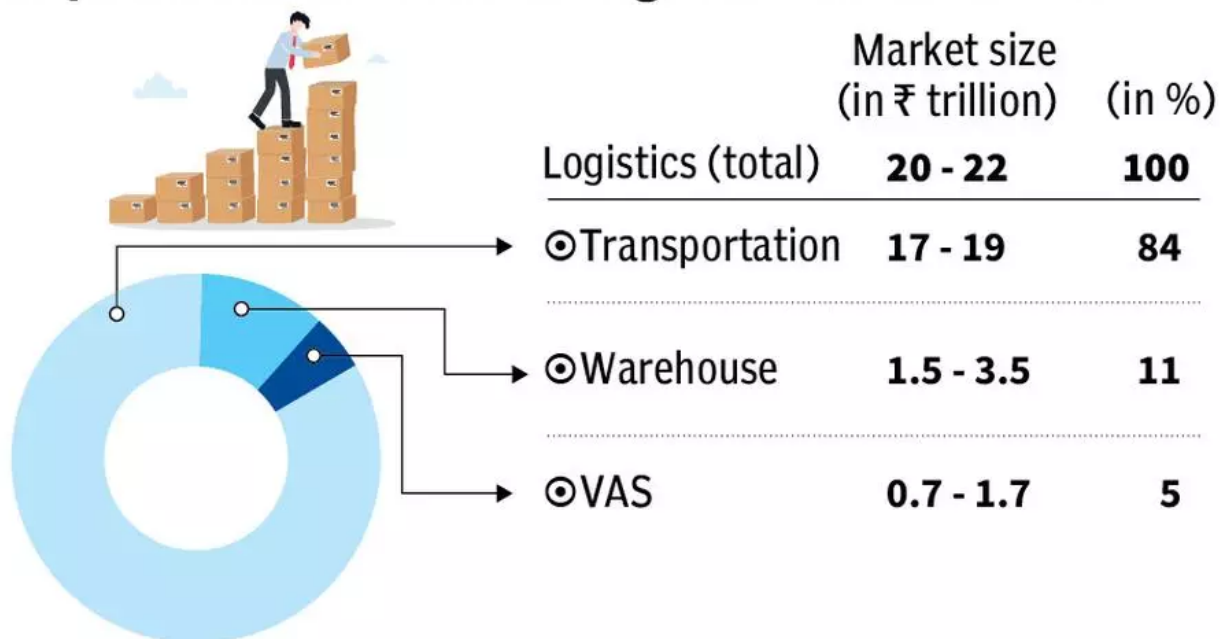
This editorial is based on "[How the logistics industry is positioned in India](#)" which was published in The Hindu Business Line on 18/09/2024. The article brings into picture the rapid growth of India's logistics industry, with a projected market size of ₹35.3 trillion by FY 2029 and anticipated improvements in efficiency as logistics costs decrease.

Tag: GS Paper - 3, Infrastructure, Industrial Growth, Industrial Policy, GS Paper - 2, Government Policies & Interventions

India's logistics industry has been experiencing robust growth, with its market size expanding at a compound annual growth rate (CAGR) of **11%** from fiscal year **2019 to 2024**. This momentum is expected to continue, with projections indicating the sector could reach a substantial market size of **₹35.3 trillion by fiscal year 2029**. While the current logistics expenditure, at **13% of GDP**, is relatively high, there's **optimism for improvement**. As the economy formalizes and connectivity enhances, this percentage is anticipated to decrease to **high single digits**, signaling **increased efficiency in the sector**.

The **transportation** segment currently dominates India's logistics market, with roadways playing a pivotal role as of fiscal year 2021. However, the landscape is poised for change. With significant investments and improvements in rail infrastructure, the railways are expected to grow at an accelerated pace, potentially reshaping the modal mix of logistics in the country. Despite these positive trends, it is imperative for India to continue **enhancing its logistics sector, focusing on innovation, technology adoption, and infrastructure development** to make it more efficient, cost-effective, and globally competitive.

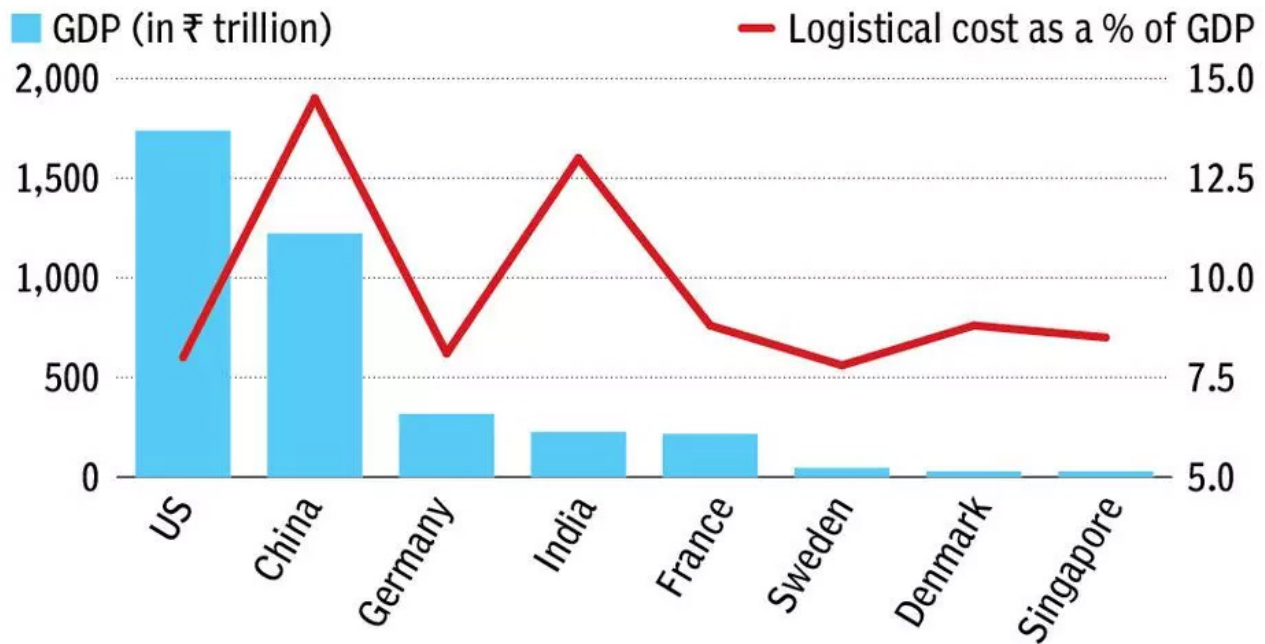
Transportation constituted to more than 80 per cent of the Indian logistics market in FY24



What are the Key Drivers to the Growth of India's Logistic Sector?

- **Government Initiatives and Policy Support:** The Indian government's focus on improving logistics through initiatives like the **National Logistics Policy (NLP)** and **Gati Shakti** has been a major growth driver.
 - The NLP, launched in September 2022, aims to **reduce logistics costs from 13-14% of GDP to single digits (8% which is the global average) by 2030**.
 - The **PM Gati Shakti National Master Plan**, introduced in October 2021, is designed to develop multimodal connectivity infrastructure to various economic zones.
 - As of August 2023, over **1,400 layers of data have been integrated into the Gati Shakti portal**, facilitating better planning and execution of infrastructure projects.
 - These initiatives are expected to significantly boost efficiency and reduce costs in the logistics sector.

Logistical expenditure as a % of GDP has been higher for India for CY20



- **E-commerce Boom and Last-Mile Delivery:** The rapid growth of **e-commerce** in India has been a significant driver for the logistics sector.
 - Indian e-commerce is expected to grow at a compound annual growth rate (CAGR) of **27% to reach USD 163 billion by 2026**, due to this the demand for efficient last-mile delivery services has surged.
 - This has led to the rise of specialized logistics companies and increased investments in technology-driven solutions.
 - For instance, the rise of major **logistics** players **Delhivery** highlighting the sector's growth driven by e-commerce.
 - The **Covid-19 pandemic** has further accelerated this trend, with **more consumers shifting to online shopping**, thereby increasing the need for robust logistics networks.
- **Infrastructure Development:** Massive **investments in transportation infrastructure** have been crucial in driving logistics sector growth.
 - The government's focus on **developing highways, railways, ports, and airports** has improved connectivity and reduced transit times.
 - For example, the **Dedicated Freight Corridor (DFC)** project, with the **Eastern and Western corridors**, is set to revolutionize freight movement.
 - Additionally, the National Infrastructure Pipeline (NIP) for **FY 2020-25** has allocated **₹111 lakh crore for infrastructure projects**, with a significant portion dedicated to transport.
 - These developments are expected to enhance logistics efficiency and reduce transportation costs significantly.
- **Technology Adoption and Digitalization:** The integration of advanced technologies like **AI, IoT, blockchain, and data analytics** is transforming the logistics landscape in India.
 - These technologies are enhancing operational efficiency, improving transparency, and enabling real-time tracking.
 - For instance, **Rivigo, an Indian logistics startup**, uses **AI and big data** to optimize routes and reduce delivery times.
 - The implementation of **e-way bills and FASTag** has digitized and streamlined goods movement and toll collection.
 - This digital transformation is attracting investments and driving innovation in the sector.
- **Rise of Third-Party Logistics (3PL) and Fourth-Party Logistics (4PL):** The increasing complexity of supply chains and the need for specialized logistics services have led to the growth of **3PL and 4PL providers in India**.

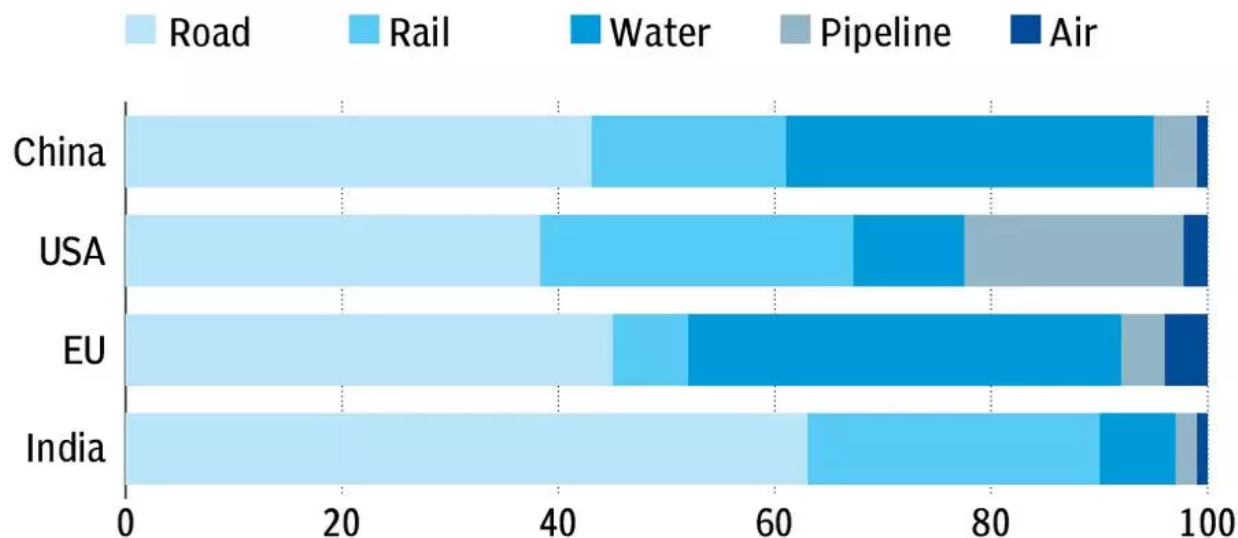
- These companies offer end-to-end supply chain solutions, allowing businesses to focus on their core competencies.
- The **India third-party logistics market** size is forecast to increase by USD 16.77 billion, at a CAGR of **9.45% between 2023 and 2028**.
- The trend towards outsourcing logistics operations is likely to continue, driving further growth in this segment.
- **Warehousing and Cold Chain Development:** The demand for **modern warehousing facilities and cold chain infrastructure** has been a significant driver of growth in the logistics sector.
 - The implementation of **GST** has led to the **consolidation of warehouses and the development of large-scale logistics parks**.
 - According to Knight Frank India, the warehousing sector attracted investments worth \$743 million in FY2022.
 - The government's focus on **reducing post-harvest losses has also boosted investments in cold chain infrastructure**.
 - As of **30th June 2024**, the Ministry of Food Processing Industries (MoFPI) has approved **41 Mega Food Parks**, **399 Cold Chain projects**, **76 Agro-processing Clusters**, and **588 Food Processing Units** under the Pradhan Mantri Kisan Sampada Yojana (PMKSY).
 - These developments are crucial for improving storage capabilities and reducing spoilage, particularly in the agriculture and pharmaceutical sectors.
- **Growing Export-Import Trade:** India's increasing participation in global trade is driving demand for logistics services.
 - Despite global economic challenges, merchandise imports surged by **16.51% to USD 714.24 billion** in 2022-23, while merchandise exports grew by **6.03% to USD 447.46 billion**.
 - For example, the recent **India-Middle East-Europe Economic Corridor (IMEC)** agreement, signed in **September 2023**, aims to enhance trade connectivity, potentially increasing demand for maritime and multimodal logistics services.
- **Poor road conditions, congested ports, and inadequate rail connectivity** lead to delays and increased costs.
 - For example, though the average turnaround time at major ports has fallen from 127 hours in 2010-11 to **53 hours as of 2021-22**.
- The **World Bank's Logistics Performance Index 2023 ranked India 38th out of 139 countries**, with infrastructure quality being a key area of concern.
- **Fragmented and Unorganized Market:** The Indian logistics sector **remains highly fragmented**, with the **unorganized sector amounting to over 90% of the logistics industry**.
 - This fragmentation leads to **inefficiencies, lack of standardization, and difficulties** in implementing technology and best practices.
 - This fragmentation also makes it **challenging to implement uniform regulations** and quality standards across the sector.
- **Skill Gap and Workforce Challenges:** The logistics sector faces a significant skill gap, with a shortage of trained professionals across various levels.
 - The **logistics sector**, growing at a compound annual growth rate of **12%**, is expected to **add 10 million jobs by 2027**, but there's a severe shortage of skilled workers.
 - This skill gap is particularly acute in areas like **supply chain management, warehouse operations, and technology adoption**.
 - Between **FY17 and FY23 (up to 5th January 2023)**, around **1.1 crore individuals were trained** under Pradhan Mantri Kaushal Vikas Yojana 2.0, with 83% certified **but only 21.4 lakh placed**.
- **Last-Mile Delivery Challenges:** The rapid growth of **e-commerce** has intensified last-mile delivery challenges, particularly in urban areas.
 - Lack of proper addressing systems, and limited parking spaces for delivery vehicles contribute to inefficiencies.
 - According to the Capgemini Research Institute, **last-mile delivery costs account for 41% of total logistics supply chain costs**.
 - Despite innovations like **drone deliveries** being piloted, **regulatory hurdles and infrastructure limitations** continue to pose significant challenges to efficient last-mile logistics.
- **Environmental Concerns and Sustainability:** The logistics sector faces increasing pressure to reduce its environmental impact, particularly in terms of carbon emissions.

What are the Key Issues Related to India's Logistics Sector?

- **Infrastructure Bottlenecks:** Despite significant investments, infrastructure bottlenecks continue to plague the logistics sector.

- In India, the transport sector accounts for approximately **13.5% of the nation's carbon emissions**.
- While the government has set ambitious targets, **including reducing carbon intensity by 45% by 2030**, the **logistics sector lags in adoption of sustainable practices**.
- For example, as of September 2023, electric vehicles constitute a very minor share of the commercial vehicle fleet used in logistics.
 - The **lack of charging infrastructure** (just 6,000 EV charging stations) and high initial costs of EVs remain significant barriers to widespread adoption of **green logistics practices**.
- **Multimodal Integration Challenges:** Despite efforts to promote multimodal transportation, integration between different modes remains a challenge.
 - Road transport still accounts for about **60% of freight movement in India**, leading to higher costs and environmental impact.
 - The shift to more efficient modes like **railways and inland waterways has been slow**.
 - Indian Railways has experienced a **significant decline in its share of freight transport**, from **85% in 1951** to less than **30% in 2022**.
 - The Dedicated Freight Corridor (DFC) project has faced delays.
 - This lack of effective multimodal integration continues to impact overall logistics efficiency and costs.

Roadways dominate the freight transport, in terms of volume, in India as of FY21 (in %)



Source: RHP_ Western Carriers (India) Limited

- **Cybersecurity and Data Protection:** As the logistics sector becomes increasingly **digitized**, **cybersecurity and data protection** have emerged as critical concerns.
 - Many logistics companies, especially small and medium enterprises, lack robust cybersecurity measures.
 - With the increasing integration of IoT devices and cloud-based systems in logistics operations, the **vulnerability to cyber threats** has grown, posing a significant risk to the sector's digital transformation efforts.

What Steps can be Taken to Strengthen India's Logistics Sector?

- **Accelerate Infrastructure Development:** Prioritize and fast-track the completion of key infrastructure projects, **particularly those aimed at improving multimodal connectivity**.
 - Increased Focus on last-mile connectivity to **major economic hubs and ports**. For instance, expedite the completion of the **Dedicated Freight Corridors (DFCs)**.

- Implement a project monitoring system similar to the **PM Gati Shakti National Master Plan** for all major logistics infrastructure projects like **Canal Development**.
 - A recent example is the **Mumbai Trans Harbour Link**, completed in January 2024, which has significantly reduced travel time and improved connectivity to the **Jawaharlal Nehru Port**.
 - Such focused infrastructure development can dramatically improve logistics efficiency.
- **Streamline Regulatory Processes:** Implement a **single-window clearance system** for logistics-related approvals across all states.
 - Harmonize state-level regulations to create a unified national market. Accelerate the **implementation of faceless assessment in customs to reduce physical interfaces** and expedite clearances.
 - For example, build upon the success of the **e-SANCHIT (e-Storage and Computerized Handling of Indirect Tax Documents)** system, which has digitized customs documentation.
 - Extend this digitization to **all regulatory processes in the logistics sector to significantly reduce compliance burdens** and improve ease of doing business.
- **Promote Technology Adoption:** Incentivize the adoption of advanced technologies like **AI, IoT, and blockchain in all major logistics operations** through tax benefits and subsidies.
 - Expanding the scope and adoption of the Unified Logistics Interface Platform (ULIP) to **cover all major logistics players**. Encourage startups to develop **India-specific logistics solutions** by providing them with access to government data and testbeds for pilot projects.
- **Enhance Skill Development:** Revamp logistics education and training programs to align with industry needs.
 - Establish **more specialized logistics training institutes in partnership with industry leaders**.
 - Collaborate with **e-commerce giants like Amazon and Flipkart** to develop training modules for last-mile delivery personnel.
 - Implement a **national certification program for logistics professionals** to standardize skill levels across the industry.
- **Improve Warehousing and Cold Chain Infrastructure:** Develop a **national warehousing grid** with strategically located modern warehouses.
 - Offer fiscal incentives for the **construction of Grade A warehouses and cold storage facilities in underserved regions**.
 - Implement mandatory quality standards for warehouses to improve overall storage conditions, **incentivizing upgrades and modernization**.
- **Promote Multimodal Transportation:** Develop integrated multimodal logistics parks (IMLPs) at **key locations** to facilitate seamless transfer between different modes of transport.
 - Offer incentives for **shifting cargo from road to more efficient modes like rail and inland waterways**.
 - For example, expedite the development of the **35 multimodal logistics parks planned under the Bharatmala Pariyojana**.
 - Encourage **private sector participation** in developing multimodal infrastructure through **public-private partnerships (PPPs)**.
- **Enhance Cybersecurity Measures:** Develop **sector-specific cybersecurity guidelines for logistics companies**. Mandate regular cybersecurity audits for logistics service providers handling sensitive data.
 - Establish a **Logistics Sector Computer Emergency Response Team (L-CERT)** to address cyber threats specific to the industry.
 - Create a dedicated program for logistics cybersecurity, **offering subsidized security assessments and tools** for small and medium logistics enterprises.
- **Promote Green Logistics:** Introduce a **carbon credit trading system** specific to the logistics sector to incentivize emission reductions.
 - Offer tax breaks for companies investing in green logistics technologies.
 - Develop **green multimodal corridors for freight movement under the Green Highway Policy** with dedicated infrastructure for low-emission vehicles.
 - Implement a **national green logistics certification program**, recognizing and rewarding companies that achieve significant reductions in their carbon footprint.

Conclusion:

India's logistics sector is on a **strong growth trajectory**, driven by **government initiatives, infrastructure development, and increasing technology adoption**. By focusing on multimodal transport, digitalization, and green logistics, India can **improve efficiency, reduce costs, and make its logistics industry globally competitive**.



Private Sector's Role in India's Nuclear Future

This editorial is based on “[Having private participation in India's nuclear energy](#)” which was published in The Hindu on 01/10/2024. The article brings into picture the Indian government's plan to involve the private sector in nuclear energy expansion, while highlighting the legal challenges posed by the Atomic Energy Act of 1962 and regulatory uncertainties surrounding nuclear liability laws.

Tag: GS Paper - 2, GS Paper - 3, Nuclear Technology, Government Policies & Interventions, Effect of Policies & Politics of Countries on India's Interests

In July 2024, the Indian government announced plans to expand the country's **nuclear energy sector**, proposing partnerships with the **private sector** for research and development of small reactors and new nuclear technologies. This initiative aims to support India's ambitious goal of achieving **500 Gigawatts of non-fossil fuel-based energy generation by 2030**. However, the current legal framework, primarily governed by the **Atomic Energy Act of 1962**, poses significant challenges to private sector involvement in nuclear energy.

The existing legislation restricts nuclear power development and operation to the central government, with the **Department of Atomic Energy** and the **Nuclear Power Corporation of India Limited** maintaining overarching control. Recent attempts to challenge these restrictions have been dismissed by the **Supreme Court**, citing the need for stringent safeguards in atomic power exploitation. Additionally, pending legal challenges to the **Civil Liability for Nuclear Damage Act of 2010** introduce further regulatory uncertainty. As India seeks to attract substantial private investment in the nuclear sector, it must navigate these legal and regulatory hurdles while ensuring robust oversight and public accountability.

Why is Prioritizing the Nuclear Energy Sector Crucial for India?

- **Energy Independence in a Volatile Global Market:** Coal accounts for India's 55% of the country's energy needs and India's coal import rose by 5.7% to 75.26 million tonnes (MT) in the first quarter of 2024.
 - The global energy market has seen significant volatility in recent years, exacerbated by events like the **Russia-Ukraine conflict** and Middle East tensions.

- The price of a barrel of oil is likely to fluctuate between USD 70 and USD 100 for most of 2024, impacting India's energy import bills significantly.
- Nuclear energy offers a path to greater energy independence. This is particularly crucial as India's primary energy demand could surge to 1150–1600 Mtoe by 2040, a 30–60% jump from 2019 levels.
- **Climate Change Mitigation and International Commitments:** India has pledged to reduce its carbon intensity by 45% from 2005 levels by 2030 and to achieve net-zero emissions by 2070.
 - **India is the 3rd largest emitter of CO₂** in the world after China and the USA.
 - Nuclear power, being a clean energy source, can play a crucial role in mitigating CO₂ emission.
- **Addressing Base Load Requirements and Grid Stability:** As India rapidly expands its **renewable energy capacity** (added 15 GW of new solar capacity in the first half of 2024, setting an all-time record.), the intermittent nature of solar and wind power poses challenges to grid stability.
 - The record peak power demand of 240 GW in May 2024 highlighted the need for reliable base load power.
 - Nuclear energy, with its high capacity factor (nearly 2 times more than natural gas and coal units, and almost 3 times or more reliable than wind and solar plants).
 - It can provide the necessary baseload to complement renewables.
- **Job Creation and Economic Growth:** Prioritizing the nuclear energy sector can significantly contribute to job creation and economic growth in India:
 - The nuclear industry **creates high-skilled, long-term jobs in various fields, including engineering, construction, operations, and research and development.**
 - A typical nuclear power plant generates about **400 to 700 permanent jobs.**
 - The development of a robust nuclear energy sector can also **boost related industries, such as advanced manufacturing, materials science, and nuclear medicine.**

What are the Potential Advantages of Private Sector Involvement in India's Nuclear Sector?

- **Increased Investment and Faster Project Completion:** Private sector participation could significantly **boost investment in India's nuclear sector.**

- The government's recent announcement in July 2024 aims to attract nearly **USD 26 billion** in private investments.
- This influx of capital could **accelerate project completion times**, addressing India's growing energy demands more rapidly.
- Data from the **International Atomic Energy Agency** shows that the median construction time for nuclear plants in India has historically been **just over 14 years**.
 - Private sector efficiency could potentially reduce this to 5-7 years.
 - Faster project completion would help India progress towards its goal of **500 GW of non-fossil fuel energy capacity by 2030**, up from the **current 178 GW (as of September 2024)**.
- **Technological Innovation and R&D Advancements:** Private sector involvement could spur innovation in nuclear technology, particularly in areas like **small modular reactors (SMRs) and advanced fuel cycles**.
 - The government's proposal in **Budget 2024-25**, for developing **Bharat Small Reactors (BSR) and Bharat Small Modular Reactors (BSMR)** could benefit from private R&D capabilities.
 - The global **SMR market is projected to reach \$18.8 billion by 2030**, presenting a significant opportunity for India to become a key player with private sector innovation.
- **Cost Reduction and Improved Efficiency:** Private sector participation could lead to significant cost reductions in nuclear power generation.
 - Currently, according to the **Nuclear Energy Agency** the **levelized cost of electricity (LCOE)** for nuclear power in India is estimated to be around **48.2 USD/MWh** when calculated at a **3% discount rate**.
 - With private sector efficiencies, this **could potentially decrease by 15-20%**.
 - With India aiming to add **18 nuclear power reactors** with a capacity of 13,800 MWe by 2031-32, the private sector can play a key role in cost reduction.
- **Enhanced Energy Security and Reduced Carbon Emissions:** Private sector participation could accelerate India's nuclear power capacity addition, contributing to **enhanced energy security and reduced carbon emissions**.
 - Nuclear energy is the fifth-largest source of electricity for India which contributes about **3% of the total electricity generation in the country**.
 - With private investment and efficiency, this **could potentially increase to 5-10%**.

- This expansion would significantly **reduce India's dependence on fossil fuels** and help in achieving its **Nationally Determined Contribution (NDC) targets**.

- Over the past 50 years, the use of nuclear power has **reduced CO2 emissions by over 60 gigatonnes**, nearly two years' worth of global energy-related emissions. (**International Energy Agency**)

What are the Major Issues Related to Increased Private Participation in India's Nuclear Sector?

- **Regulatory and Legal Challenges:** The **Atomic Energy Act of 1962** currently restricts nuclear power development and operation to the central government, posing a significant barrier to private participation.
 - In September 2024, the Supreme Court of India dismissed a **petition challenging these restrictions**, citing the need for stringent safeguards in atomic power exploitation.
 - The pending challenge to the **constitutionality of the Civil Liability for Nuclear Damage Act, 2010 (CLNDA)** further complicates the legal landscape.
 - These legal hurdles create **uncertainty for potential private investors**. For instance, the **Nuclear Power Corporation of India Limited (NPCIL)** remains **the sole entity authorized to operate nuclear power plants**, limiting private sector roles to supplying components and providing engineering services.
- **Safety Concerns and Public Perception:** The inherent risks associated with nuclear power generation raise significant safety concerns, potentially amplified by private sector involvement.
 - The memory of disasters like **Chernobyl (1986) and Fukushima (2011)** continues to influence public perception.
 - In India, protests against nuclear projects, such as those at **Kudankulam and Jaitapur**, highlight the challenge of public acceptance.
 - Ensuring stringent safety standards while allowing private participation will be a **delicate balance to strike**, especially given the **recent global trend towards stricter nuclear safety regulations post-Fukushima**.
- **Financial Viability and Risk Management:** Nuclear power projects are capital-intensive and have long gestation periods, posing significant financial risks for private investors.

- The **Central Electricity Authority (CEA)** reports that the capital cost of a **Pressurized Heavy Water Reactor (PHWR)** nuclear power plant in India was approximately ₹11.7 crore per MW in 2021-22, and is projected to rise to ₹14.2 crore per MW by 2026-27, with construction times often exceeding a decade.
- Moreover, the **potential for accidents and the associated liabilities under the The Civil Liability for Nuclear Damage Act, 2010** create additional financial uncertainties that may deter private investment without substantial government guarantees.
- **Technology Transfer and Intellectual Property Concerns:** India's nuclear program has historically relied on **indigenous technology development**.
 - With increased private participation, **especially from foreign companies**, issues of technology transfer and intellectual property protection become crucial.
 - The **2008 India-US Civil Nuclear Agreement** opened doors for international cooperation, but restrictions remain.
 - For example, the **Nuclear Suppliers Group guidelines still limit certain technology transfers to India**.
 - The **recent controversy over technology transfer in the Rafale fighter jet deal** highlights the sensitivity of such issues in strategic sectors.
- **Nuclear Fuel Cycle Management and Waste Disposal:** Private participation raises questions about the **management of the complete nuclear fuel cycle**, particularly the sensitive areas of fuel enrichment, reprocessing, and waste disposal.
 - **India's three-stage nuclear program, which aims to utilize its vast thorium reserves**, adds complexity to this issue.
 - The challenge lies in **determining the extent of private involvement while ensuring national security**.
 - The debate over the location and management of **India's first deep geological repository for high-level nuclear waste** underscores the long-term challenges in this area.
- **International Relations and Non-Proliferation Concerns:** Increased private participation, especially with potential foreign involvement, could complicate India's delicate balance in international nuclear diplomacy.
 - India, not being a signatory to the **Non-Proliferation Treaty**, operates under special

arrangements with the **International Atomic Energy Agency (IAEA)**.

- As of 2019, **14 of India's nuclear reactors are under IAEA safeguards**.
- Expanding private participation might **require renegotiation of these arrangements** and could raise new non-proliferation concerns.
- The recent tensions over **Iran's nuclear program** and the **scrutiny faced by countries like Saudi Arabia** in their nuclear energy pursuits highlight the complex geopolitical dimensions of nuclear technology proliferation.

How can India Promote Balanced and Effective Private Sector Participation in its Nuclear Sector?

- **Phased Legislative Reforms:** India could implement a staged approach to amending the **Atomic Energy Act of 1962**, gradually allowing private participation.
 - The first phase could focus on **permitting private investment in non-critical areas** such as equipment manufacturing and maintenance services.
 - A **Niti Ayog** panel has recommended that the government can consider **lifting its ban on foreign investment in its nuclear power industry**.
 - This could be followed by **allowing minority private stake in nuclear power plants**, with the government retaining majority control.
 - The final phase could **explore options for majority private ownership** in new projects, subject to stringent regulatory oversight.
 - Additionally, private participation could also be expanded to include **nuclear waste management**, guided by the '**polluter pays principle**.' as identified in the 1996 case of **Indian Council of Enviro-Legal Action vs Union of India**
 - This approach aligns with the government's recent push for private sector involvement announced in the **2024-25 Union Budget**, while addressing the Supreme Court's concerns about calibrated exploitation of atomic power.
- **Establishment of an Independent Nuclear Regulatory Authority:** India should expedite the establishment of an independent nuclear regulatory authority, separate from the Department of Atomic Energy.
 - This was proposed in the **lapsed Nuclear Safety Regulatory Authority Bill of 2011**, which could be revived and updated.
 - The new authority would oversee safety standards, licensing, and operations for **both public and private entities in the nuclear sector**.

- **Public-Private Partnership (PPP) Models:** Develop specialized PPP models for the nuclear sector, drawing from successful examples in other infrastructure sectors.
 - These models could include **Build-Operate-Transfer (BOT) arrangements** for new nuclear plants, with private entities constructing and operating the facilities for a fixed period before transferring them to the government.
 - Another option could be **Operations and Maintenance (O&M) contracts** for existing plants.
 - The recent success of **PPP models in India's space sector**, such as the **LVM3 project**, provides a template that could be adapted for the nuclear sector.
- **Risk Mitigation and Insurance Mechanisms:** Establish a comprehensive nuclear insurance pool to address liability concerns under the Civil Liability for Nuclear Damage Act, 2010.
 - This could build upon the existing **Indian Nuclear Insurance Pool (INIP)**, which currently has a capacity of ₹1,500 crore.
 - The government could work with **international reinsurers** to increase this capacity, making it more attractive for private investors.
 - This approach has been successfully used in the **UK's Hinkley Point C project**, where the government provided a **Euro 2 billion guarantee**.
 - Such measures would make nuclear projects more bankable for private investors.
- **Technology Collaboration and Indigenization Programs:** Implement structured programs for **technology transfer and indigenization**, similar to the successful offset policy in the defense sector.
 - Setting up **Nuclear Technology Parks**, similar to the successful IT parks model, to foster collaboration between public sector entities, private companies, and research institutions.
 - The 2009 collaboration between **L&T and Westinghouse to manufacture nuclear plant components in India** serves as a good example.
- **Skill Development and Human Resource Initiatives:** Launch a comprehensive Nuclear Skill Development Program in partnership with industry and academia.
 - This could include setting up **specialized nuclear engineering programs in IITs and NITs**.
 - Encourage private sector participation in **training programs through tax incentives and grants**.
 - Establish a **Nuclear Innovation Hub**, similar to the **successful Atal Innovation Mission**, to foster research and development in nuclear technologies.

- These measures would address the projected shortage of skilled professionals in the nuclear sector.
- **Transparent Safety and Performance Benchmarks:** Develop and implement a **transparent system of safety and performance benchmarks** for nuclear facilities, applicable to both public and private operators.
 - This could include regular public disclosures of safety performance, similar to the **US Nuclear Regulatory Commission's Reactor Oversight Process**.
 - Introduce a rating system for nuclear plants based on safety and operational efficiency, incentivizing high performers through **preferential regulatory treatment or financial benefits**.
 - Implement a public engagement program to improve transparency and build trust, drawing lessons from countries like **Finland, which has high public acceptance of nuclear energy**.
 - These measures would address the safety concerns and foster a culture of continuous improvement in the sector.

Conclusion:

While private sector participation can **accelerate India's nuclear energy expansion** and enhance technological innovation, it requires a careful balancing act. Addressing legal and regulatory challenges, **ensuring safety, and fostering public trust** are essential to unlocking the full potential of private investment while safeguarding national interests. Legislative reforms and robust oversight mechanisms will be crucial in this transition.

■■■

Strengthening Bonds in India Germany Partnership

This editorial is based on "[Delhi-Berlin partnership has kept pace with India's rise](#)" which was published in Hindustan Times on 02/10/2024. The article highlights that India and Germany enjoy a robust partnership characterized by strong collaboration in security, sustainable development, and economic growth, with bilateral trade at USD 33 billion. The expanding Indian diaspora in Germany further enriches cultural ties and strengthens professional networks, fostering mutual understanding.

Tag: GS Paper - 2, Effect of Policies & Politics of Countries on India's Interests, India and its Neighbourhood, Groupings & Agreements Involving India and/or Affecting India's Interests, Look East to Act East.

The relationship between **India and Germany** has evolved into a robust and dynamic partnership, characterized by mutual respect, shared values, and a commitment to addressing global challenges. Since the establishment of diplomatic ties in 1951 and the formalization of a '**Strategic Partnership**' in 2000, both nations have witnessed significant growth in collaboration across various sectors, including **trade, technology, defense, and sustainable development**. With bilateral trade reaching approximately **USD 33 billion** and a thriving presence of around 2,200 German companies in India, the economic potential is immense.

The upcoming **7th Inter-Governmental Consultations** in India will be a pivotal moment to set strategic directions amidst shifting global dynamics. Furthermore, the **18th Asia-Pacific Conference of German Business** in New Delhi later this year highlights the increasing importance of innovation, particularly in areas like **digital technology** and green solutions. As both countries strive to deepen their engagement, enhancing educational exchanges and talent mobility will be crucial. The foundation laid by past collaborations paves the way for a future that is not only **economically beneficial** but also rich in **cultural and technological** exchanges, positioning India and Germany as vital partners on the global stage.

What are Major Areas of Cooperation Between India and Germany?

- **Historical Context:** India and Germany have a rich history of political and economic ties dating back to the late 19th century, with a formalized **strategic partnership** established through various agreements since 2000.
- **Economic and Trade Relations:**
 - **Growing Trade Volume:** Bilateral trade between India and Germany has surged, reaching approximately **USD 33 billion** annually. Also, investments from Germany are about USD 25 million.
 - This increasing trade volume underscores the significance of the economic partnership, with Germany ranking among India's key trading partners.
 - **Significant Investment Presence:** Germany's investment in India is substantial, with around 2,200 German companies operating in various sectors.
 - This investment not only contributes to job creation but also facilitates technological advancements, reinforcing economic ties.
 - **Market Entry Support:** The "**Make in India Mittelstand**" (MIIM) program supports German SMEs and family businesses, helping 152

companies invest nearly **1.46 billion Euros** in India, including over 30 leaders in niche technologies.

- **Emerging Opportunities:** The upcoming **Asia-Pacific Conference of German Business** in October 2024, hosted in New Delhi, presents a crucial platform for enhancing collaboration between **Indian and German** businesses, fostering new investments and joint ventures.
- **Science and Technology Collaboration:**
 - **Long-standing Partnership:** The **Indo-German Science and Technology Center** has played a vital role in supporting industrial research for over 50 years.
 - This partnership is pivotal for innovation and technological exchange.
 - **Academic Exchanges:** With more than **500 partnerships** between **Indian and German universities**, the two nations promote knowledge transfer and **skill development**, paving the way for collaborative research and innovation.
 - **Future Roadmap:** Plans for a new **science and technology roadmap** aim to deepen cooperation in key scientific areas, potentially leading to groundbreaking advancements in fields such as artificial intelligence and biotechnology.
- **Green and Sustainable Development Partnership:**
 - **Commitment to Climate Action:** The **Green and Sustainable Development Partnership** (launched in 2022) highlights both nations' dedication to addressing climate change.
 - This partnership focuses on **energy transition** and environmental preservation.
 - **Financial Commitments:** India and Germany signed 38 agreements worth **3.22 billion Euros**. This highlights the potential for collaboration, especially in **green hydrogen** and **green ammonia**.
 - **Focus on Renewable Energy:** Both countries are actively collaborating on renewable energy, highlighted by the recent launch of the **India-Germany Platform for Investments in Renewable Energies Worldwide**, which aims to develop sustainable solutions and support India's renewable energy goals.
 - **Innovative Projects:** Collaborative initiatives, such as **solar energy projects** in Maharashtra, exemplify the practical outcomes of this partnership, showcasing the potential for innovation in sustainable development.

- Defense and Security Cooperation:
 - **Military Cooperation:** The 17th edition of the **India-Germany Military Cooperation Sub Group (MCSG)** meeting was held in October 2024, in Berlin, Germany, focusing on **enhancing bilateral military cooperation** and strengthening defense engagements.
 - The MCSG serves as a forum to boost defense ties through strategic and operational discussions between the **Integrated Defence Staff of India** and the **German Armed Forces**.
 - **Increasing Military Collaboration:** Joint military exercises, such as "**Tarang Shakti**," indicate a growing commitment to defense cooperation.
 - **Maritime Cooperation:** The Indian Navy frigate **INS Tabar's** visit to Hamburg reinforced maritime cooperation and cultural exchange between the two nations.
 - **Expanding Defense Trade:** The defense trade volume has seen a remarkable increase, with a sevenfold rise from 2021 to 2023 (from 34 million Euros to 2,136 million Euros).
 - This growth reflects an enhanced focus on **strategic military collaboration**.
- **Strategic Importance of the Indo-Pacific:**
 - Both nations acknowledge the need for security cooperation in the **Indo-Pacific region**, aligning their strategies to address common challenges and enhance regional stability.
- Education & People-to-People:
 - **Growing Student Presence:** Approximately **50,000 Indian students** currently study in Germany, highlighting the significance of educational ties between the two countries.
 - **Facilitating Talent Mobility:** The **Mobility and Migration Agreement** signed in 2022 aims to streamline pathways for skilled professionals, fostering workforce collaboration and enhancing economic interactions.
 - **Cultural Exchange Initiatives:** Increased scholarships and internship opportunities will further strengthen the **people-to-people connection**, promoting **mutual understanding and cooperation**.
- **Areas of Cooperation:**
 - Identified during the 5th **Intergovernmental Conference (IGC)**, focus areas for cooperation include **Artificial Intelligence**, **digitalization**, **clean energy**, **e-mobility**, **smart cities**, **railways**, **Industry 4.0**, **startups**, **skill development**, and **waste management**.

What are Challenges faced by India-Germany Relations?

- **Trade and Investment Barriers:**
 - **Absence of a Bilateral Investment Treaty (BIT):** The lack of a BIT presents a significant obstacle to deeper economic engagement.
 - Germany has a **Bilateral Trade and Investment Agreement (BTIA)** with India via EU, it does not have the competence to negotiate it separately.
 - It limits investor confidence and protections, which are crucial for fostering a stable investment environment.
 - **Concerns Over Trade Liberalization:** Germany's skepticism regarding India's **trade liberalization measures and labor regulations** can complicate negotiations, potentially stifling growth in economic relations.
 - **Need for Regulatory Alignment:** Addressing **regulatory discrepancies** and streamlining trade processes are essential to facilitate smoother economic interactions, promoting mutual benefits.
- **Divergent Perspectives on Geopolitical Issues:**
 - **Occasional Disagreements:** While **India and Germany** align on many global issues, occasional differences in perspectives can complicate diplomatic efforts.
 - Such divergences necessitate careful navigation to maintain a constructive dialogue.
 - **Balancing National Interests:** India's pragmatic approach to foreign policy may clash with Germany's emphasis on a rules-based international order.
 - Continuous dialogue is essential to mitigate misunderstandings and strengthen collaboration.
 - **Importance of Strategic Dialogue:** Regular consultations on geopolitical matters can build trust and confidence, ensuring alignment on shared interests.
- **Visa and Mobility Concerns:**
 - **Visa Process Challenges:** Delays and complexities in the visa issuance process can hinder talent mobility, affecting the flow of skilled professionals and limiting educational exchanges.
 - Simplifying the visa process is crucial for fostering greater people-to-people connections, enabling knowledge exchange and enhancing bilateral ties.

- **Focus on Mutual Recognition of Qualifications:** Collaborating on mutual recognition of educational qualifications can enhance mobility and facilitate smoother integration for Indian professionals in Germany.

What Should be the Way Forward?

- **Enhancing Trade and Investment:**
 - With current trade at USD 33 billion, there is significant room for growth in mutual investments.
 - India's evolving business climate should act as a catalyst for **deeper economic ties**.
 - Negotiating a bilateral investment treaty by establishing a comprehensive BIT would enhance investor confidence and facilitate easier business operations, thereby driving economic growth.
- **Focus on Innovation and Technology:**
 - Greater emphasis should be placed on innovation, particularly in **digital technologies, artificial intelligence, fintech, and clean/green technologies** to drive future growth.
- **Strengthening Defense Cooperation:**
 - Increased attention to defense collaboration is crucial, especially with the expansion of the Indian private sector in this area.
 - Updating export controls will be necessary to facilitate this cooperation.
 - Recent air exercises and upcoming naval visits to Goa should be leveraged to enhance military ties.
- **Progress in Green and Sustainable Development:**
 - The **Green and Sustainable Development Partnership** is making steady strides, with 38 agreements amounting to **Euro 3.22 billion**.
 - There is significant potential in sectors like **green hydrogen** and **green ammonia**, which should be explored further.
- **Enhancing Educational and Talent Mobility:**
 - The number of Indian students in Germany has doubled to 43,000 over the past five years, but the **flow of talent** can increase significantly.
 - Establishing frameworks for skills mobility will help strengthen this connection, akin to the living bridge with the US.
- **Continuous Consultation on Global Issues:**
 - Ongoing dialogue on global matters is vital for building trust and confidence in the partnership.
 - This will be a key focus in discussions between Indian and German foreign ministers to enhance collaboration on international issues.

Conclusion

The **7th Intergovernmental Consultations** in India will be pivotal, providing strategic directions on key issues during a crucial time for both nations. Both nations are committed to **sustainable development, innovation, and collaborative efforts** to address global challenges. The **18th Asia-Pacific Conference of German Business (APK 2024)** in New Delhi this October is essential for fostering business collaboration and engagement between Indian and German firms.



Revamping Wildlife Conservation in India

*This editorial is based on "**Elephant in the room**" which was published in The Indian Express on 04/10/2024. The article brings into picture the disparity in India's wildlife conservation efforts, where species like tigers have seen progress, while elephants face neglect and population decline. It calls for a more transparent, science-based approach to address habitat loss and human-animal conflicts, especially for species like elephants.*

Tag: GS Paper - 3, Conservation, GS Paper - 2, Government Policies & Interventions

India's wildlife conservation efforts have shown mixed results, with some species receiving more attention than others. The **tiger**, following the crisis of **2005**, has seen improved monitoring methods and more accurate population estimates. However, the **elephant**, another iconic species, has **not received comparable attention**. Recent changes in enumeration methods for elephants have revealed a **substantial decline in population**, but the government has reportedly shelved this crucial report, raising questions about transparency and commitment to conservation.

This disparity in conservation approaches highlights **broader issues in India's wildlife management strategies**. The elephant's habitat has been significantly impacted by human activities, leading to increased human-animal conflicts. Accurate population estimates and distribution data are essential for effective conservation planning and mitigating these conflicts. The current situation underscores the need for a more **comprehensive, science-based approach to wildlife conservation in India**, particularly for species like elephants that share space with humans in rapidly changing landscapes.

WILDLIFE CONSERVATION INITIATIVES

Constitutional Provisions for Wildlife

42nd Amendment

Act, 1976: Forests & Protection of Wild Animals and Birds (moved from State to Concurrent List)

Article

48 A: State shall endeavor to protect & improve environment and safeguard forests and wildlife of country

Article

51 A (g): Fundamental duty to protect & improve natural environment including forests and Wildlife

Legal Frameworks

Wildlife (Protection) Act, 1972

Biological Diversity Act, 2002

Major Conservation Initiatives

Integrated Development of Wildlife Habitats (IDWH):

- ⤷ Financial assistance provided to State/UT Governments for protection and conservation of wildlife
- ⤷ A Centrally Sponsored Scheme

National Wildlife Action Plan (2017-2031)

Guidelines for Eco-tourism in Protected Areas

Human-Wildlife Conflict Mitigation

Wildlife Crime Control Bureau: To combat wildlife-related crimes

Wildlife Division (MoEFCC):

- ⤷ Policy and law for conservation of biodiversity and Protected Area network
- ⤷ Technical and financial support to the State/ UTs under IDWH, Central Zoo Authority and Wildlife Institute of India

Wildlife Crime Control Bureau (WCCB):

Collection, collation of intelligence & its dissemination, establishment of centralized Wild Life crime databank, coordination etc.

Wildlife Crime Control:

- ⤷ Operation Save Kurma
- ⤷ Operation Thunderbird

Species-Specific Initiatives

- Protection and conservation of Greater Adjutant in Gangetic riverine tract
- Dolphin Conservation in Non-Protected Area Segment of Ganga River
- Conservation Breeding Centre for Wild water buffalo (2020)
- Recovery programme for Snow leopard (2009)
- Recovery programme for Vultures (2006)
- Project Elephant (1992)
- Project Tiger/National Tiger Conservation Authority (NTCA) (1973)

India's Collaboration with Global Wildlife Conservation Efforts

- ⤷ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- ⤷ Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- ⤷ Convention on Biological Diversity (CBD)
- ⤷ World Heritage Convention
- ⤷ Ramsar Convention
- ⤷ The Wildlife Trade Monitoring Network (TRAFFIC)
- ⤷ United Nations Forum on Forests (UNFF)
- ⤷ International Whaling Commission (IWC)
- ⤷ International Union for Conservation of Nature (IUCN)
- ⤷ Global Tiger Forum (GTF)

What is the Significance of Wildlife Conservation for India?

- **Biodiversity Preservation and Ecosystem Stability:** India, as one of the world's **17 megadiverse countries**, harbors about 8% of the world's known biodiversity in just 2.4% of the global land area.
 - This **rich biodiversity plays a crucial role in maintaining ecosystem stability**, which is vital for human survival.
 - For instance, the **mangrove ecosystems** along India's coastlines, home to diverse species, provide natural barriers against cyclones and tsunamis.

- The 2021 study by the Zoological Survey of India reported that **mangroves in the Sundarbans reduced the impact of Cyclone Amphan in 2020**, protecting millions of people.
- Moreover, India's forests, covering about 21.71% of the geographical area (Forest Survey of India, 2021), act as **carbon sinks, sequestering about 7,124.6 million tonnes of carbon dioxide equivalent**.
- **Economic Benefits Through Sustainable Tourism:** Wildlife conservation significantly contributes to India's economy through ecotourism.
 - The demand for wildlife tourism in India is anticipated to surge at a 7.40% CAGR through 2034.
 - The monetary value of flow benefits **emanating from selected tiger reserves** range from 8.3 to 17.6 billion annually.
 - For instance, **Madhya Pradesh, known as the 'Tiger State'**, is anticipated to witness a **30-40% growth in inbound tourism**, largely attributed to its wildlife attractions.
 - Furthermore, the government's initiatives like the **Swadesh Darshan Scheme**, have further boosted wildlife tourism, creating local employment and supporting conservation efforts.
- **Traditional Knowledge Preservation and Cultural Heritage:** Wildlife conservation in India is intrinsically linked to preserving traditional ecological knowledge and cultural heritage.
 - Many indigenous communities, like the **Bishnois of Rajasthan or the Nyishi tribe of Arunachal Pradesh**, have long-standing conservation practices embedded in their culture.
 - For example, the **Nyishi tribe's traditional hornbill conservation practices have been instrumental in protecting the species**.
- **Climate Change Mitigation and Adaptation:** Wildlife conservation plays a crucial role in India's efforts to combat climate change.
 - Healthy ecosystems act as natural buffers against extreme weather events and help in carbon sequestration.
 - For instance, India's commitment under **Nationally Determined Contribution** to create an **additional carbon sink of 2.5-3 billion tonnes of CO2 equivalent by 2030** heavily relies on forest and wildlife conservation.
 - The recent initiatives like the **Green India Mission**, which aims to increase forest cover on 5 million hectares of land, demonstrate the government's recognition of this link.
- Moreover, conserving biodiversity enhances ecosystem resilience to climate change.
- A 2015 study stated that **areas with higher species diversity were more resilient to climate variations**, underlining the importance of conservation in climate adaptation strategies.
- **Water Security and Watershed Protection:** Wildlife habitats, particularly forests, play a vital role in India's water security by protecting watersheds and regulating water flow.
 - The recent recognition of the **Aravalli Biodiversity Park in Gurugram as India's first "other effective area-based conservation measure" site in 2022** highlights the growing awareness of the link between urban biodiversity conservation and water security, as it helps **recharge groundwater in the water-stressed National Capital Region**.
- **Pharmaceutical and Biotechnological Potential:** India's rich biodiversity holds immense potential for pharmaceutical and biotechnological discoveries.
 - The country's wildlife has been a source of numerous medicinal compounds, with traditional knowledge playing a crucial role.
 - For instance, the development of a **novel anti-inflammatory drug derived from the venom of the Indian monocled cobra**, showcases this potential.
 - Furthermore, the **government's BIOTECH-KISAN program**, aims to link Indian biotechnology to conservation and rural development, emphasizing the economic significance of biodiversity conservation.
- **International Diplomacy:** India's wildlife conservation efforts significantly contribute to its soft power and international diplomacy.
 - The country's leadership in tiger conservation, through initiatives like the **Global Tiger Recovery Program**, has enhanced its global environmental standing.
 - The tiger census of 2018 showed a rise in the tiger population. India achieved the target of doubling the tiger population **4 years ahead of schedule** of the **St. Petersburg Declaration on Tiger Conservation**.
 - Moreover, India's active participation in global conservation treaties like **CITES and the Convention on Biological Diversity (CBD)** strengthens its position in international environmental negotiations.
 - **"The Elephant Whisperers,"** which won the **Oscar for Best Documentary Short in 2023**, further highlights the deep connection between Indian communities and wildlife.

What Factors are Impeding the Effectiveness of India's Wildlife Conservation Efforts?

- **Inadequate Funding and Resource Allocation:** Despite being a **biodiversity hotspot**, India's budget allocation for wildlife conservation remains insufficient.
 - The **Union Budget 2024-25** has allocated **Rs 3330.37 crore** to the Ministry of Environment, Forest and Climate Change.
 - This underfunding affects critical aspects such as **habitat protection, anti-poaching measures, and scientific research**.
 - For instance, a 2021 report stated that **tiger monitoring in Ranthambore Tiger Reserve** has severely declined, with one staff member covering two tigers across 30 sq. km.
 - The lack of resources also hampers the **implementation of advanced technologies for monitoring and protection**, leaving vast forest areas vulnerable to illegal activities.
- **Human-Wildlife Conflict Escalation:** As human populations expand and encroach upon natural habitats, conflicts with wildlife have intensified.
 - **Human-elephant conflicts** led to 2853 human deaths over the past five years, peaking at **628 in 2023**.
 - **7,562 cases** of crop-raiding by wild animals reported between **2017-2020 across Tamil Nadu alone**.
 - The government's response has often been **reactive rather than proactive**, focusing on compensation rather than long-term solutions.
- **Habitat Fragmentation and Degradation:** Rapid urbanization and infrastructure development have led to **severe habitat loss and fragmentation**.
 - India has lost **2.33 million hectares of tree cover** since 2000. Major projects like the expansion of **National Highways** and the **Mumbai-Ahmedabad bullet train project** have further fragmented crucial wildlife habitats.
 - The case of the **Mollem National Park in Goa** exemplifies this issue, where three linear projects threaten the forests in and around **Mollem National Park and Bhagwan Mahaveer Wildlife Sanctuary**.
 - Despite scientific evidence of the detrimental impacts, **environmental clearances for such**

projects often prioritize development over conservation, highlighting the need for more balanced decision-making processes.

- **Inadequate Implementation of Wildlife Laws:** While India has robust wildlife protection laws, their implementation often falls short.
 - Between 2014 to 2021, the **Wildlife Crime Control Bureau** conducted **717 joint operations resulting in the arrest of 1488 wildlife criminals, but conviction remains very slow**.
 - The Wildlife Protection Act of 1972, despite amendments, struggles with effective enforcement due to **understaffed forest departments and inadequate training of enforcement personnel**.
 - The **lack of forensic facilities, delays in judicial processes, and insufficient coordination between various enforcement agencies** further weaken the implementation of wildlife laws.
- **Climate Change Impacts:** Climate change poses a significant threat to India's wildlife, yet conservation strategies often fail to adequately address this challenge.
 - **Rising temperatures and changing rainfall patterns** are altering habitats and migration patterns.
 - About **33% of the biodiversity of the Western Ghats** will be lost by 2050 due to extreme weather.
 - This is irreversible. As part of this change, the **forests will change from evergreen to deciduous and dry deciduous**.
 - The sea level has risen by an average of **3 centimeters a year over the past two decades in the Sundarbans**, the vast mangrove delta at the mouth of the Bay of Bengal, leading to **one of the fastest rates of coastal erosion in the world**.
 - Despite these alarming predictions, **climate adaptation strategies in wildlife conservation remain underdeveloped and underfunded**, with only a fraction of Protected Areas having climate action plans.
- **Lack of Community Involvement and Sustainable Livelihood Options:** Conservation efforts often overlook the needs of local communities living in and around protected areas.
 - The traditional **top-down approach to conservation** has led to alienation and conflicts.
 - While initiatives like **ecotourism exist**, they often fail to provide substantial benefits to local communities.

- The **cheetah reintroduction in Kuno** has in a way marginalized local communities, leaving them without promised compensation or sustainable livelihoods, while tourism profits fail to benefit those displaced.
 - This disconnect between conservation goals and community needs undermines long-term conservation success and leads to reduced local support for wildlife protection efforts.
- **Inadequate scientific research and monitoring:** Despite being home to unique and diverse ecosystems, India's investment in wildlife research remains low.
- The Ministry of Environment, Forests and Climate Change accounted for only 0.8% of the major R&I expenditure of the Union government.
 - The recent controversy over elephant population estimates, where the government reportedly shelved a report showing a decline, highlights the challenges in obtaining and utilizing scientific data.
 - Moreover, many species, especially lesser-known ones, lack long-term population studies. Rediscovered after 140 years, a rare tree species *Uniyala multi bracteata* was found in a non-protected area of Western Ghats, highlight the gravity of the issue.
- **Political and Economic Pressures Overriding Conservation Needs:** Economic development often takes precedence over conservation in policy decisions.
- The ease of doing business initiatives has sometimes led to the dilution of environmental safeguards.
 - For example, the **Environmental Impact Assessment Notification 2020** aimed to reduce public consultation periods and exempting certain projects from scrutiny, potentially impacting wildlife habitats.
 - Similarly, the push for infrastructure development, while necessary, has sometimes come at the cost of wildlife.
 - The case of the **Great Indian Bustard**, where power lines in its habitat have significantly contributed to its population decline illustrates how even well-intentioned development can negatively impact conservation efforts when not properly planned.

What Measures can be Adopted to Revamp Wildlife Conservation Efforts in India?

- **Enhance Funding and Resource Allocation:** Significantly increase the budget allocation for wildlife conservation. Implement innovative funding mechanisms like green bonds and conservation trust funds, similar to Bhutan's successful Bhutan For Life fund.
- Prioritize the allocation of Corporate Social Responsibility (CSR) funds towards conservation projects.
 - Establish public-private partnerships for conservation, following models like the Satpuda Landscape Tiger Partnership, which has shown success in central India.
 - Create a dedicated Wildlife Technology Fund to support the development and deployment of advanced conservation technologies, such as AI-powered anti-poaching systems and remote sensing for habitat monitoring.
- **Implement Comprehensive Human-wildlife Conflict Mitigation Strategies:** Develop and implement state-specific Human-Wildlife Conflict (HWC) mitigation plans, considering local ecological and socio-economic contexts.
- Expand the use of early warning systems, like the SMS-based alert system in Valparai, Tamil Nadu, which reduced human-elephant conflicts.
 - Increase investment in physical barriers like solar-powered fences and bio-fences.
 - KVIC launched **Project RE-HAB** to mitigate human-elephant conflicts by creating bee-fences that deter elephants using honey bees.
 - This innovative, cost-effective method prevents harm to both humans and elephants, ensuring sustainable conflict resolution.
- **Prioritize Habitat Connectivity and Corridor Restoration:** Launch a National Wildlife Corridor Program to identify, protect, and restore critical wildlife corridors across the country.
- Implement the recommendations of the National Board for Wildlife's 2019 report on linear infrastructure projects, mandating wildlife passageways in all new projects intersecting animal corridors.
 - Engage with local communities in corridor management through initiatives like the Community Conserved Areas in Nagaland.

- Utilize geospatial technology and wildlife tracking data to continuously monitor and **adapt corridor management strategies**, as demonstrated by the **Wildlife Institute of India's corridor mapping** project in the Central Indian Landscape.
- **Strengthen Wildlife Law Enforcement and Anti-poaching Measures:** Implement mandatory use of **M-STrIPES (Monitoring System for Tigers' Intensive Protection and Ecological Status)** in all tiger reserves and expand its use to other Protected Areas.
 - Invest in capacity building of forest staff through regular training programs and certifications
 - Deploy **advanced anti-poaching technologies like thermal imaging cameras** and acoustic traps, as successfully used in **Kaziranga National Park**, reducing rhino poaching.
 - Strengthen inter-state and international cooperation on wildlife crime through **regular joint operations and information sharing**.
- **Integrate Climate Change Adaptation into Conservation Planning:** Develop **Climate-Integrated Conservation Plans** for all major Protected Areas.
 - Promote **climate-smart agriculture and agroforestry in buffer zones** and wildlife corridors to enhance landscape resilience.
 - Create a national database on climate change impacts on wildlife, leveraging citizen science initiatives like the **Indian Biodiversity Portal**.
- **Enhance Community Participation:** Scale up successful community-based conservation models like the **Van Panchayats of Uttarakhand**.
 - Expand ecotourism initiatives that directly benefit local communities, following the model of **Madhya Pradesh's Pench Tiger Reserve**.
 - Develop skill-building programs for alternative livelihoods in conservation-compatible sectors, such as the **CAMPA-funded skilling initiative** in Odisha.
- **Boost Scientific Research and Monitoring:** Establish a dedicated **Wildlife Research Fund** to support long-term ecological studies and innovative research.
 - Create a network of field research stations in key biodiversity hotspots, following the model of the **Danum Valley Field Centre in Malaysia**.
 - Develop and deploy a **suite of standardized wildlife monitoring protocols** across different taxa and ecosystems, building on the success of the **All India Tiger Estimation exercise**.

- **Streamline Environmental Clearance Processes:** Implement a comprehensive **Strategic Environmental Assessment (SEA) system** for all major development plans and programs.

- Develop and mandate the use of **species-specific sensitivity maps** for infrastructure planning.
- Implement a system of **cumulative impact assessment** for projects in ecologically sensitive areas.

Conclusion:

India's wildlife conservation efforts require urgent attention and a **shift towards a more equitable, transparent, and science-based approach**. By addressing funding gaps, enhancing community involvement, and prioritizing habitat preservation, the country can **protect its rich biodiversity and ensure sustainable coexistence between wildlife and human populations**. A concerted effort is essential for effective conservation that safeguards both iconic species like elephants and the delicate ecosystems they inhabit.

■■■

India's Strategic Diplomacy Amid West Asia's Tensions

*This editorial is based on "**Escalation of West Asia conflict could hurt India**" which was published in The Hindu Business Line on 06/10/2024. The article brings into focus the escalating tensions between Iran and Israel, prompting India to call for restraint and dialogue while highlighting its strategic interests in the region. It emphasizes that a broader conflict could significantly impact India's economic interests, energy security, and regional stability.*

Tag: GS Paper - 2, Bilateral Groupings & Agreements, Groupings & Agreements Involving India and/or Affecting India's Interests, Effect of Policies & Politics of Countries on India's Interests, International Treaties & Agreements

The escalating tensions between **Iran and Israel** have once again raised concerns about the potential for a **wider regional conflict**. India, with its **strategic interests in the West Asian region**, has urged both sides to exercise restraint and resolve the crisis through dialogue and diplomacy. While India has not offered to play a mediatory role, it has maintained **communication channels with both parties** and expressed its deep concern over the humanitarian situation in Gaza.

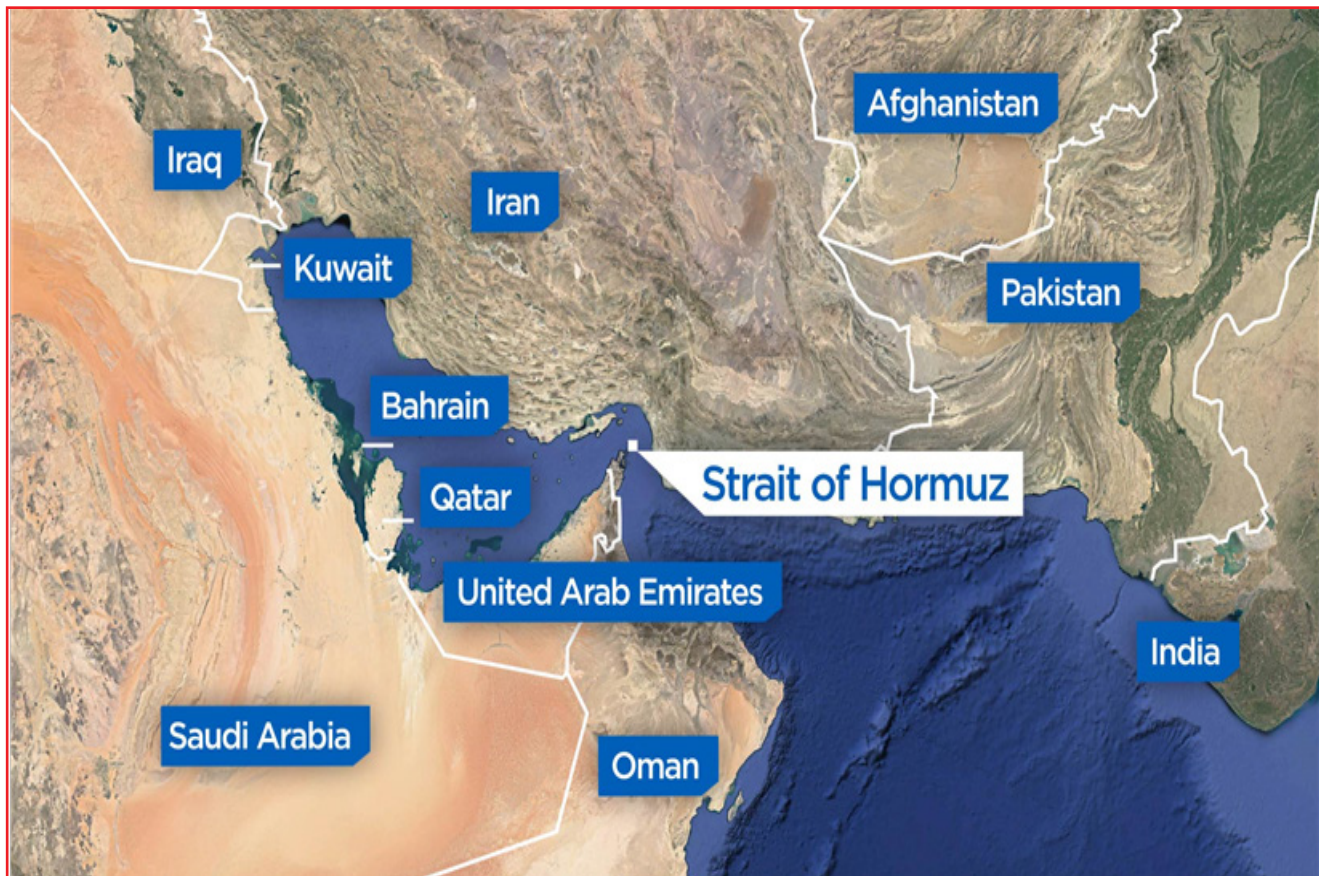
India's relations with Israel have deepened in recent years, while its relationship with Iran has been marked by both cooperation and tension. A wider conflict could have serious implications for **India's economic interests**, **energy security**, and **regional stability**.



Why is West Asia Consistently Prone to Conflicts?

- **Geopolitical Rivalries and Proxy Wars:** The rivalry between Iran and Saudi Arabia is a significant source of tension in West Asia, **driven by both nations' ambitions to expand their influence in the region**.
 - This competition often manifests in their support for opposing sides in various conflicts.
 - The **Yemeni Civil War**, for example, has seen Saudi Arabia lead a coalition against the Iran-backed Houthi rebels, resulting in a humanitarian crisis with over **377,000 deaths reported by the United Nations between 2015 and beginning of 2022**.
 - These **proxy wars have given blow to the regional refugee crisis**, as per **UN Refugee Agency** report of March 2024, more than **7.2 million Syrians remain internally displaced** in their own country where 70% of the population is in need of humanitarian aid.

- Additionally, **Israel views Iran as a threat due to its nuclear ambitions and support for Hezbollah**, leading to instances of cyber warfare and airstrikes on Iranian targets in Syria.
 - In **2022**, Iran accused Israel of sabotaging its **Natanz nuclear facility**.
 - Israel recently claimed it killed a **senior Hezbollah commander** in a strike on **Beirut, Lebanon** recently.
- The **recent pager attack in Lebanon** is also reportedly attributed to Israel.
- **Religious Sectarianism and Identity Conflicts:** The Sunni-Shia divide is a major factor in many conflicts across West Asia, exacerbating sectarian violence and political struggles.
 - The population is approximately **85% Sunni and 15% Shia**, with Iran and Saudi Arabia representing these factions.
 - About half a million people died in **Iraq** as a result of war-related causes between the US-led invasion in **2003 and mid-2011**.
 - **Bahrain** has also experienced tensions due to the **Sunni monarchy's repression** of the Shia-majority population, particularly since the 2011 Arab Spring protests.
 - These sectarian conflicts contribute significantly to the region's instability and violence.
- **Abundance of Oil and Resource Control:** West Asia is home to approximately **48% of the world's proven oil reserves**, making control over these resources a critical issue.
 - The economic dependence on oil has fueled internal and external conflicts, such as the **Iraq-Kuwait conflict**, which was motivated by oil control and led to a Gulf War.
 - OPEC decisions continue to influence global oil prices. Members of the **OPEC+** oil alliance have **delayed plans to hike production by a scheduled 180,000 barrels per day in October 2024** leading to suspicions with the United States and other oil-consuming nations.
 - Additionally, **strategic waterways like the Strait of Hormuz are vital for oil transit**. About a **fifth of the volume of the world's total oil consumption** passes through the Strait on a daily basis.
 - Iran's threats to close this chokepoint have **heightened military tensions** with the U.S. and its allies.



- **Colonial Legacy and Artificial Borders:** The colonial legacy in West Asia, particularly the **Sykes-Picot Agreement**, established arbitrary borders that ignored ethnic and tribal divisions, leading to long-term instability.
 - This has resulted in communities being split across national borders and forced into multi-ethnic states lacking a unified national identity.
 - The Kurdish struggle for autonomy exemplifies this issue, as **Kurds seek independence across Turkey, Syria, Iraq, and Iran**, highlighted by a 2017 referendum in Iraq that was met with opposition from neighboring countries.
 - The **Palestinian-Israeli conflict** also has roots in the **British Mandate**, with ongoing disputes resulting in the displacement of millions.
 - As of **September 2024**, the situation has deteriorated significantly, with Israel's siege preventing **83% of food aid from reaching Gaza**.
- **Authoritarian Regimes and Political Repression:** Many West Asian countries are governed by **authoritarian regimes**, including monarchies and military dictatorships, leading to widespread discontent and political repression.
 - The **Arab Spring in 2011** sparked significant uprisings, but many regimes responded with brutal crackdowns.
 - As of March 2024, with the support of Russia, the **Assad regime has conducted attacks across north-west Syria**, resulting in over 500 civilian casualties and the displacement of over 120,000 people.
 - Human rights organizations have documented numerous abuses, further illustrating the region's struggle for democratic representation.
- **Foreign Interventions and Military Presence:** The United States has maintained a significant military presence in West Asia due to its strategic interests in oil and regional stability.
 - Since 2001, the **U.S. has been involved in conflicts in Afghanistan, Iraq, and Syria**, often with unintended consequences that breed resentment among local populations.
 - The **2003 invasion of Iraq**, premised on eliminating weapons of mass destruction and promoting democracy, led to prolonged instability, sectarian violence, and the rise of extremist groups like ISIL.

- In late **June 2019**, Iran downed a **U.S. Global Hawk drone** in the Strait of Hormuz, and the US President ordered a cyberattack and the imposition of new sanctions.

What are the Implications of Issues in West Asia for India?

- **Energy Security and Oil Imports:** West Asia is vital to India's energy security, supplying over 60% of its crude oil imports.
 - In 2022-23, **Iraq became the second largest crude oil supplier to India after Russia**. Political instability in the region **often results in oil price volatility**, which can significantly impact India's economy.
 - Brent crude oil prices have been trading at **USD 80-85 per barrel** affecting India's import costs and inflation.
 - To mitigate these risks, **India is actively diversifying its energy sources**, including agreements with Russia, the U.S., and Latin America.
 - India has already felt the effects of the West Asian conflicts, as its share of crude petroleum imports from the region has declined from **34% in FY22 to 30.9% in FY23, and further to approximately 23% in FY24**.
- **Remittances from the Indian Diaspora:** The Indian diaspora in West Asia, numbering over 8 million, is a crucial source of remittances.
 - In 2021, India received around **USD 87 billion in remittances**, with about **50% coming from Gulf Cooperation Council (GCC)** countries.
 - Economic downturns, like those prompted by the **"Saudization" policy in Saudi Arabia**, can adversely affect these remittances, impacting families in states like Kerala that heavily rely on this income.
 - The Covid-19 pandemic caused many Indian workers to return home, and while the situation has come back to normal, the ongoing regional conflicts may continue to threaten job stability and remittance flows.
- **Trade Relations and Economic Impact:** The **Gulf Cooperation Council (GCC)** is one of India's most important trade partners.
 - During FY 2023-24, India-GCC bilateral trade stood at **USD 161.59 billion**. India's exports were USD 56.3 billion.

- Any disruptions in trade relations due to regional instability could negatively impact India's export sector and food supplies in the Gulf.
- Furthermore, India's **Comprehensive Economic Partnership Agreements (CEPA)** with countries like the **UAE** aim to enhance trade but may be hindered by geopolitical tensions.
- **Maritime Security and Trade Routes:** Strategic maritime chokepoints, such as the **Strait of Hormuz and Bab el-Mandeb**, are crucial for India's trade and energy imports.
 - Threats to these waterways from piracy or state-sponsored attacks can jeopardize India's trade security.
 - The **Strait of Hormuz** remains a critical chokepoint. The seizure of an **Israel-linked cargo ship by Iran in April 2024**, with **17 Indian nationals aboard**, underscores India's stake in the situation.
- **Terrorism and National Security:** The instability in West Asia creates fertile ground for extremist organizations like **ISIS, Al-Qaeda, and Hezbollah**, which sometimes seek recruits from South Asia, including India.
 - The recent **FATF report** highlights the significant terrorism threat to India from **ISIS and Al-Qaeda-linked groups** in Jammu and Kashmir.
- **Cultural and Religious Ties:** The historical and cultural connections between India and West Asia significantly influence bilateral relations:
 - India is home to the **world's third-largest Muslim population (about 200 million)**, making developments in West Asia, particularly regarding Islamic holy sites, of domestic importance.
- **Geopolitical Alignments and Great Power Rivalries:** China's expanding influence in West Asia, particularly through its **Belt and Road Initiative (BRI)**, poses challenges for India, especially as China strengthens ties with Iran and Saudi Arabia.
 - China's growing influence in the region, exemplified by **brokering the Iran-Saudi Arabia rapprochement in March 2023**, challenges India's strategic interests.
 - India's participation in the **I2U2 group (India, Israel, UAE, US)** since July 2022 marks a new phase in its **West Asia policy**, but balancing alignment with rival nations to Israel and UAE presents a significant challenge.

What Measures can India Adopt to Balance its Relations to Western Asian Countries Despite Concerns?

- **Pursue Strategic Autonomy and Non-Alignment:** India should maintain its policy of non-alignment in West Asian conflicts by fostering **strong bilateral relationships with key players such as Saudi Arabia, Iran, Israel, and the UAE**.
 - By avoiding **overt alignment with any particular faction**, India can navigate regional rivalries without becoming embroiled in them.
 - Consistently adopting a **neutral stance on sensitive issues like the Iran-Saudi Arabia rivalry and the Israel-Palestine conflict** will further enhance India's image as a peace-promoting nation and a reliable partner for all parties involved.
- **Strengthen Economic and Energy Ties:** While West Asia remains crucial for India's energy security, the country should **prioritize diversifying its energy imports** to reduce dependency on any single region.
 - Enhancing **renewable energy capabilities** will help lessen reliance on West Asian oil over time.
 - Strengthening trade and investment relations with GCC countries is essential, exploring new sectors such as technology, defense, and infrastructure for significant benefits.
 - The **India-UAE Comprehensive Economic Partnership Agreement (CEPA)** has the potential to substantially boost trade, and similar agreements with other GCC nations can help safeguard India's economic interests.
- **Expand Diplomatic Engagements and Multilateral Cooperation:** India should continue strengthening bilateral relations through regular high-level engagements with West Asian countries.
 - Active participation in regional multilateral forums such as the **Gulf Cooperation Council (GCC)**, the **Organization of Islamic Cooperation (OIC)** (as an observer), and the **Quad** (comprising India, Israel, UAE, and the U.S.) will reinforce India's role as a constructive regional actor, allowing collaboration on issues like maritime security and counter-terrorism.
 - Additionally, **leveraging the I2U2 forum (India, Israel, UAE, and the U.S.)** can facilitate collaboration in areas such as **food security, clean energy, and technology**.

- **Enhance Defense and Security Cooperation:** Given the strategic importance of maritime chokepoints like the Strait of Hormuz, India should **strengthen its naval presence in the Indian Ocean and Arabian Sea.**
 - Increasing naval collaborations through joint exercises with **Oman, the UAE, and the U.S.** can enhance India's capability to secure these vital sea lanes.
 - Expanding bilateral defense agreements with West Asian countries, focusing on joint military training, intelligence sharing, and arms sales, will be vital.
 - Strengthening **counter-terrorism collaboration with countries like Saudi Arabia, the UAE, and Israel**, particularly in intelligence-sharing, cyber-security, and counter-radicalization efforts, can mitigate potential threats from extremist groups and enhance India's internal security.
- **Prioritize Energy Security and Renewable Energy Initiatives:** To mitigate risks arising from West Asian conflicts, India should expand its **Strategic Petroleum Reserve (SPR)** capacity.
 - India eyes a **new strategic crude oil reserve in Mangalore.** This would provide a buffer against disruptions in oil supply, as experienced during the **Saudi oil facility attacks in 2019.**
 - Collaborating with West Asian countries on renewable energy projects, given the region's growing interest in clean energy, is essential.
 - Joint initiatives on **solar energy with the UAE or hydrogen fuel projects** with Saudi Arabia would align with India's goals under the International Solar Alliance and contribute to its energy diversification strategy.
- **Promote Cultural Diplomacy and People-to-People Ties:** With over 8 million Indians residing in West Asia, India should continue to advocate for their welfare, particularly **concerning labor reforms.**
 - Diplomatic missions must actively engage with host governments to **protect Indian workers' rights** and ensure safe repatriation when necessary.
 - Hosting **cultural festivals and events (IPL Auction 2025 is likely to be held in Saudi Arabia)** can help build soft power in the region and foster goodwill.
 - Moreover, India could offer **technical training and educational scholarships** for students from West Asia, enhancing its reputation as a destination for

higher education and skill development, fostering **long-term people-to-people ties and generating goodwill in the region.**

Conclusion:

India's strategic interests in West Asia necessitate a balanced approach to **navigate the complexities of regional tensions.** Prioritizing **issue-based diplomacy and multilateral cooperation** will be essential for India to emerge as a stabilizing force in a region fraught with conflict, thereby protecting its national interests while contributing to regional peace and stability.



Antimicrobial Resistance: The Urgent Call for Action

*This editorial is based on "**Virtuous viruses to fight antimicrobial resistance**" which was published in Hindustan Times on 07/10/2024. The article brings into picture the rising importance of bacteriophages as a solution to antimicrobial resistance, highlighting their ability to target drug-resistant bacteria and offering a potential alternative to failing antibiotics. It emphasizes the urgency of phage therapy, particularly for countries like India, facing critical drug resistance challenges.*

Tag: GS Paper - 2, Government Policies and Interventions, GS Paper - 3, Health

Bacteriophages, or "phages," are emerging as a promising solution to combat the growing threat of **antimicrobial resistance**. These viruses, which **naturally prey on bacteria**, have the potential not only to fight drug-resistant bacteria but also to lower resistance in them. Phages work by **invading bacteria**, **seizing their genetic material**, and **destroying them from within**. Their ubiquity in nature, from wastewater to the human gut, makes them an attractive option for therapeutic development.

The urgency of exploring phage therapy is underscored by the **looming crisis of antimicrobial resistance**, which is predicted to cause **40 million deaths by 2050**. Recent scientific breakthroughs have demonstrated the ability of phages to reverse antibiotic resistance in bacteria like *Pseudomonas aeruginosa*, a common cause of life-threatening hospital-acquired infections. As conventional antibiotics lose their efficacy, countries worldwide are intensifying their search for therapeutic phages. For nations like India, **facing serious drug resistance problems**, phage therapy could offer a crucial alternative in the fight against superbugs.

What is Antimicrobial Resistance?

- Antimicrobial Resistance (AMR) refers to the ability of microorganisms such as **bacteria**, **viruses**, **fungi**, and **parasites** to resist the effects of medications that were once effective against them, including **antibiotics**, **antivirals**, **antifungals**, and **antiparasitics**.
 - As a result, standard treatments become ineffective, infections persist, and they may spread to others, increasing the risk of severe illness, disability, and death.
- According to WHO, AMR is a top global public health threat, directly responsible for **1.27 million deaths in 2019** and contributing to **4.95 million deaths**.
 - The **World Bank** estimates AMR could add **USD 1 trillion in healthcare costs** and cause **GDP losses between USD 1 trillion and USD 3.4 trillion annually by 2030**.

ANTIMICROBIAL RESISTANCE



The ability of microorganisms to resist the effects of antimicrobial drugs



CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in *K. pneumoniae*
- AMR *Mycobacterium tuberculosis* causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS etc.**
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive

What are the Factors Driving the Growth of AMR in India?

- **Overuse and Misuse of Antibiotics:** Antibiotics in India are **widely available over-the-counter**, and there is a tendency among both healthcare providers and the general public to **over-prescribe or misuse them**.
 - According to 2022 Lancet Study, more than **47% of antibiotic formulations** used in India's private sector in 2019 were **not approved by the Central Drug Regulator**
 - This unchecked availability has led to widespread, often unnecessary use.
 - A recent government survey revealed that **over 38% of inpatients in Indian hospitals are prescribed multiple antibiotics**, with more than 55% of these prescriptions belonging to the **WHO's "Watch" group**, which is reserved for severe infections.
 - In addition, a **WHO Global Systematic Review** showed that although only 6% of 76,176 COVID-19 cases reviewed had bacterial or fungal co-infections, **62% received antibiotics**
 - This overuse **promotes resistance**, allowing bacteria to evolve and withstand standard treatments.
- **Inadequate Infection Control and Hygiene Practices in Healthcare Settings:** **Poor infection control practices** in healthcare facilities contribute significantly to AMR in India.
 - High rates of **hospital-acquired infections (9.06 infections per 1,000 intensive care unit (ICU) patient days)**, often involving drug-resistant bacteria, are prevalent.
 - Hospitals, particularly in **public sectors with resource constraints**, sometimes lack the infrastructure to enforce stringent infection control measures.
 - For instance, studies have shown that multi-drug resistant infections in Indian hospitals are increasing, with reports of resistant strains of ***E. coli* and *Klebsiella pneumoniae*** in intensive care units (ICUs).
- **Use of Antibiotics in Agriculture and Animal Husbandry:** In India, **antibiotics are commonly used in agriculture** to promote growth and prevent disease in animals, contributing to AMR when residues enter the human food chain.
 - The agricultural sector's unregulated antibiotic use is a major concern, with residues found in poultry and dairy products.
- In a recent study by the **Center for Science and Environment**, **residues of antibiotics** were found in the liver, muscle and kidney tissues of chicken samples.
- The Indian government has made strides to regulate this through guidelines for antibiotic use in food-producing animals, like center has recommended to ban ***chloramphenicol* and *nitrofurans* in food-producing animals** following the **2019 Colistin ban**, yet enforcement remains a challenge, and practices continue in many regions.
- **Environmental Contamination by Pharmaceutical Waste:** India is one of the world's **largest producers of generic drugs**, including antibiotics.
 - However, lax regulations around pharmaceutical waste disposal have led to significant environmental contamination.
 - It can be easily found in areas around pharmaceutical manufacturing hubs, such as **antibiotics from the fluoroquinolone group found in the Musi River, in Hyderabad, India**, promoting the growth of resistant bacteria in the environment.
- **Challenges in Pharmaceutical Quality Control:** The pharmaceutical sector's rapid expansion has **often outpaced regulatory oversight**, resulting in substandard antibiotic production.
 - **Poor-quality antibiotics** either due to inadequate active ingredients or contamination contribute to resistance as they fail to effectively kill bacteria.
 - Recognizing this issue, the Indian government set a **6 month and 12-month deadline in 2023** for pharmaceutical companies to adhere to WHO Good Manufacturing Practices.
 - However, given the scale of the industry, **compliance remains uneven**, highlighting the need for continued regulatory vigilance
- **Lack of Public Awareness:** Public understanding of AMR remains limited, especially in rural areas. Many patients prematurely stop antibiotic courses or use them improperly, unaware of the long-term consequences.
 - According to a community-based survey, **24% of participants** were unaware of the consequences of increasing antimicrobial resistance (AMR) levels. (**Observer Research Foundation**)
 - In response, states like **Kerala have begun forming local committees** to educate communities on the importance of responsible antibiotic use.
 - Despite these efforts, the **broader population's lack of awareness continues to fuel AMR**.

What are the Indian Government Initiatives to Tackle AMR?

- **AMR Surveillance Network:** Strengthened with labs in State Medical Colleges, covering 36 sites across 26 States/UTs (As of August 2022).
 - ICMR's AMR Surveillance and Research Network monitors drug-resistant infections in 30 tertiary care hospitals (both private and government).
- **National Action Plan on AMR:** Launched in 2017 with a **One Health approach**, involving multiple ministries.
 - **Delhi Declaration on AMR** signed by ministers, pledging support for containment efforts.
- **Research & International Collaboration:** ICMR partnered with **Norway and Germany** for AMR research and new drug development.
- **Awareness and Regulation:**
 - **40 fixed-dose combinations (FDCs)** banned by the Drugs Controller General of India.
 - Collaboration with agriculture and animal husbandry departments to ban Colistin in poultry feed.
 - Awareness campaigns through schools, colleges, and public platforms focus on proper antibiotic use and hand hygiene.

What Measures can India Adopt to Contain the Rise of AMR?

- **Strengthen Antibiotic Stewardship Programs in Healthcare Settings:** Implement mandatory antibiotic stewardship programs in all hospitals, following the **National Guidelines for Infection Prevention and Control in Healthcare Facilities 2020**.
 - These programs should include **regular audits of antibiotic prescriptions**, feedback to prescribers, and continuous education for healthcare professionals.
 - Utilise digital health technologies, such as **e-Sanjeevani telemedicine platform**, to provide real-time guidance on appropriate antibiotic use to healthcare providers across the country.
 - Encourage the use of **rapid diagnostic tests** to reduce empirical antibiotic prescriptions. For instance, the **Indian startup Module Innovations has developed a rapid test for urinary tract infections** that can guide antibiotic selection, potentially reducing unnecessary broad-spectrum antibiotic use.
- **Enforce Regulations on Over-the-counter Antibiotic Sales:** Strengthen the implementation of **Schedule H1 of the Drugs and Cosmetics Rules**, which restricts the sale of certain antibiotics without prescription.
 - Introduce a digital tracking system for antibiotic sales, similar to the **e-pharmacy model proposed**

in the Draft Drugs and Cosmetics Amendment Rules, 2023.

- This system could help monitor **antibiotic dispensing patterns and flag unusual sales**.
- Conduct regular inspections of pharmacies and impose stricter penalties for non-compliance.
- Launch public awareness campaigns about the **risks of self-medication with antibiotics**, leveraging popular media and community health workers.
- **Regulate Antibiotic use in Agriculture and Animal Husbandry:** Fully implement the **National Action Plan on AMR (2022-2026)** measures related to phasing out antibiotics as growth promoters in animals.
 - Establish a robust surveillance system for antibiotic use in agriculture, similar to the **European Surveillance of Veterinary Antimicrobial Consumption (ESVAC)** program.
 - Promote alternatives to antibiotics, such as **probiotics and improved animal husbandry practices**.
- **Improve Wastewater Treatment in Pharmaceutical Manufacturing:** Enforce stricter environmental regulations on pharmaceutical manufacturing, including **mandatory advanced wastewater treatment technologies**.
 - Introduce a **"green pharmacy" certification** for antibiotic manufacturers who meet stringent environmental standards, similar to the **EU's Good Manufacturing Practice (GMP) certification**.
 - Collaborate with industry leaders like **Dr. Reddy's Laboratories**, which has implemented zero liquid discharge systems in **88% of its facilities in India**, to develop best practices for the sector.
 - Invest in research on **innovative wastewater treatment technologies**, such as the **advanced oxidation processes** for pharmaceutical effluent treatment.
- **Enhance Infection Prevention and Control Measures:** Introduce regular infection control audits and link them to hospital accreditation processes.
 - Invest in **infrastructure improvements to reduce overcrowding** and improve sanitation in healthcare facilities, utilizing initiatives like **Ayushman Arogya Mandir**.
 - Implement nationwide hand hygiene campaigns in healthcare settings and promote the use of hand sanitizers and ensure **their availability at all points of care**, leveraging India's capacity for low-cost production of these products.
- **Expand and Strengthen AMR Surveillance:** Rapidly scale up the ICMR's AMR surveillance network to cover more sites. Integrate AMR surveillance with existing disease surveillance programs, such as the **Integrated Disease Surveillance Programme (IDSP)**.

- Implement the **One Health approach to AMR surveillance**, including environmental and animal health sectors, following the model of the recently established One Health Support Unit under the **Department of Animal Husbandry and Dairying**.
- Utilise advanced genomic surveillance techniques, such as **whole-genome sequencing**, to track the emergence and spread of resistant pathogens.
- Collaborate with international initiatives like the **Global Antimicrobial Resistance Surveillance System (GLASS)** to standardise data collection and reporting methodologies.

Conclusion:

Tackling antimicrobial resistance in India requires a **multifaceted approach**, including the **adoption of bacteriophage therapy** as a promising alternative to conventional antibiotics. Strengthening regulatory frameworks, enhancing **public awareness**, and **implementing effective infection control measures** are crucial to curbing the rise of AMR. By fostering collaboration across sectors and prioritising research, India can address this growing public health threat.



Securing India's Interests in the Indian Ocean Region

*This editorial is based on “**The Chagos Treaty and Indian Ocean Security**” which was published in The Hindu on 08/10/2024. The article brings into picture the strategic significance of the Chagos Archipelago’s sovereignty transfer for India, highlighting opportunities for enhanced cooperation with Mauritius. It also points to the challenges posed by the continued US-UK military presence and China’s growing influence in the Indian Ocean Region.*

Tag: GS Paper - 1, Groupings & Agreements Involving India and/or Affecting India’s Interests, Bilateral Groupings & Agreements, India and its Neighbourhood

The recent agreement between **Mauritius and the United Kingdom** to transfer sovereignty of the **Chagos Archipelago** represents a significant shift in the **Indian Ocean Region’s** geopolitical landscape. This development presents both opportunities and challenges for India, given the archipelago’s strategic location between **India and Mauritius**. With Mauritius gaining control, there are prospects for enhanced bilateral cooperation in maritime surveillance, resource exploitation, and development.

However, the continued **US-UK military presence on Diego Garcia** for the next 99 years complicates the situation. This long-term Western military footprint, alongside **China’s rising influence in the region**, requires India to carefully balance its relationships while safeguarding its interests and promoting stability in the Indian Ocean.



What is the Significance of the Indian Ocean Region for India?

- **Strategic Maritime Security:** The Indian Ocean is crucial for India's maritime security, serving as a **buffer against potential threats** and a **pathway for projecting naval power**.
 - India's maritime doctrine emphasizes its role as a **"net security provider"** in the region.
 - The launch of **INS Vikrant**, India's first indigenously built aircraft carrier in 2022, significantly boosts its naval capabilities.
 - There are **17 multilateral and 20 bilateral exercises** that the Navy conducts annually, demonstrating its commitment to maritime security.
 - The establishment of the **Information Fusion Centre - Indian Ocean Region (IFC-IOR)** in 2018 further enhances India's maritime domain awareness and ability to coordinate regional security efforts.
- **Economic Lifeline:** **80% of India's external trade** and **90% of the energy trade** happens through these ocean lines.
 - Additionally, the Indian Ocean maritime trade routes are the **crucial supply chains managing almost 70% of the world's container traffic**.
 - The development of **deep-water ports like Vizhinjam in Kerala**, aims to capture more of the regional transshipment market in the Indian Ocean.
 - India's Blue Economy initiatives, projected to contribute about **4% to GDP**, focus on sustainable use of Indian ocean resources.
 - The **India-Middle East-Europe Economic Corridor (IMEC)** agreement in September 2023 further underscores the Indian Ocean's role in India's economic aspirations.
- **Energy Security:** India heavily relies on the Indian Ocean for its energy security, with about **80% of its crude oil imports traversing these waters**.
 - The country's growing energy needs make securing **sea lanes of communication (SLOCs)** in the Indian Ocean critical.
 - India's strategic oil reserves, with a current capacity of 5.33 million tonnes, provide only a **9.5-day cushion in case of supply disruptions**.
- **Geopolitical Influence:** The Indian Ocean serves as a platform for India to exert its geopolitical influence and counter the growing Chinese presence in the region.
 - To counter growing Chinese influence through the **"String of Pearls" strategy**, India has increased its naval presence and established partnerships with countries like **Seychelles, Mauritius, and Maldives**.
 - India's **"Act East" and "Neighbourhood First" policies** heavily rely on maritime connectivity.
 - The **Indian Ocean Rim Association (IORA)**, with 23 member states including **India**, plays a crucial role in regional cooperation.
 - The expansion of India's military logistics agreements, now covering 10 countries in the region, further enhances its strategic reach.
- **Environmental and Disaster Management:** The Indian Ocean is vital for India's climate stability and disaster management efforts.
 - India's **7,516 km coastline** is vulnerable to rising sea levels and extreme weather events.
 - The **Indian National Centre for Ocean Information Services (INCOIS)** plays a crucial role in ocean monitoring and early warning systems.
 - India's leadership in initiatives like the **Coalition for Disaster Resilient Infrastructure (CDRI)**, showcases its commitment to regional disaster resilience.
 - The country's rapid response to natural disasters, as seen in its **aid to Mozambique after Cyclone Idai in 2019**, enhances its soft power in the region.
- **Scientific Research and Exploration:** The Indian Ocean offers vast opportunities for scientific research and resource exploration, crucial for India's technological advancement.
 - **India's Deep Ocean Mission**, aims to explore and harness deep-sea resources. The **testing of India's Matsya 6000 (scheduled in late October 2024)**, a manned submersible capable of reaching 6,000 metres depth, marks a significant milestone in deep-sea exploration capabilities.
 - India's ongoing **polymetallic nodule exploration in the Central Indian Ocean Basin**, covering an area of **75,000 square kilometres**, positions it as a pioneer in deep-sea mining.
- **Cultural and Diaspora Connections:** The Indian Ocean has historically been a conduit for cultural exchange, shaping India's maritime heritage and diaspora connections.
 - India's diaspora in Indian Ocean rim countries, contributes significantly to bilateral relations and remittances.
 - The revival of ancient maritime links through initiatives like the **Mausam Project, launched in 2014**, strengthens India's cultural diplomacy.

- The recent inauguration of the **BAPS Hindu Temple in Abu Dhabi in February 2024**, the first traditional Hindu temple in the UAE, symbolises the enduring cultural ties facilitated by **Indian Ocean connections**.

What are the Major Challenges that India Encounter in the Indian Ocean Region?

- **Growing Chinese Influence:** China's expanding presence in the Indian Ocean poses a significant challenge to India's regional influence.
 - The **"String of Pearls" strategy**, involving Chinese investments in ports like **Gwadar (Pakistan), Hambantota (Sri Lanka), and Kyaukpyu (Myanmar)**, potentially encircles India.
 - China's first overseas military base in **Djibouti, operational since 2017**, and its increasing naval activities in the region further complicate the strategic landscape.
- **Maritime Security Threats:** India faces persistent maritime security challenges, including piracy, terrorism, and illegal fishing in the Indian Ocean.
 - **Piracy and armed robbery in the Indian Ocean Region (IOR)** witnessed a **20% jump in 2023**, also emerging threats like cyber-attacks on maritime infrastructure are on the rise.
 - The attack on the **MV Chem Pluto off India's west coast in December 2023**, underscores the evolving nature of maritime terrorism.
 - India's efforts to enhance maritime domain awareness, such as the **Information Fusion Centre - Indian Ocean Region (IFC-IOR)**, face challenges in integrating diverse data sources and ensuring real-time information sharing among partner nations.
- **Geopolitical Tensions with Neighbors:** Strained relations with some Indian Ocean neighbors pose challenges to India's regional leadership aspirations.
 - The **recent diplomatic row with the Maldives**, following derogatory comments about the Indian Prime Minister in January 2024, led to calls for boycotting Maldivian tourism.
 - This incident, coupled with the **Maldives' decision to not renew the hydrographic survey agreement with India and India-Out Campaign**, reflects the fragility of regional relationships.
 - While **India and the Maldives** are working to revive their relations following the **recent visit of the Maldivian President to India**, there is still a long way to go, with several concerns that need to be addressed.
- Similarly, the **ongoing fishermen issue with Sri Lanka, with over 200 Indian fishermen arrested in 2023 alone**, continues to be a point of contention.
- These tensions complicate India's efforts to maintain a stable and cooperative Indian Ocean neighborhood.
- **Competition for Resources:** The Indian Ocean's vast resources are increasingly becoming a source of competition and potential conflict.
 - India's Deep Ocean Mission faces competition from countries like **China, which has already secured exploration rights in the Southwest Indian Ocean Ridge**.
 - India's efforts to balance economic interests with environmental sustainability, as seen in its commitment to the **Blue Economy framework**, face implementation challenges.
- **Climate Change and Environmental Degradation:** The Indian Ocean region is highly vulnerable to climate change impacts, posing significant challenges to India's coastal security and economy.
 - In the Indian ocean half of sea level rise is due to the volume of water expanding since the ocean is warming up rapidly.
 - The increasing frequency and intensity of cyclones (like **Cyclone Remal in May 2024**) strain India's disaster management capabilities.
 - Marine pollution, including plastic waste (the **Indian Ocean has the second-largest volume of plastic according to the WEF 2016 report**), threatens biodiversity and fisheries. India's efforts, such as the National Coastal Mission launched in 2019, face challenges in coordinating multi-agency responses and securing adequate funding for large-scale interventions.
- **Maritime Infrastructure and Connectivity Gaps:** Despite significant investments, India still faces challenges in developing adequate maritime infrastructure to fully leverage its Indian Ocean position.
 - The **Sagarmala programme** has seen slow progress with only about **25% of the total projects** being completed as of 2023.
 - Connectivity issues, particularly with island territories like **Andaman and Nicobar Islands**, limit India's ability to project power and respond quickly to regional crises.
 - The recent announcement of a transshipment hub in **Great Nicobar Island**, while promising, faces environmental concerns and funding challenges.

- **Non-traditional Security Threats:** Emerging non-traditional security threats in the Indian Ocean pose complex challenges for India.
 - These include cybersecurity risks to maritime infrastructure, as evidenced by the **ransomware attack on the Jawaharlal Nehru Port Trust in 2017**.
 - The increase in drug trafficking through Indian Ocean routes, with around **2,500 kg of high-purity methamphetamine**, worth about Rs. 15,000 crore, was seized in Indian waters, strains law enforcement capabilities.
 - Also, the ongoing challenge of **illegal, unreported, and unregulated (IUU) fishing**, requires enhanced monitoring and enforcement mechanisms.
- **Balancing Multiple Strategic Partnerships:** India's challenge lies in balancing its strategic partnerships in the Indian Ocean region without alienating key allies or compromising its autonomy.
 - The **Quadrilateral Security Dialogue (Quad) with the US, Japan, and Australia, while strengthening India's position in the Indo-Pacific**, raises concerns about potential containment strategies against China.
 - Simultaneously, India's participation in groupings like **BRICS and SCO**, which include China and Russia, requires careful diplomatic navigation.
 - With **Egypt, Iran, UAE, Saudi Arabia and Ethiopia joining the BRICS** adds another layer of complexity to India's strategic calculus in the Indian Ocean region.
 - The recent agreement between Mauritius and the UK regarding the Chagos Archipelago, which includes **Diego Garcia, presents significant geopolitical challenges for India**.
 - While the transfer of sovereignty to Mauritius could potentially open new avenues for Indian influence, the **guaranteed operation of the US-UK military base for 99 years ensures continued Western presence**.

What Steps can India take to Strengthen its Presence in the Indian Ocean Region?

- **Enhance Maritime Infrastructure Development:** India should accelerate its Sagarmala programme, focusing on key projects that boost connectivity and economic activity.
 - In April 2024, India gained access to the **Sittwe Port in Myanmar, a crucial component of the Kaladan Multi-Modal Transit Transport Project**.
 - India should prioritize similar projects. Additionally, fast-tracking the development of

- the **Great Nicobar transshipment hub**, with a planned investment of INR 72,000 crore, would substantially enhance India's maritime capabilities in the **strategic Malacca Strait**.
- **Enhance Naval Capabilities:** India should accelerate its naval modernization program, focusing on **both blue-water and littoral capabilities**.
 - This includes fast-tracking the production of **more indigenous aircraft carriers like INS Vikrant and expanding the submarine fleet**, particularly nuclear-powered submarines.
 - Investing in unmanned systems, such as **autonomous underwater vehicles (AUVs) and maritime patrol drones**, can significantly boost surveillance capabilities.
 - **The recent approval (December 2023) for procurement of 97 Tejas Light Combat Aircraft** demonstrates India's commitment to enhancing its air power, which is crucial for maritime domain awareness and power projection in the Indian Ocean.
- **Expand Strategic Partnerships:** India should continue to forge and strengthen strategic partnerships with key Indian Ocean nations and extra-regional powers.
 - The **India-France-UAE trilateral initiative, announced in February 2023**, is a prime example of such partnerships.
 - India should work on similar arrangements with other nations, focusing on **joint naval exercises, intelligence sharing, and capacity building**.
 - The recent agreement with **Sri Lanka to jointly develop the Trincomalee oil tank farm**, demonstrates how strategic partnerships can yield tangible economic benefits.
 - Similarly, the recent India-Maldives discussions in **October 2024**, resulted in key agreements, including a **currency swap deal worth INR 30 billion and USD 400 million, Free Trade Agreement (FTA) discussions**, and law enforcement cooperation, and infrastructure projects such as the **repair of a Maldivian Coast Guard vessel**, the launch of the **Rupay card**, and the inauguration of **700 housing units and a new runway at Hanimaadhoo Airport**.
 - These developments underscore the importance of sustained engagement in the region.
- **Strengthen Maritime Domain Awareness:** India should further develop its maritime domain awareness capabilities by expanding the network of coastal radar stations and integrating advanced satellite and AI-based monitoring systems.

- The **Information Fusion Centre - Indian Ocean Region (IFC-IOR)** should be upgraded with real-time data processing capabilities and expanded partnerships with more Indian Ocean littoral states.
- Implementing projects like the **National Maritime Domain Awareness (NMDA)** grid, which aims to interlink naval and coast guard stations, can significantly enhance India's situational awareness.
- The **recent launch of ISRO's Oceansat-3 satellite**, dedicated to oceanic observations, is a step in this direction and should be followed by more specialized maritime surveillance satellites.
- **Develop Strategic Island Territories:** India should accelerate the development of its strategic island territories, particularly the **Andaman and Nicobar Islands and Lakshadweep**.
 - This includes enhancing military infrastructure, improving connectivity, and promoting sustainable economic development.
 - Strategic Initiatives should be undertaken in other islands, including the development of **dual-use airstrips and naval facilities**. Implementing the **Integrated Island Management Plans** for these territories, with a focus on balancing strategic interests with environmental conservation, should be prioritized.
- **Expand Maritime Partnerships:** India should strengthen its maritime partnerships through increased naval exercises, joint patrols, and capacity-building initiatives with Indian Ocean littoral states and major powers.
 - The **expansion of the Malabar Exercise** to include **Australia** as a permanent member from 2020 is a positive step.
 - Initiatives like the **SAGAR (Security and Growth for All in the Region) doctrine** should be backed by concrete actions, such as providing patrol vessels, training, and technical assistance to small island nations to build their maritime capabilities.
- **Invest in Blue Economy Initiatives:** India should aggressively pursue its Blue Economy agenda, focusing on sustainable exploitation of marine resources, development of coastal and marine tourism, and promotion of marine biotechnology.
 - Encouraging **private sector participation in areas like deep-sea mining, marine aquaculture, and offshore renewable energy** can drive innovation and economic growth.

- **Enhance Disaster Response Capabilities:** Given the Indian Ocean's vulnerability to natural disasters, India should further develop its regional disaster response capabilities.
 - This includes **expanding the capacity of the National Disaster Response Force (NDRF)** for maritime disasters and establishing forward operating bases in strategic locations.
 - **INS Jalashwa's arrival at Port Ehoala, Madagascar**, on March 22, 2021, to deliver humanitarian aid as part of the SAGAR initiative marked a positive step in strengthening India's regional outreach.

Conclusion:

India's strategic engagement in the **Indian Ocean Region (IOR)** is crucial for enhancing its maritime security, economic interests, and geopolitical influence. To navigate this complex landscape, India must focus on strengthening its naval capabilities, expanding strategic partnerships, enhancing maritime domain awareness, and actively pursuing its Blue Economy agenda. By adopting a multifaceted approach, **India can effectively assert its role as a key player in ensuring regional stability and security in the IOR.**



Transforming India's Judicial Landscape

This editorial is based on "Case for compassion guiding the judiciary" which was published in Hindustan Times on 09/10/2024. The article brings into picture the urgent need for judicial reform by integrating compassion into the justice delivery system, emphasizing its role in addressing child sexual abuse cases and the plight of marginalized undertrials. It proposes measures like compassion training for judicial officers and a "compassion quotient" to enhance accessibility and fairness in legal proceedings.

Tag: GS Paper - 2, Judiciary, Indian Constitution

The **Indian judiciary** stands at a critical juncture where the **principles of justice and compassion must converge** to address the mounting challenges in the legal system. While the framework of laws and institutions forms the backbone of justice delivery, it is the human element, the compassion of those within the system, that **truly breathes life into these structures**. The alarming increase in pending **child sexual abuse cases**, from **71,000 in 2017 to 236,000 by the end of 2023**, along with the plight of undertrials from marginalized sections languishing in jails, underscores the urgent need for reform.

At the heart of this reform lies the **integration of compassion into the justice delivery mechanism**. The proposal to incorporate **compassion training for judicial and police officers**, evaluating their performance based on a “**compassion quotient**,” and ensuring that legal interpretations uphold human rights without compromising on principles, presents a transformative approach to judicial reform.

What are the Current Major Issues Related to Indian Judiciary?

- **Pendency of Cases:** The Indian judiciary is grappling with an enormous backlog of cases, severely impacting the timely delivery of justice.
 - The **current backlog** in the **Supreme Court** stands at nearly **83,000 cases**, the highest ever recorded.
 - The average pendency of a case in Indian courts is now estimated to be **around 3-5 years**, with some cases dragging on for decades.
 - This **massive backlog not only denies timely justice** to litigants but also erodes public faith in the judicial system.
- **Judicial Vacancies:** The **shortage of judges** across all levels of the judiciary continues to be a pressing concern, contributing significantly to case backlogs.
 - The **Supreme Court is currently operating with 32 judges**, two short of its sanctioned strength (**As of July 2024**) while India has **25 High Courts** with a sanctioned strength of **1,114 judges**, but only **782 positions** are currently filled, leaving **332 judge posts vacant**.
 - The situation is even **more dire in lower courts**, with **over 5,000 vacancies** reported in district and subordinate courts as of **February 2023**.
 - This shortage **not only increases the workload** on existing judges but also **slows down the entire judicial process**. The delay in appointments, often due to disagreements between the judiciary and the executive, further compounds this issue.
- **Infrastructure and Technological Gaps:** Despite efforts to modernize, **many Indian courts still lack adequate infrastructure and technological support**, hindering efficient justice delivery.
 - For the sanctioned strength of 25,081 judges in the district judiciary, there is a shortage of **4,250 courtrooms and 6,021 residential units**.
 - Notably, **42.9% of the total courtrooms** have been under construction for more than 3 years
 - The **e-Courts project**, aimed at digitizing court processes, has made progress but faces challenges in implementation and adoption, **particularly in lower courts and rural areas**.
- Bridging this digital divide is crucial for improving access to justice and reducing case pendency.
- **Lack of Judicial Accountability:** The absence of a **robust mechanism for ensuring judicial accountability** has been a point of concern, potentially affecting public trust in the judiciary.
 - The current system of **impeachment for removing judges** is rarely used and is seen as inadequate for addressing misconduct that falls short of impeachable offenses.
 - The proposal for a **National Judicial Appointments Commission (NJAC)** to replace the collegium system was **struck down by the Supreme Court in 2015**, leading to ongoing debates about judicial independence versus accountability.
 - Recent controversies, such as **allegations of corruption against some judges and questions about post-retirement appointments**, have intensified calls for greater transparency in judicial functioning and appointments.
- **Access to Justice Barriers:** Barriers to accessing justice remain a significant issue, particularly for marginalized and economically weaker sections of society.
 - Over the past decade, Indian prisons have increasingly had more undertrial prisoners, with **their share increasing from 66% of prisoners in 2012 to 76% in 2022**, as revealed in the **Prison Statistics India report** released by the **National Crime Records Bureau**, with a disproportionate number coming from disadvantaged communities and facing caste-based discrimination.
 - On **3rd October, 2024**, the Supreme Court delivered a comprehensive judgment, ruling that the provisions in **Prison Manuals permitting caste-based discrimination are unconstitutional**.
 - The high costs of litigation, complex legal procedures, and language barriers often deter many from seeking legal recourse.
 - Although legal aid services are accessible, they frequently remain overlooked.
 - As per the **India Justice Report 2019**, over **80% of India's 1.3 billion population qualifies for legal aid**, yet only **15 million people** have benefited from it since **NALSA's inception in 1995**.
- **Executive Interference and Judicial Independence:** The delicate balance between judicial independence and executive oversight continues to be a contentious issue.

- Recent years have seen **several instances of perceived executive interference in judicial matters**, raising concerns about the erosion of judicial autonomy.
- The controversy surrounding the **transfer of Justice S. Muralidhar from the Delhi High Court in February 2020**, is often cited as an example.
- **Representation and Diversity:** The lack of diversity in the Indian judiciary, particularly in terms of **gender, caste, and regional representation**, remains a pressing issue.
 - As of 2023, in the High Courts and Supreme Court, women constitute **13.4% and 9.3% of judges** respectively, far below the desired level of representation.
 - The representation of judges from **Scheduled Castes, Scheduled Tribes, and Other Backward Classes** also remains low.
 - A recent report found that in the six states examined, 142 (**84.5%**) of the total 168 seats reserved for the ST category **remain unfilled**.
 - This **lack of diversity not only affects the perception of the judiciary but also potentially impacts** the understanding and interpretation of cases involving marginalized communities.
- **Judicial Overreach and Activism:** The fine line between judicial activism and overreach continues to be a subject of debate.
 - While **judicial activism has led to landmark judgments** protecting fundamental rights, critics argue that it sometimes encroaches upon the legislature's domain.
 - A key case involves the **Anoop Baranwal case (2023)**, where the Supreme Court ruled on the **appointment process for Election Commissioners**, prescribing a selection committee that includes the Prime Minister, Leader of Opposition, and the Chief Justice of India.
 - Critics argue that this judgment infringes on the executive's domain and alters the balance of power within India's democratic framework.
 - These interventions, **while often well-intentioned, raise questions about the separation of powers** and the judiciary's role in policymaking.
- **Enforcement of Judgments:** The challenge of enforcing court orders and judgments effectively remains a significant issue.
 - A large number of court orders, especially those against government bodies, remain unenforced.
 - Despite numerous court orders directing the **government to clean up the Yamuna River**, pollution levels continue to be alarmingly high.

- This is due to a combination of factors, including inadequate infrastructure, lack of political will, and the involvement of powerful interests.
- This not only **undermines the authority of the courts** but also **denies justice to litigants who have successfully pursued their cases**.
 - The lack of a streamlined mechanism for monitoring and ensuring compliance with court orders contributes to this problem, affecting the overall efficacy of the judicial system.
- **e-filing and Digitisation of Case Records:** As of **31st July 2023**, 18,36,627 cases have been e-filed of which 11,88,842 (65%) were e-filed in District Courts. However, as per data submitted by judicial officers on iJuris, only **48.6% of District Court complexes have a functional e-filing facility**.
 - According to the **e-Committee of the Supreme Court of India**, as of November 22, 2022, around **12 billion pages**, mostly comprising legacy records of disposed cases, need to be digitally preserved.
 - However, progress on this preservation has been slow.

What are the Key Recent Initiatives Related to Judicial Reforms in India?

- **National Mission for Justice Delivery and Legal Reforms:** Established in **August 2011**, it seeks to enhance access to justice by reducing delays and arrears while improving accountability through structural changes and performance standards.
- Infrastructure Development**
 - The **Centrally Sponsored Scheme (CSS)** for Judicial Infrastructure has been pivotal in building court halls, residential quarters for judicial officers, lawyers' halls, and digital computer rooms.
 - As of **2023**, the government has released ₹9,755.51 crore since the scheme's inception in 1993-94.
- **Digitalisation Efforts:**
 - **e-Courts and IT Enablement:** The **e-Courts Mission Mode Project** aims to enhance justice delivery through digital solutions. Achievements as of 2023 include:
 - **Computerized courts:** 18,735 district and subordinate courts.
 - **Video conferencing:** 3,240 courts connected to 1,272 jails.
 - **e-Sewa Kendras:** As of 2023, 689 centers providing case information, judgments, and e-filing support.

- **Virtual courts:** 21 virtual courts in 17 States/UTs, handling over 2.53 crore cases and collecting ₹359 crore in fines by January 2023.

Legislative and Policy Reforms: To reduce pendency, several laws have been amended, including:

- **Fast Track and Special Courts:** The government, under the **Fourteenth Finance Commission**, established **Fast Track Courts** for heinous crimes and cases involving vulnerable groups like senior citizens, women, and children.
 - As of **2023**, **843 Fast Track Courts** are operational.
- **1023 Fast Track Special Courts (FTSCs)** for rape and POCSO Act cases have been approved, with 28 States/UTs joining the scheme.
 - **Commercial Courts (Amendment) Act, 2018**
 - Arbitration and Conciliation (Amendment) Act, 2019
- **Alternative Dispute Resolution (ADR) Mechanisms:** Promoting ADR, the **Commercial Courts Act, 2015** was amended in 2018 to mandate **Pre-institution Mediation and Settlement (PIMS)**.
 - **Lok Adalats**, organized nationwide, have settled millions of cases, with **7.53 crore** cases resolved between 2021 and 2023.
- **Tele-Law and Pro Bono Initiatives:** The **Tele-Law programme** (launched in 2017) provides legal advice to disadvantaged groups via **Common Service Centres (CSCs)**.
 - As of February 2023, **34.28 lakh cases** have been registered under Tele-Law.
 - A **Pro Bono Advocates** panel is in place, with lawyers volunteering to provide free legal services through platforms like **NyayaBandhu**.

What Measures can be Adopted to Enhance India's Judiciary?

- **Streamlining Case Management through Technology:** India can significantly reduce case pendency by fully implementing and expanding the **e-Courts project**, focusing on digitization of court records, online case filing, and **AI-assisted case management**.
 - The **Singapore** judiciary's success with its **Integrated Case Management System (ICMS)** serves as an excellent model.
 - In India, the launch of the **FASTER (Fast and Secured Transmission of Electronic Records) system** by the Supreme Court in 2022 for quick transmission of bail orders is a step in the right direction.

- Expanding such initiatives to all levels of courts, **coupled with comprehensive training for judicial staff and lawyers**, can dramatically improve case management efficiency.
- **Alternative Dispute Resolution (ADR) Mechanisms:** Promoting and strengthening **ADR mechanisms** like **mediation, arbitration, and Lok Adalats** can significantly reduce the burden on formal courts.
 - India's recent **Mediation Act, 2023**, provides a **statutory basis for mediation**, but its implementation needs to be accelerated.
 - Establishing more **mediation centers, training professional mediators, and incentivizing ADR through tax benefits or faster enforcement** of settlements can encourage litigants to opt for these faster, less adversarial methods of dispute resolution.
- **Judicial Appointments and Vacancies:** Addressing judicial vacancies requires a two-pronged approach: **streamlining the appointment process and increasing the sanctioned strength of judges**.
 - Chief Justice D.Y. Chandrachud's recent remark that "**Collegium is not merely a search committee**" and a call for a report on **pending appointments from the Attorney General** reflects the urgent need for transparency and efficiency in the process, addressing systemic delays that hinder judicial effectiveness.
 - The current collegium system could be reformed to include a more diverse selection committee, similar to the **UK's Judicial Appointments Commission**, which includes lay members.
 - Additionally, **increasing the retirement age of judges, as done in the UK (to 75 for Supreme Court judges)**, could help retain experienced jurists and reduce vacancies.
- **Specialized Courts and Tribunals:** Establishing more specialized courts and tribunals can expedite case resolution in specific areas of law.
 - For instance, India's **National Company Law Tribunals (NCLTs)** have shown success in resolving corporate disputes efficiently.
 - The recent establishment of **special POCSO courts** is another positive step.
 - **Learning from Germany's system of specialized courts for various legal domains**, India could expand this model to areas like **environmental law, cyber crimes, and intellectual property rights**, ensuring faster and more informed judgments through judges with domain expertise.

- **Legal Aid and Access to Justice:** Enhancing legal aid services is crucial for improving access to justice. India can draw inspiration from the **Netherlands' system, where every citizen is entitled to subsidized legal aid based on income levels.**
 - Strengthening the **National Legal Services Authority by increasing its funding, expanding its reach through mobile legal clinics (as seen in some Indian states),** and partnering with law schools for **pro bono services** can make legal aid more accessible.
 - The introduction of the **Tele-Law service,** providing free legal advice through video conferencing, is a **positive step that can be further expanded and publicized.**
- **Judicial Performance Metrics and Accountability:** Implementing a **transparent system of judicial performance evaluation** can enhance accountability and efficiency.
 - The **United States'** use of judicial performance evaluations in many states, offers a model.
 - India could develop a similar system, **tailored to its context,** a comprehensive, objective evaluation system covering **all levels of judiciary would be beneficial,** ensuring it does not compromise judicial independence.
- **Court Infrastructure and Resource Management:** Improving court infrastructure is crucial for efficient justice delivery.
 - **Japan's investment in modern court facilities** with advanced technology can serve as an inspiration.
 - The **Union Government's Centrally Sponsored Scheme (CSS)** to develop infrastructure in district and subordinate courts, with a total outlay of **₹9,000 crore,** is a positive step, but implementation needs to be accelerated.
 - Focus areas should include **creating more courtrooms, improving facilities for litigants and witnesses,** and ensuring all courts have basic amenities and technology.
 - Efficient resource management, including optimal utilization of court hours and proper case scheduling, can further enhance productivity.
- **Implementing Compassion Training for Judicial Officers:** Implementing comprehensive compassion training programs for judicial officers at all levels can

significantly enhance the quality and perceived fairness of justice delivery.

- Such training could include **modules on emotional intelligence, cultural sensitivity, and understanding of social contexts.**
- In India, the **National Judicial Academy** could incorporate mandatory compassion training in its curriculum for judges, focusing on real-case scenarios and role-playing exercises.
 - Regular refresher courses and evaluation of judges based on their **empathy quotient, alongside legal acumen, can ensure sustained focus on compassionate justice delivery.**
- Also, Mandatory continuing legal education for judges and lawyers can significantly improve the quality of legal services and judicial decision-making.
 - Singapore's mandatory **Continuing Professional Development (CPD) scheme** for lawyers, is an excellent model.
- The **Bangalore Principles of Judicial Conduct** provide a framework for ethical conduct among judges, emphasizing integrity, impartiality, and accountability.
- **Judicial Outreach and Public Education:** Improving public understanding of the legal system can reduce unnecessary litigation and improve compliance with court orders.
 - The Indian Supreme Court's recent initiatives like **live streaming of proceedings and publishing judgments** in regional languages are commendable steps towards transparency.
 - Expanding these efforts **through public lectures, open court days, and educational programs** in schools and colleges can foster better public engagement with the judiciary.

Conclusion:

Indian judiciary stands at a pivotal moment where embracing compassion alongside legal principles can profoundly transform justice delivery. Integrating compassion training and improving public understanding of legal processes can foster a more **empathetic and effective judicial framework.** Through these comprehensive reforms, India can ensure that **justice is not only served but is also perceived as fair, equitable, and accessible to all citizens.**



India's Innovation Surge: Climbing the Global Ladder

*This editorial is based on “**Building the ecosystem for product innovation**” which was published in Hindustan Times on 10/10/2024. The article brings into picture India's impressive rise in innovation, highlighting key drivers like government initiatives, digital adoption, and a thriving startup ecosystem. However, it also addresses critical challenges, particularly the gap between patent generation and commercialization, and the need for stronger academia-industry collaboration to sustain this momentum globally.*

Tag: GS Paper - 2, Government Policies & Interventions, Issues Relating to Development, GS Paper - 3, Growth & Development

India's innovation landscape has been on a remarkable upward trajectory, as evidenced by its climb from **81st to 40th position in the Global Innovation Index between 2015 and 2022**. This progress is fueled by increased investment in research and development, a flourishing startup culture, and the widespread adoption of digital technologies. Government initiatives like Digital India, Startup India, and the recently announced **Anusandhan National Research Fund** with a budget of **₹1 lakh crore** are laying a robust foundation for innovation. Key sectors such as **information technology, biotechnology, and renewable energy** are spearheading this transformation, positioning India as a potential global leader in innovation.

However, significant challenges persist that hinder India's full innovation potential. Despite a surge in patent registrations, with over **one lakh patents granted in 2023**, the journey from patent publication to commercialization remains arduous. This results in many innovations failing to make a tangible market impact. Addressing these challenges, particularly by **bridging the gap between research institutions and industry**, and fostering closer ties between academia and the private sector, will be crucial for India to fully harness its innovation capabilities and compete on the global stage.

What are the Key Growth Drivers of India's Innovation Ecosystem?

- **Government Initiatives and Policy Support:** The Indian government's proactive approach has been a significant driver for innovation.
 - Flagship programs like **'Digital India'** and **'Startup India'** have created a conducive environment for tech innovation and entrepreneurship.

- The recent announcement of the **Anusandhan National Research Fund, with a substantial budget of ₹1 lakh crore**, demonstrates the government's commitment to fostering research and innovation.
- This fund aims to support basic research, prototype development, and encourage private sector participation in commercial research.
- **Thriving Startup Ecosystem:** India's startup ecosystem has become a powerhouse of innovation, attracting global attention and investments.
 - The number of technology startups in India surged from **around 2,000 in 2014 to approximately 31,000 in 2023**.
 - Indian tech startups raised **USD 4.1 billion** in H1 2024, **4% higher than H2 2023**, remaining fourth-highest funded country globally.
 - As of 3rd October 2023, India is home to **111 unicorns** with a total valuation of **USD 349.67 billion**.
 - Sectors like **fintech, edtech, and healthtech** are at the forefront, with companies like **CRED** and **PharmEasy** revolutionizing their respective industries.
 - The success of these startups is not only driving innovation but also **creating a ripple effect**, inspiring more entrepreneurs and attracting talent to the innovation sector.
- **Academia-Industry Collaboration:** While still evolving, the collaboration between academia and industry is emerging as a crucial driver of innovation.
 - The establishment of **research parks at IITs** and the setting up of industry-sponsored labs are bridging the gap between academic research and commercial application.
 - With 240 startups valued at Rs 10,500 crore incubated over 8 years, **IIT Madras is India's hi-tech haven**.
 - The government's push for industry-relevant curricula through the **National Education Policy 2020** is expected to further strengthen this collaboration.
- **Geographical Diversification of Innovation Hubs:** While Bangalore remains India's Silicon Valley, there's a notable rise of innovation clusters across tier-2 and tier-3 cities.
 - Cities like **Indore, Jaipur, and Kochi** are emerging as new hotspots for startups and R&D centers.
 - The **Kerala Startup Mission, for instance, has nurtured over 4,000 startups** since its inception.

- **Economic Survey 2023-24** stated that over 45% of the start-ups emerged out of Tier 2 and Tier 3 cities.
 - This geographical diversification is democratizing innovation, tapping into diverse talent pools, and addressing region-specific challenges.
- **Frugal Innovation and Reverse Innovation:** India's unique market conditions are fostering a culture of frugal innovation, creating high-quality, low-cost solutions that are increasingly finding global applications.
 - This '**Jugaad**' innovation approach is now being systematized and scaled. For instance, **Bengaluru-based Biocon's 'ALZUMAb' for Covid-19 treatment**, developed at a fraction of the cost of similar drugs, exemplifies this trend.
 - The success of such innovations is attracting global attention, with multinational companies like GE and Siemens setting up R&D centers in India to develop products for global markets.

What are the Key Issues Hindering the Growth of Innovation Ecosystems in India?

- **Underutilization and Commercialization of Patents:** Despite a significant increase in patent filings, with over **100,000 patents granted in 2023**, the commercialization of these patents remains a major challenge.
 - According to the Fraunhofer Institute report, India's IPR payments tripled from **USD 4.8 billion in 2014** to **USD 14.3 billion in 2024**, while IPR receipts only doubled from USD 0.7 billion to USD 1.5 billion.
 - So while India recovered **14% in receipts** (compared to payments) in 2014, it could only manage to recover **11% in 2023**.
 - This indicates a substantial **gap between patent generation and monetization**.
 - The Patent Box regime, introduced in 2016 to offer tax incentives, has had limited impact, with **only a small fraction of companies utilizing this benefit**.
 - This underutilization **not only represents missed economic opportunities** but also indicates a disconnect between research outputs and market needs, hindering the translation of innovations into commercial products.
- **Inadequate R&D Spending:** India's R&D expenditure as a percentage of GDP stands at a mere **0.65%**, significantly lower than countries like **South Korea (4.8%)** and **China (2.4%)**.

- This underinvestment is particularly acute in the private sector.
 - The **Private sector's contribution to R&D in India is at 36.4%** of the country's gross expenditure on R&D (GERD), whereas **China and the US have contributions of 77% and 75%, respectively**, compared to **70-80% in developed economies**.
- This lack of investment hampers the development of cutting-edge technologies and limits India's global competitiveness.
- **Weak Academia-Industry Linkages:** The collaboration between academic institutions and industry in India remains suboptimal, hindering the flow of knowledge and innovation.
 - This disconnect is evident in the **low number of industry-sponsored research projects in universities** and the limited commercial application of academic research.
 - The lack of **industry-relevant curricula** and limited faculty involvement in industrial projects further exacerbate this issue.
 - While initiatives like the **Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC)** aim to bridge this gap, tangible results are yet to be seen on a large scale.
- **Skill Gap and Talent Retention:** Despite having a large youth population, India faces a significant skill gap in emerging technologies.
 - As technology evolves and adoption increases multifold, the **World Economic Forum predicts that 50% of all employees will need reskilling by 2025** to stay relevant.
 - This skills mismatch is particularly acute in areas like **AI, data science, and IoT**. Additionally, brain drain continues to be a challenge.
 - While initiatives like Skill India and the New Education Policy 2020 aim to address these issues, their impact is yet to fully materialize.
 - The **skill gap not only hampers innovation but also affects India's ability to leverage its demographic dividend** effectively.
- **Limited Access to Risk Capital:** While India's startup ecosystem has seen significant growth, access to risk capital, especially for deep-tech and hardware startups, remains a challenge.
 - For instance, according to the report for the year **2023**, funding for Indian deeptech startups **decreased by 77%**.
 - The lack of domestic venture capital and limited participation of institutional investors in early-stage funding further compound this issue.

- While government initiatives like the **Fund of Funds for Startups** have provided some support, the scale of funding available for **high-risk, high-impact innovations** remains inadequate compared to global innovation hubs.
- **Regulatory Hurdles and Ease of Doing Business:** Despite improvements in India's ease of doing business ranking, **regulatory complexities continue to hinder innovation, especially in emerging technology areas.**
 - For instance, the **drone industry faced significant hurdles until the liberalization of drone rules in 2021.**
 - Similarly, the cryptocurrency and blockchain sector operates in a **regulatory grey area**, hampering innovation in fintech.
 - The time and cost involved in regulatory compliance divert resources from core R&D activities.

What are the Measures can be Adopted to Enhance the Growth of Innovation Ecosystem in India?

- **Strengthening Patent Commercialization:** To address the underutilization of patents, India should establish a **robust patent commercialization framework.**
 - This could involve creating a national patent marketplace, similar to **Denmark's IP Marketplace**, which has facilitated many technology transfers since its inception.
 - Implementing a system of innovation vouchers, like the **UK's Innovation Vouchers scheme**, could encourage SMEs to collaborate with research institutions for patent commercialization.
 - Additionally, expanding the scope of the **Patent Box regime to include a wider range of IP-derived income** and offering higher tax concessions for the first few years of commercialization could incentivize patent utilization.
- **Boosting R&D Expenditure:** To elevate R&D spending, India should implement a multi-pronged approach.
 - Introducing a **weighted tax deduction of 200-250% for R&D expenditure** in priority sectors like **clean energy, biotechnology, and advanced manufacturing** could stimulate private sector investment.
 - Establishing sector-specific R&D funds, co-funded by the government and industry, **similar to Israel's MAGNET program** could drive collaborative research.

- The government should aim to increase public R&D spending, with a clear roadmap for reaching the 2% target.
- Implementing a **national R&D credit scheme**, modeled on the **US R&D Tax Credit**, could further incentivize corporate R&D spending.
- **Fostering Academia-Industry Collaboration:** To bridge the academia-industry gap, India should mandate that all centrally-funded educational institutions allocate a significant amount of their budget for industry-collaborative projects.
 - Implementing a national **"Professors of Practice" program**, bringing industry experts into academia, could enhance practical learning.
 - Establishing **Innovation and Entrepreneurship Development Centres (IEDCs)** in all higher education institutions, similar to the **Kerala Startup Mission's model which has set up over 300 IEDCs**, could foster an innovation culture.
 - Additionally, introducing a policy requiring **publicly-funded research** to have at least one industry partner could ensure research relevance and applicability.
- **Addressing the Skill Gap:** To tackle the skill gap, India should launch a separate **National Digital Skills Mission under Skill India**, aiming to upskill professionals in emerging technologies.
 - This could be modeled on **Singapore's SkillsFuture initiative.**
 - Implementing an **AI-driven national skills forecasting system**, similar to the **EU Skills Panorama**, could help align education with industry needs.
 - Establishing **Centers of Excellence** in emerging technologies across all states, in partnership with leading tech companies, could provide cutting-edge training.
 - To address brain drain, India could introduce a **"Reverse Brain Drain" scheme**, offering attractive packages to bring back talented researchers and innovators from abroad.
- **Enhancing Access to Risk Capital:** To improve access to risk capital, India should establish a **Deep Tech Fund of Funds**, to catalyze investment in frontier technologies.
 - Implementing a program similar to **Israel's Yozma initiative**, which transformed Israel's venture capital industry, could attract global VC firms to India.
 - Introducing a **"Startup Stock Exchange"** for easier public listing of innovative startups, could provide an alternative fundraising avenue.

- Creating sector-specific innovation funds, **co-invested by the government and industry leaders**, could target strategic areas like quantum computing, advanced materials, and biotech.
- **Streamlining Regulatory Processes:** To address regulatory hurdles, India should implement a **“Regulatory Sandbox”** approach across all sectors.
 - Introducing a **“One Nation, One Permit” system for startups**, allowing them to operate across states with a single license, could ease compliance burdens.
 - Implementing an AI-powered regulatory compliance assistant for startups, could simplify the regulatory navigation process.
 - Additionally, mandating that all new regulations undergo an **“Innovation Impact Assessment”** to ensure they don’t inadvertently hinder innovation could create a more supportive regulatory environment.

Conclusion:

India’s innovation landscape has made remarkable strides, driven by **proactive government initiatives**, a thriving startup ecosystem, and growing academia-industry collaborations. By addressing these issues through **targeted reforms, stronger partnerships, and enhanced skill development**, India can solidify its position as a global innovation leader. The path forward requires a holistic approach that aligns market needs with cutting-edge research and entrepreneurship.



Empowering Agriculture Through Carbon Credits

*This editorial is based on “**Ways for India to realise carbon credits potential**” which was published in The Hindu Business line on 08/10/2024. It emphasizes the need to maximize India’s carbon credit potential by tackling market challenges, promoting sustainable agriculture, and ensuring transparency and accountability in carbon credit issuance.*

Tag: GS Paper - 3, Conservation, Groupings & Agreements Involving India and/or Affecting India’s Interests

The **Kyoto Protocol** laid the foundation for **carbon credits (CC)** as a financial innovation aimed at reducing **greenhouse gas (GHG)**. Carbon markets allow

corporations to purchase CC from projects that mitigate emissions through various means, including afforestation, renewable energy, and methane capture.

Each CC purchased allows an emitter to emit **one tonne of greenhouse gasses**, enabling them to market themselves as **carbon neutral**. **Agriculture** is highlighted as a major contributor to India’s emissions, with the potential for reduced emissions through natural farming practices.

Shifting to these methods can reduce farmers’ input costs and enhance **soil health**, qualifying them to receive carbon credits. However, there are challenges in developing a **viable agricultural project** that generates carbon credits, including high costs and extended timelines for implementation.

Note:

➤ The Kyoto Protocol:

- It provides for **three mechanisms** that enable countries, or operators in developed countries, to acquire greenhouse gas reduction credits:
 - Under **Joint Implementation (JI)**, a developed country with relatively high costs of domestic greenhouse reduction would set up a project in another developed country.
 - Under the **Clean Development Mechanism (CDM)**, a developed country can “sponsor” a greenhouse gas reduction project in a developing country where the cost of greenhouse gas reduction project activities is usually much lower, but the atmospheric effect is globally equivalent. The developed country would be given credits for meeting its emission reduction targets, while the developing country would receive capital investment and clean technology or beneficial change in land use.
 - Under **International Emissions Trading (IET)**, countries can trade in the international carbon credit market to cover their shortfall in Assigned Amount Units (AAUs). Countries with surplus units can sell them to countries that are exceeding their emission targets under Annex B of the Kyoto Protocol.

What is Carbon Credit?

- **About:** A carbon credit also referred to as a **carbon offset**, represents a **credit for greenhouse gas emissions** that have been reduced or removed from the atmosphere through an emission reduction project.

- These credits can be utilized by governments, industries, or individuals to offset the emissions they produce elsewhere. Entities that find it challenging to reduce their emissions can continue operations, albeit at a higher financial cost.
- **Key Features:** Carbon credits are part of **cap-and-trade systems**, where governments set a cap on total greenhouse gas emissions. Companies that reduce their emissions below the cap can sell their excess credits to other companies that exceed their limits.
- **Types of Markets:**
 - **Compliance Market:** Governed by national or international legislation, such as the **European Union Emissions Trading Scheme (EU ETS)**, where companies are mandated to adhere to emission limits.
 - **Voluntary Markets:** Allow individuals and companies to purchase carbon credits voluntarily to offset their emissions. This is often pursued for **corporate social responsibility (CSR)** initiatives or to achieve sustainability goals.
- **Importance of Carbon Credits:**
 - **Mitigation of Climate Change:** Carbon credits create economic incentives for reducing **greenhouse gas emissions**, contributing to international efforts to combat climate change and achieve targets set in agreements such as the **Paris Agreement**.
 - **Funding Sustainable Development:** The revenues generated from the sale of carbon credits can be reinvested in sustainable practices, renewable energy projects, and other initiatives that promote environmental conservation and resilience.
 - **Economic Opportunities:** The carbon credit market offers new business opportunities for companies specializing in environmental services, renewable energy, and sustainable agriculture.

What is the Role of Carbon Credits in Agriculture?

- **Economic Incentives for Farmers:** According to **NITI Aayog**, Indian agriculture contributes **13%** of a nation's gross emissions. By adopting sustainable practices that reduce emissions or enhance **carbon sequestration**, farmers can earn carbon credits.
- **Market Opportunities:** The global carbon credit market is growing, with prices for carbon credits ranging from **USD 15 to USD 50 per ton**. This presents a lucrative opportunity for farmers to monetize their sustainability efforts.
- **Promotion of Eco-Friendly Farming:** Carbon credit programs encourage farmers to implement sustainable agricultural practices such as **agroforestry**,

cover cropping, reduced tillage, and organic farming. These practices not only generate carbon credits but also improve biodiversity and soil health.

- **Sustainable agricultural practices:** It has the potential to sequester substantial amounts of **carbon dioxide (CO₂)** from the atmosphere, helping to offset emissions produced in other sectors.
- **Soil Health Improvement:** Practices associated with carbon credit generation often enhance soil organic matter, leading to healthier soils that can support higher crop yields.
- **Support for National Commitments:** India has set an ambitious target of achieving net **zero emissions by 2070**. Carbon credits offer a mechanism for the agricultural sector to play a vital role in meeting these commitments.
- Many countries, including India, have committed to reducing their greenhouse gas emissions under **international agreements like the Paris Agreement**. Carbon credits provide a mechanism for the agricultural sector to contribute to these commitments.

What are Global Carbon Farming Initiatives?

- **Carbon Trading:** In certain nations such as the US, Australia, New Zealand, and Canada, voluntary carbon markets are emerging.
 - These platforms enable farmers to earn extra income by engaging in verified carbon sequestration endeavours, thereby encouraging the uptake of carbon farming techniques.
- **Other Global Efforts:** Initiatives like the **'4 per 1000' initiative**.
 - **Kenya's Agricultural Carbon Project (backed by the World Bank)** was introduced at the 2015 United Nations Climate Change Conference (COP21) in Paris.
 - Australia's Carbon Farming Initiative, advocate for carbon farming on a global scale.
- **India's Legal Framework:** The Government of India passed an **amendment in 2022 to the Energy Conservation Act 2001**, which lays the foundation for the Indian Carbon Market. Following this, the **Council On Energy, Environment And Water (CEEW)** conducted an industry stakeholder discussion to understand their concerns and perspectives.
 - This issue briefly deconstructs the two key typologies of carbon markets – project-based/offset and **Emission Trading Scheme (ETS)** markets and outlines their key features that determine their environmental integrity and functional boundaries.

What are the Challenges of Carbon Credits in Agriculture?

- **Complexity of Carbon Accounting:** Accurately measuring carbon sequestration and emissions reductions in agriculture is challenging due to variations in soil, weather, and farming techniques.
 - The lack of standardized methodologies causes discrepancies in credit valuation, and the **United Nations Development Program (UNDP)** has raised concerns about double counting and greenwashing in the process.
- **Fund Requirements:** Transitioning to sustainable practices that generate carbon credits often requires significant upfront investment in technology, training, and infrastructure, which may be a barrier for smallholder farmers.
 - Moreover, adopting such practices may initially lead to losses; for example, Sri Lanka's shift to organic farming resulted in a severe food crisis
- **Market Access and Participation:** Many farmers are **unaware of carbon credit programs** and how to participate, which restricts their access to potential revenue. Additionally, they face challenges in entering carbon markets due to **administrative burdens, limited resources**, and difficulties meeting project scale requirements.
- **Regulatory and Policy Uncertainty:** Changes in government policies and regulations related to carbon credits can create uncertainty for farmers and investors, potentially discouraging participation in carbon credit programs.
- **Impact of Climate Variability:** Extreme weather events and climate change can affect the ability of agricultural practices to sequester carbon effectively, jeopardizing credit generation.
 - **For example**, Soil erosion from heavy rains or extreme temperatures **can reduce the soil's ability to sequester carbon**, increasing uncertainty in the value and reliability of carbon credits from agricultural practices.

How Can Carbon Credits Be Effectively Adopted in Agriculture?

- **Access to Financial Resources:**
 - **Microfinance and Grants:** Facilitate access to microloans, grants, or subsidies for farmers looking to invest in sustainable practices that generate carbon credits.

- **For example**, farmers in Kenya have accessed microloans through programs like the African Agricultural Capital Fund, enabling them to implement practices that improve soil carbon sequestration.
- **Incentives for Participation:** Governments can offer financial incentives for farmers adopting practices that contribute to carbon credit generation.
 - **In December 2023**, the Government of India introduced the **Carbon Credit Trading Scheme** to implement a carbon trading mechanism and promote the Voluntary Carbon Market (VCM) in the agricultural sector.
- Programs like these can provide additional revenue streams to incentivize participation.
- **Standardization and Certification:**
 - **Establish Clear Methodologies:** Develop standardized methodologies for measuring and verifying carbon sequestration and emissions reductions in agriculture, making it easier for farmers to participate in carbon credit programs.
 - **Certification Bodies:** Establishing reputable certification bodies is key for transparency and credibility. For example, **Verra's Verified Carbon Standard (VCS)** certifies agricultural carbon credits, ensuring they meet strict quality and reporting standards.
- **Integration with Existing Agricultural Policies:**
 - **Align Carbon Credit Programs with National Policies:** Integrate carbon credit initiatives into existing agricultural and environmental policies to ensure coherent support and alignment with national goals.
 - **Promote Sustainability Goals:** Encourage farmers to adopt carbon credit practices as part of broader sustainability objectives, such as improving soil health and biodiversity.
- **Community Engagement and Participation:**
 - **Involve Local Communities:** Encourage **community-based initiatives** that empower farmers to collectively engage in carbon credit programs, sharing resources and knowledge.
 - **Stakeholder Collaboration:** Foster collaboration among farmers, government agencies, NGOs, and private sector players to create a supportive ecosystem for carbon credit adoption.



Reinforcing the Right to Information

This editorial is based on “Scuttling people’s right to information” which was published in The Hindu on 14/10/2024. The article brings into picture the systematic weakening of the RTI Act, citing government inaction, biased appointments, and recent legislative changes as key issues. It stresses the need to address these challenges to uphold transparency and accountability

Tag: GS Paper -2, Right to Information, Quasi Judicial Bodies

The **Right to Information (RTI) Act of 2005** has been a cornerstone of transparency and accountability in India for nearly two decades. It has empowered citizens to expose corruption and hold power to account, from **uncovering irregularities in basic rights delivery** to revealing the **truth behind opaque schemes like electoral bonds**. However, the effectiveness of the RTI Act is being **systematically undermined through various means**.

The delay in appointing information commissioners has caused commissions to become defunct, leading to a rising backlog of appeals. When appointments are made, they often favor retired officials or those with political connections, resulting in a reluctance to enforce the law stringently. Recent legislative changes, including amendments to the **RTI Act and provisions in the Digital Personal Data Protection Act, 2023** have further weakened the law’s potency. As we enter the **20th year of this landmark legislation**, it is crucial to address these challenges to preserve the spirit of transparency and accountability that the RTI Act embodies.

How has the Right to Information Evolved in India?

- **1975-1977-Seeds of Transparency Movement:** During the **Emergency period**, civil liberties were suspended, highlighting the need for government accountability.
 - This period in Indian democracy sparked discussions about the **right to information among activists and intellectuals**.
 - While **no concrete legislative steps were taken at this time**, the experience of the Emergency laid the groundwork for future transparency initiatives, as citizens realized the dangers of an opaque government.

- **1975- Supreme Court Judgment on Right to Information:** In the case of the **State of U.P. v. Raj Narain (1975)**, the Supreme Court recognized the right to information as part of the fundamental right to freedom of speech and expression under Article 19(1)(a) of the Constitution.
 - In the case of **S.P. Gupta Vs. Union of India (1981)**, SC emphasized that the **principle of open government** stems from the implicit right to know within the right to free speech and expression under Article 19(1)(a).
 - SC stated that **government information disclosure should be the norm**, with secrecy as the exception.
- **1990-Mazdoor Kisan Shakti Sangathan (MKSS) Movement:** The **MKSS**, founded in Rajasthan, began a grassroots campaign for the right to information, focusing on access to local government records.
 - Their innovative “**Jan Sunwai**” (public hearings) **exposed corruption** in public works and galvanized support for transparency.
 - This movement demonstrated the **power of information in combating corruption** and became a model for RTI advocacy across India.
- **1997-2001-State-level RTI Laws:** Several states, including **Tamil Nadu (1997)**, **Goa (1997)**, **Rajasthan (2000)**, **Karnataka (2000)**, **Delhi (2001)** enacted their own RTI laws.
 - These state-level initiatives served as precursors to the national law and provided valuable experiences in implementation.
 - For instance, the **Maharashtra RTI Act of 2002 was particularly robust and became a model for other states**.
 - These state laws varied in their effectiveness but demonstrated growing public demand for transparency legislation across India.
- **2002-Freedom of Information Act:** The central government passed the **Freedom of Information Act**, but it was never notified and thus never came into force.
 - This act was criticized for its **weak provisions and numerous exemptions**.
 - The failure of this act highlighted the need for a more comprehensive and citizen-friendly law.
 - Civil society organizations continued to push for a stronger national RTI law, using the **shortcomings of the Freedom of Information Act** to argue for more robust provisions.

- **2005-Enactment of the Right to Information Act:** The RTI Act was passed by Parliament and came into force in **October, 2005**.
 - It mandated **timely response to citizen requests for government information**, established Information Commissions at the central and state levels, and included provisions for penalties for non-compliance.
 - The Act **covered all levels of government and even included private bodies substantially funded by the government**.
 - This landmark legislation was hailed as one of the world's most progressive transparency laws at the time.
- **2006-2010- Early Implementation and Impact** The initial years saw a surge in RTI applications, with citizens using the Act to expose corruption and demand accountability.
 - Notable exposures included the **Adarsh Housing Society scam and irregularities in the 2G spectrum allocation**.
 - However, challenges such as **backlogs in Information Commissions** and resistance from bureaucracy also became apparent.
- **2011-2019-Judicial Interventions and Expansion:** Several Supreme Court judgments further strengthened the RTI Act.
 - In 2013, it mandated that **political parties should be considered public authorities under the RTI Act**, though this ruling faced resistance in implementation.
 - However, the assassination of prominent RTI activists like **Shehla Masood** in 2011 highlighted the **growing risks faced by information seekers**.
 - In 2019, the Supreme Court held that the **Office of the Chief Justice of India (CJI)** is a 'public authority' under the Right to Information (RTI) Act
- **Right to Information (Amendment) Act, 2019:** This amendment changed the tenure of the Chief Information Commissioner (CIC) and Information Commissioners (ICs) to a **3-year term** set by the central government, replacing the previous **5-year term**.
 - It also allowed the central government to determine their salaries and removed pension deductions for prior government service upon their appointment.

- **Amendment in 2023: Section 44(3) of the Digital Personal Data Protection Act exempted all personal information from RTI disclosure** and removed previous exceptions allowing its release.

How is the RTI Act's Effectiveness Being Undermined?

- **Understaffed and Defunct Information Commissions:** Many state information commissions are either **non-functional or severely understaffed**, leading to massive backlogs of appeals and complaints.
 - According to the **2023-24 Satark Nagrik Sangathan report**, **7 out of 29 information commissions** were defunct for varying periods last year.
 - **Jharkhand's commission has been non-functional for over 4 years**, while **Tripura and Telangana** have been defunct for 3 years and one and a half years, respectively.
 - The **Central Information Commission** has **8 out of 11 posts vacant**. This severe understaffing has resulted in **over 4 lakh pending appeals and complaints** across India, with some states like **Chhattisgarh and Bihar not expected to dispose of fresh appeals until 2029**.
- **Deliberate Weakening of the Act through Amendments:** Recent legislative changes have significantly diluted the **RTI Act's powers**.
 - The 2019 amendment empowered the **central government to determine the tenure, salaries, and post-retirement benefits** of all information commissioners, potentially compromising their autonomy.
 - More recently, the **Digital Personal Data Protection Act, 2023, amended Section 8(1)(j) of the RTI Act** to exempt all personal information from disclosure, removing the earlier provision that allowed disclosure if there was a larger public interest.
 - These amendments have **made it easier for authorities to deny information requests, citing personal privacy concerns**, even when there might be a compelling public interest in disclosure.
- **Lack of Penalties for Non-Compliance:** Information commissions are **failing to impose penalties on officials who violate the RTI Act**, creating a culture of impunity.
 - The Satark Nagrik Sangathan report reveals that **commissions did not impose penalties in 95% of the cases** where penalties could have been imposed.

- This lack of consequences for non-compliance **encourages public information officers to take liberties with the law**, leading to unanswered applications, delayed responses, or illegitimate refusals.
- The **absence of a robust penalty system** undermines the Act's effectiveness in ensuring timely and accurate information disclosure.
- **Political Appointments and Lack of Diversity in Information Commissions:** Critics argue that the majority of appointees to information commissions are **either retired government officials or individuals with political connections**, potentially compromising the commissions' independence.
 - This lack of diversity can lead to a **reluctance to act against violations of the transparency law**, as commissioners may be inclined to protect their former colleagues or political patrons.
 - The **absence of representation from diverse backgrounds**, such as academia, civil society, or journalism, limits the commissions' ability to bring fresh perspectives and rigorous scrutiny to information requests, particularly those that might be politically sensitive.
 - Also, a recent report reveals that since the passage of the Right to Information Act in 2005, **merely 9% of all information commissioners across the country have been women.**
- **Threats and Violence Against RTI Activists:** The dangerous environment for RTI activists severely hampers the Act's effectiveness.
 - According to **Transparency International India**, nearly 100 people have been fatally harmed for using the RTI Act, and thousands more have been assaulted, threatened, or faced false cases.
 - The **Whistleblowers Protection Act**, passed in 2014 to address this issue, remains **unimplemented due to the government's failure to formulate necessary rules.**
 - This climate of fear **discourages many citizens from filing RTI requests or pursuing appeals**, especially on sensitive issues involving powerful interests, thereby limiting the Act's potential to expose corruption and maladministration.
- **Increasing Use of Exemption Clauses:** Public authorities are increasingly using exemption clauses within the RTI Act to withhold information.
 - The recent amendment expanding the scope of personal information exemption is a prime example.

- Additionally, authorities often invoke **Section 8(1)(a)** related to national security or **Section 8(1)(d)** concerning commercial confidence to deny information requests.
- For instance, in 2023, the **government refused to disclose details about the PM CARES Fund**, citing these exemptions. This trend of liberal interpretation of exemption clauses is significantly reducing the transparency that the Act was designed to promote.
- **Technological Challenges and Digital Divide:** While digitalization has improved access to information in some ways, it has also created new barriers.
 - Many **government websites are poorly maintained**, with outdated or incomplete information.
 - The shift towards **online RTI filing** has excluded citizens without internet access or digital literacy.
 - **45% of the Indian population, or about 665 million citizens**, do not access the internet as of 2023, according to a IAMAI-Kantar study.
 - This digital divide is **creating a new form of information inequality**, contrary to the Act's intention of **universal access to information.**

What Measures can be Adopted to Enhance the Effectiveness of RTI?

- **Streamline and Expedite Appointment Processes:** Implement a transparent and time-bound process for appointing **Information Commissioners at both central and state levels.**
 - Establish an **independent selection committee** that includes opposition members, civil society representatives, and legal experts to ensure diverse and qualified appointments.
 - Mandate that **vacancies be filled within a specified timeframe**, perhaps 30 days before a position becomes vacant.
 - This measure would address the current crisis of understaffed commissions and reduce political interference in the appointment process.
- **Enhance Digital Infrastructure and Accessibility:** Integrate **artificial intelligence to categorize and route applications efficiently**, for tracking RTI applications across all public authorities, reducing processing time.
 - Establish **RTI kiosks in rural areas and provide mobile RTI services using Common Service Centres** to bridge the digital divide.
 - This digital transformation would **improve accessibility, reduce processing times**, and create a more transparent system for monitoring RTI applications.

- **Strengthen Penalty Provisions and Enforcement:** Amend the RTI Act to include **mandatory penalties for officials who willfully deny or delay information** without reasonable cause.
 - Introduce a system of **personal accountability where repeated violations** affect an official's service record and promotion prospects.
 - Establish an **independent enforcement wing within Information Commissions** to investigate and prosecute serious violations of the RTI Act.
 - These measures would create a stronger deterrent against non-compliance and foster a culture of transparency within public authorities.
- **Implement Comprehensive Protection for RTI Activists:** Enact and operationalize the **Whistleblower Protection Act** with robust provisions for protecting RTI activists.
 - Establish a **dedicated helpline and rapid response system for RTI users** facing threats or harassment.
 - Create a **special investigative unit at the state level to handle cases of attacks on RTI activists**, ensuring swift and impartial investigations.
 - Introduce provisions for exemplary punishment for those found guilty of harming or threatening RTI users. These steps would address the growing concerns about the safety of RTI activists and encourage more citizens to use the Act without fear.
- **Mandatory Proactive Disclosure and Open Data Initiatives:** Expand and strictly enforce **Section 4(1)(b) of the RTI Act**, which mandates proactive disclosure of information by public authorities.
 - Implement an **'Open by Default' policy** where all non-sensitive government data is automatically made public in machine-readable formats.
 - Introduce **penalties for public authorities** that fail to comply with proactive disclosure norms. This approach would reduce the need for individual RTI applications and promote a culture of openness in governance.
- **Regular Training and Capacity Building:** Institute mandatory, regular training programs for **Public Information Officers (PIOs) and First Appellate Authorities** on RTI Act provisions, recent judicial pronouncements, and best practices.
 - Develop a certification program for PIOs to ensure a high standard of knowledge and competence.
 - Introduce **RTI literacy programs in schools and colleges to create awareness among youth**. Conduct periodic workshops for citizens, especially in rural and marginalized communities, on effectively using the RTI Act.

- These initiatives would improve the quality of RTI responses and empower citizens to use the Act more effectively.

- **Revise and Clarify Exemption Clauses:** Review and tighten the exemption clauses in **Section 8 of the RTI Act to prevent misuse and overly broad interpretations**.
 - Introduce a **mandatory 'harm test' for invoking exemptions**, requiring authorities to demonstrate specific, substantial harm that would result from disclosure.
 - Establish clearer guidelines on the application of the **'larger public interest' override clause**.
 - **Mandate periodic review of classified documents** to declassify information that no longer requires protection.
 - These revisions would limit the arbitrary use of exemptions and ensure that the spirit of transparency is maintained.
- **Integrate RTI with Governance Reforms:** Link RTI compliance to performance evaluations of government departments and officials.
 - Mandate the **inclusion of RTI performance in annual reports** of all public authorities.
 - Use insights from RTI applications to drive systemic reforms in governance processes and public service delivery.
 - This integration would **create institutional incentives for transparency and use RTI as a tool for continuous improvement in governance**.

Conclusion:

As we approach the **20th anniversary of the RTI Act**, it is crucial to address the challenges it faces to preserve the spirit of transparency and accountability. The effectiveness of the RTI Act can **only be maintained through urgent reforms** and a collective commitment to uphold the right to information in India.



Empowering India's Gig Workforce

*This editorial is based on "**Ensuring a proper social safety net for the gig worker**" which was published in The Hindu on 15/10/2024. This article discusses the social security challenges encountered by gig workers in India and recommends labor law rationalization to improve their formalization and integration into the safety net.*

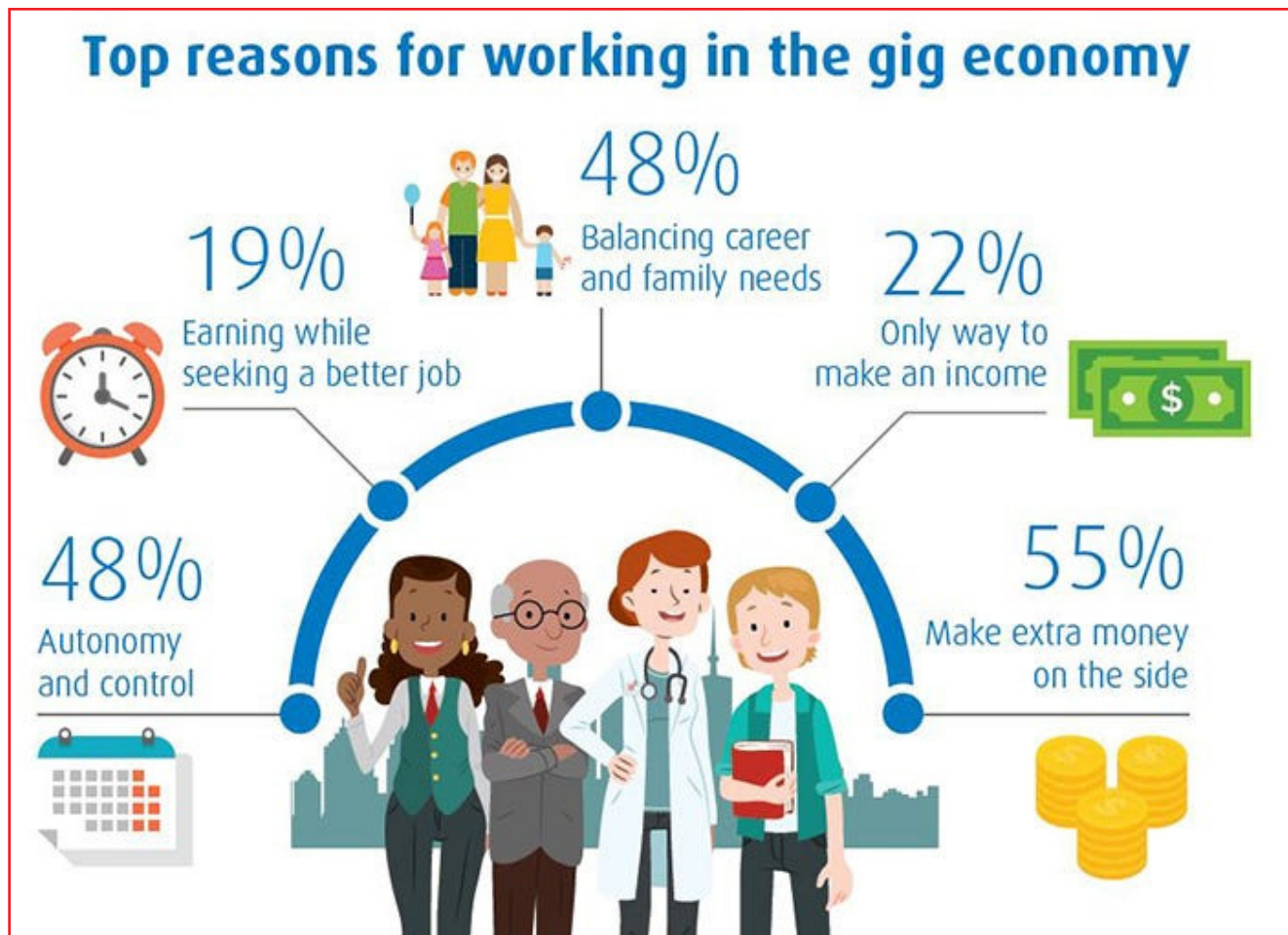
Tag: GS Paper - 3, Employment, Inclusive Growth, GS Paper 2, Issues Relating to Development, Government Policies & Interventions, Human Resource.

In recent years, the gig economy has surged in India, transforming the landscape of employment and offering new opportunities for millions. However, this rapid growth has brought to light significant challenges, particularly regarding the social security of gig workers.

Recognizing the need for a robust safety net, the Union Ministry of Labour and Employment is drafting a national law to incorporate gig workers into social security schemes. Furthermore, the government is revising the definitions of gig workers to ensure they are more inclusive and reflective of contemporary employment realities.

Who Are Considered Gig Workers?

- **Gig workers** are individuals engaged in the gig economy, taking on temporary or flexible jobs instead of traditional full-time roles.
- The **NITI Aayog Report 2022** classifies gig workers as individuals engaged in work outside the traditional employer-employee setup, with two distinct subsets – **platform workers** and **non-platform workers**.
- **Platform workers** utilize online algorithmic matching platforms like **Amazon or Uber** to connect with customers, while non-platform workers encompass those in sectors such as construction, day jobs, and other technology-independent temporary work.
- India has the **fifth largest population of gig economy workers**, and by 2030, this could improve to 3rd place.



How are the Opportunities for Gig Workers Evolving in India?

- Market Growth and Employment Potential :
 - The gig economy is valued at approximately **USD 20 billion** in India, and it's poised to grow by **17%** annually until **2027**.
 - According to **NITI Aayog's** report titled "**India's Booming Gig and Platform Economy**," the gig workforce in India is projected to grow to 23.5 million (2.35 crore) workers by the year 2029-30.
 - The gig workers are expected to form 6.7% of the non-agricultural workforce or 4.1% of the total livelihood in India by 2029-30.

➤ **Diverse Opportunities Across Sectors:**

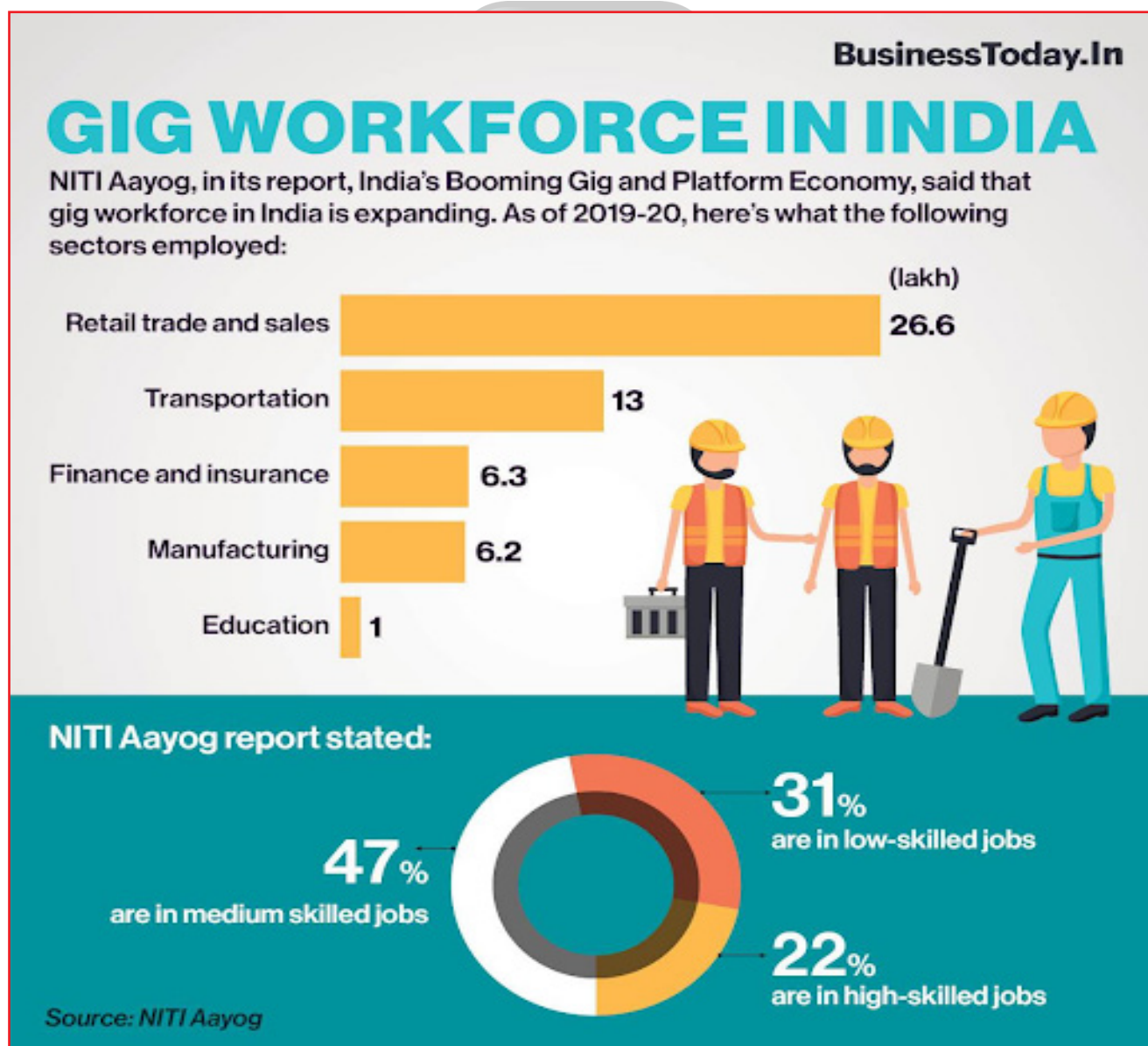
- Companies like **Uber, Ola, Zomato, and Swiggy** are continually expanding their services, creating more gig jobs.
 - In the fiscal year 2023, Zomato has gained more strength with 647 million orders to 58 million customers, with a total order value of Rs 263.1 billion across more than 800 cities in the country.
- Platforms like **Upwork, Freelancer, and Fiverr** are allowing professionals to offer their services globally.
 - The Indian freelance workforce is expected to grow at a CAGR of around 17% from 2021 to 2025

➤ **Flexible Work Arrangements:**

- The gig economy offers flexibility that traditional employment often lacks. Workers can choose their hours, select projects, and work from various locations.
- This adaptability is particularly attractive to younger generations, leading to a rise in gig employment among millennials and **Gen Z**, who prioritize work-life balance and autonomy.

➤ **Technological Advancement and Emergence of a Start-up Culture:**

- The **rise of digital platforms** and mobile applications has streamlined the gig process, making it easier for workers to find jobs and for companies to hire them
- **India's start-up ecosystem** is rapidly evolving, with many start-ups opting to hire contractual freelancers for non-core activities to reduce high fixed costs associated with full-time employees.



What are the Major Challenges Faced by Gig Workers in India?

- **Ambiguous Employment Relations in Gig Work:**
 - **Gig workers** are classified as **informal workers**, which places them outside the traditional **employer-employee** relationship.
 - **Employment relations** in the gig economy are **camouflaged**, with gig workers being labeled as **independent contractors**.
 - This categorization leads to gig workers **missing out on institutional social security benefits** enjoyed by formal workers.
 - In 2023, Swiggy delivery workers staged significant strikes in various cities across India, highlighting their demands for better working conditions, fair wages, and improved benefits.
- **Institutional Social Security vs. Social Security Schemes:**
 - There are significant gaps between the entitlements provided under institutional social security and informal social security schemes.
 - Gig workers are entitled to certain social security schemes but **not full institutional protections** like **paid leave** and **maternity benefits**.
- **Absence of Minimum Wage and Occupational Safety:**
 - Gig workers are **not protected under minimum wage laws** or occupational safety regulations.
 - Gig work often involves physically demanding tasks, such as **delivery or ride-sharing**, **exposing workers to health and safety risks**.
 - They are excluded from the Industrial Relations Code 2020 and its dispute resolution mechanisms.
- **Precarious Employment and Income Insecurity:**
 - Gig workers can be easily disconnected from the platform, **leading to a loss of income and livelihood**.
 - Moreover, their earnings are often unpredictable and **fluctuate based on demand**, making it difficult to plan financially.
 - The **Fairwork India Ratings 2024** report evaluates the working conditions of platform workers in India, highlighting that digital labor platform aggregators show a lack of commitment to ensuring local living wages and recognizing workers' collective rights.
- **Exploitation and Unfair Treatment:**
 - The lack of legal protection and the power imbalance between workers and platforms create conditions ripe for **exploitation**.

- Workers may face unreasonable demands, such as the "oaths" imposed not to drink water or use the restroom **unless they meet targets**.

➤ **Lack of Collective Bargaining Power:**

- Gig workers are **typically isolated and lack the ability to unionize or collectively bargain** for better working conditions and remuneration.
- This power imbalance makes it **difficult for them to advocate for their rights or negotiate better terms** with the platforms they work for.

What are the Government Initiatives to Protect Gig Workers in India?

- **Code on Social Security, 2020:** This act recognizes gig workers as a separate category and envisages extension of social security benefits to them.
 - However, the specific rules and implementation details are yet to be finalized by individual states.
- **NITI Aayog Report on India's Gig and Platform Economy (2022):** This report recommends promoting platform-led skilling initiatives and social security measures for gig workers. It also emphasizes the need for data collection and better enumeration of the gig workforce.
- **e-Shram Portal:** A national database for unorganized sector workers, including gig and platform workers.
- **Pradhan Mantri Shram Yogi Maandhan (PMSYM):** Pension scheme for workers in the unorganized sector, including gig workers.
- **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):** Life insurance scheme for unorganized workers

How can India Empower the Gig Workers?

- **Defining Aggregators as Employers:**
 - To protect gig workers, the labor law should clearly define aggregators as employers and recognize the employment relationship.
 - Aggregator companies may be required to contribute 1%-2% of their revenue to a social security fund.
 - The **UK Supreme Court's 2021** ruling on **Uber**, where Uber drivers were recognized as workers, sets an important precedent.
- **Registration of Gig Workers:**
 - **Aggregators** should be responsible for registering gig workers on the Labour Ministry's **e-Shram portal**.
 - Workers registered on **e-Shram** are eligible for life and accidental insurance, among other benefits.

- Registered gig workers must be given a minimum **14-day notice** before termination, accompanied by valid reasons.
- **Establishment of Tripartite Governance Structure:**
 - A tripartite governance structure involving the **government, gig platforms, and worker representatives** could be established.
 - This would allow for effective dialogue, **collective bargaining, and the formulation of industry-wide standards** and guidelines for fair working conditions, grievance redressal mechanisms, and worker welfare measures.
 - A welfare board should be created to manage the social security fund for gig workers.
- **Fair Pay and Algorithmic Transparency:**
 - Platforms should be **held accountable for ensuring fair pay structures and transparent algorithms** that determine pay rates and task allocation.
 - An automated system for ensuring transparency and resolving disputes should be implemented to safeguard workers' rights.
- **Gig Worker Data Portability:**
 - Implementing data portability standards that allow gig workers to transfer their **work history, ratings, and skill certifications** across different platforms. This reduces dependence on a single platform and improves worker mobility.
 - **Data security and privacy concerns** need to be addressed to ensure worker data is protected during transfers.
- **Skill Development and Upskilling Initiatives:**
 - India needs to push efforts to provide gig workers with opportunities for **skill development and upskilling according to the current market scenarios**, enabling them to transition into higher-paying roles or pursue entrepreneurial ventures.
 - This could include **collaborations with vocational training institutes and government-backed programs**.

Conclusion:

A balanced approach that promotes innovation and flexibility, while safeguarding basic protections and fair working conditions, is essential for creating an inclusive and secure environment for gig workers in the future. Collaboration between policymakers, businesses, and the workers themselves will be vital to building a fair and equitable system. This system must strike a balance between flexibility and security, ensuring that gig workers in India can thrive in the evolving economy while having their rights fully protected.



Towards a Food-Secure and Hunger-Free India

This editorial is based on "[A food-sufficient India needs to be hunger-free too](#)" which was published in The Hindu on 16/10/2024. The article brings into picture the global challenge of food insecurity and malnutrition, highlighting rising costs, conflicts, and climate change as key aggravators. It emphasizes India's progress in food production but stresses the need for a shift towards ensuring access to affordable, nutritious diets to combat persistence.

Tag: GS Paper - 2, Issues Relating to Poverty & Hunger, GS Paper - 3, Agricultural Resources

Food insecurity and malnutrition remain persistent challenges across the globe. The rising cost of healthy diets, averaging **USD 3.96 per person per day in 2022**, further exacerbates the issue, leaving **2.83 billion people unable to afford nutritious meals**.

India, once food-deficient, has made significant strides in agricultural production but still grapples with nutritional inequalities. While the country has implemented robust food security measures like the **National Food Security Act**, challenges persist. Moreover, the focus needs to be shifted from **mere food sufficiency to ensuring universal access to affordable, nutritious diets**, highlighting the need for a transformation in the **agri-food system to address both hunger and malnutrition**.

What is the Current Status of Food Security and Hunger in India?

- **Food Security:** As per the **International Food Security Assessment (2022-32)**, about **333.5 million people in India were food insecure in 2022-23**.
 - This figure is projected to decrease significantly to 24.7 million by the next decade.
 - Also, recent exploration shows that **63.3% of the rural population (527.4 million people)** could not afford the cost of a required diet (CoRD) even with **100% of income spent on food**.
- **Hunger in India (NSSO Statistics):** **3.2% of the population is not compliant with a minimum of 60 meals per month**, 2.5% of the population may fall into the category of not having two square meals a day (3.5 crore people).
 - In **Global Hunger Index(GHI) 2023**, India was ranked 111th out of 125 countries, below Pakistan and Sudan

- Although critics argue that GHI places India poorly due to its **components focusing more on nutrition and early-age mortality** rather than actual hunger.

Why has Food Security in India Not Translated into Reduced Hunger?

- **Inefficient Public Distribution System (PDS):** Despite improvements, India's PDS still faces challenges in reaching all intended beneficiaries.
 - **Leakages, corruption, and exclusion** errors persist. According to a 2022 report, more than **90 million eligible people** have been excluded from legal entitlements under the **Targeted Public Distribution System (TPDS)**.
 - The **Covid-19 pandemic** exposed further weaknesses, with many migrants unable to access food rations outside their home states.
 - In response, the government launched the **"One Nation, One Ration Card"** scheme, but its implementation remains incomplete.
- **Income Inequality and Poverty:** While India has made strides in **poverty reduction (24.82 crore Indians escape Multidimensional Poverty in the last 9 years)**, significant income disparities persist, affecting food access.
 - According to the **World Inequality Report 2022**, India is among the most unequal countries in the world, with the **top 10%** and **top 1%** of the population holding **57%** and **22%** of the total national income respectively.
 - Recent data from the National Family Health Survey-5 (2019-21) shows that **35.5% of children under five are stunted**, indicating long-term nutritional deficiencies linked to poverty and inequality.
- **Nutritional Challenges and Dietary Diversity:** Food security in India often focuses on **calorie sufficiency rather than nutritional adequacy**.
 - The country faces a **"triple burden" of malnutrition: undernutrition, micronutrient deficiencies, and obesity**.
 - The **Household Consumption Expenditure Survey 2022-23** indicates that the average per capita daily calorie intake in rural India is **1,564 kcal for the poorest 5%, compared to a required 2,172 kcal**.
 - In urban areas, the intake is **1,607 kcal against a requirement of 2,135 kcal**.
 - Consequently, an estimated **17.1% of rural and 14% of urban populations** are classified as

deprived based on the total monthly per capita expenditure thresholds for adequate nourishment.

- The government has initiated programs like **POSHAN Abhiyaan** to address malnutrition, but progress is slow.
- **Urbanization and Changing Food Systems:** Rapid urbanization in India is **transforming food systems and consumption patterns**.
 - **Urban food insecurity is increasingly prevalent**, with the urban poor facing unique challenges in accessing nutritious food.
 - A 2022 study by the Tata-Cornell Institute found that **51% of urban slum households in Delhi experienced food insecurity**.
 - In response, the government expanded the **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** to provide free foodgrains, but challenges in urban food distribution and nutrition persist.
- **Gender Disparities in Food Access:** Persistent gender inequalities contribute to food insecurity and malnutrition in India.
 - Women **often eat last and least in households**, leading to poorer nutritional outcomes.
 - The prevalence of anemia as per the **National Family Health Survey 5 (2019-21)**, is **57.0% in women (15-49 years)**.
- **Inadequate Focus on Non-staple Foods:** India's food security policies have traditionally focused on **cereals, particularly wheat and rice**. This approach overlooks the importance of diverse, nutrient-rich foods.
 - India is the world's second-largest producer of Wheat, with a **whopping 40% increase in production since the early 2000s**.
- **Post-harvest Losses and Food Waste:** Significant food losses occur due to inadequate storage, transportation, and processing infrastructure.
 - It is estimated that nearly 30-40% of fruits and vegetables in India turn waste due to lack of proper cold storage facilities.
 - To address this, the government launched the **Agriculture Infrastructure Fund**. However, as on **30th. June 2024**, only **₹43,391 crores** have been sanctioned, out of which **₹28,171 crores** have been disbursed under the scheme, indicating slow progress in improving post-harvest infrastructure.

- **Limited access to Clean Water and Sanitation:** Food and nutritional security is closely linked to **water, sanitation, and hygiene (WASH) conditions**.
- **Poor WASH can lead to malabsorption of nutrients** and frequent illnesses, undermining food security efforts.
- While India has made progress through the **Swachh Bharat Mission**, challenges persist. Still over **163 million people in India lack access to clean water**, and 21% of the country's communicable diseases are caused by unsafe water.

What are the Government Initiatives Related to Food Security and Elimination of Hunger?

- **Food Security:**
 - **Essential Commodities Act of 1955**
 - **National Food Security Act (NFSA) 2013**
 - **National Food Security Mission**
 - **National Food Processing Mission**
 - **Pradhan Mantri Fasal Bima Yojana (PMFBY)**
 - **National Horticulture Mission**
 - **National Agriculture Market (e-NAM) Platform**
 - **2023 as the International Year of Millets**
 - **Mega Food Park Scheme**
- **Hunger:**
 - **Eat Right India Movement**
 - **POSHAN Abhiyan**
 - **Mid-day Meal (MDM) scheme**
 - **POSHAN Tracker App**
 - **Pradhan Mantri Matru Vandana Yojana**
 - **Food Fortification**
 - **Integrated Child Development Services (ICDS) Scheme**

How Can India Simultaneously Achieve Food Security and Reduce Hunger?

- **Strengthen and Diversify the Public Distribution System (PDS):** Expand the PDS to include a wider variety of nutritious foods beyond cereals, **such as pulses, millets, and fortified foods**.
- Implement technology-driven solutions like **biometric authentication and GPS tracking** to reduce leakages and improve targeting.
- Accelerate the implementation of the **"One Nation, One Ration Card"** scheme to ensure food access for migrant workers.
 - For example, **states like Tamil Nadu have successfully included pulses in their PDS**, improving dietary diversity.

- The government could set a target to include **at least three non-cereal items in the PDS across all states**, backed by robust supply chain management.
- **Invest in Climate-resilient Agriculture:** Scale up programs promoting **drought-resistant crop varieties**, water-efficient irrigation systems, and sustainable farming practices.
 - Expand the coverage of crop insurance schemes like **Pradhan Mantri Fasal Bima Yojana** to protect farmers against climate shocks.
 - Invest in research and development of **climate-adaptive agricultural technologies**. For instance, the **Indian Council of Agricultural Research (ICAR)** has developed **flood-tolerant rice varieties like Swarna-Sub1**, which can survive submergence for two weeks.
- **Enhance Nutrition Education and Behavior Change:** Launch comprehensive nutrition education campaigns targeting diverse demographics, including **school children, pregnant women, and community leaders**.
 - Leverage technology and mass media for wider reach. Integrate **nutrition education** into school curricula and anganwadi services.
 - For example, the **POSHAN Abhiyaan's Jan Andolan (people's movement)** approach has shown promise in raising nutritional awareness.
 - Expand this model with a target to reach **every rural household with personalized nutrition counseling** through frontline health workers within three years.
- **Strengthen Urban Food Security Measures:** Develop targeted food security programs for urban poor, including **community kitchens, urban agriculture initiatives, and food banks**.
 - Improve the mapping and identification of vulnerable urban populations. Collaborate with civil society organizations for better outreach.
 - For instance, the **Akshaya Patra Foundation's centralized kitchens model** could be scaled up in partnership with municipal corporations.
- **Promote Dietary Diversification and Indigenous Foods:** Incentivize the production and consumption of locally-adapted, nutrient-rich crops like **millets, pulses, and indigenous vegetables**.
 - Support small-scale food processing units to enhance the **availability of diverse, ready-to-eat nutritious foods**.

- Launch awareness campaigns promoting the nutritional benefits of traditional foods. The government of India's proposal declaration of **2023 as the International Year of Millets** is a step in this direction.
- **Empower women in Agriculture and Nutrition:** Implement policies to increase women's land ownership and access to agricultural inputs.
 - Provide **targeted agricultural extension services** and financial literacy programs for women farmers.
 - Strengthen **women's self-help groups and their role in local food systems**. For example, the **Mahila Kisan Sashaktikaran Pariyojana** has shown success in empowering women farmers.
 - Set a target to increase women's participation in agricultural decision-making through initiatives like reserving a **fixed percentage of leadership positions in Farmers Producer Organizations for women**.
- **Improve Post-harvest Management and Reduce Food Waste:** Invest in decentralized **storage facilities, cold chains, and food processing units**.
 - Implement technologies like **hermetic storage bags and mobile apps** for better inventory management.
 - Encourage **public-private partnerships in developing agri-logistics infrastructure**, supported by initiatives like **establishing one multi-commodity storage facility in each block** and promoting **farm-gate processing units**.
- **Enhance Social Protection for Informal Workers:** Expand and streamline social security measures for informal workers, including **portable benefits and easier registration processes**.
 - Implement **urban employment guarantee schemes**.
 - Strengthen linkages between social protection and nutrition programs. For example, **Odisha's "Urban Wage Employment Initiative"** during the Covid-19 pandemic, **Rajasthan's Urban Employment Guarantee scheme** can serve as models.
- **Implement a Life-cycle Approach to Nutrition:** Design and implement nutrition interventions that address specific needs at different life stages, from pregnancy to old age.
 - Strengthen existing programs like **Integrated Child Development Services (ICDS)** and introduce new initiatives for **adolescents and elderly**.

- For instance, **Karnataka's "Mathrupoorna" scheme provides one full meal to pregnant women**. Expand such programs nationwide, setting a target to reach the maximum number of pregnant and lactating women with comprehensive nutrition support within three years.
- **Leverage technology for Better Targeting and Monitoring:** Implement AI and big data analytics for real-time monitoring of food security indicators and early warning systems for potential hunger hotspots.
 - Use **satellite imagery and remote sensing for crop yield predictions** and climate risk assessments.
 - Develop user-friendly mobile apps for beneficiaries to access entitlements and provide feedback. For example, the **"Mera Ration" mobile app** has improved PDS accessibility.

Conclusion:

Addressing food security and hunger in India is crucial not only for national development but also for achieving the **Sustainable Development Goals (SDGs)**, particularly Goal 2, which aims to **end hunger and ensure access to safe, nutritious food for all**. By enhancing public distribution systems, investing in **climate-resilient agriculture**, and **promoting dietary diversity**, India can transform its agri-food systems. These efforts will not only alleviate hunger but also contribute to the overall health and well-being of its population, **aligning with global commitments to eliminate hunger by 2030**.

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Breaking the Middle-Income Barrier

*This editorial is based on "**Can India escape middle-income trap?**" which was published in The Hindu on 13/10/2024. The article brings into picture the challenges India faces in overcoming the middle-income trap, emphasizing slowing exports, rising protectionism, and premature deindustrialization. It highlights the need for investment, technology infusion, and domestic innovation to sustain growth and ensure inclusive economic progress.*

Tag: S Tag: GS Paper - 2, GS Paper - 3, Important International Institutions, Growth & Development

The **World Development Report 2024** highlights the challenge of the **"middle-income trap"**, where countries struggle to sustain growth as incomes rise. The report suggests a **"3i" approach—investment, global technology infusion, and domestic innovation**, to break this cycle. India faces unique difficulties due to **slowing exports, rising protectionism, and premature deindustrialization**. Moreover, India's economic growth has not translated into **proportional wage increases**. This poses a significant challenge in **overcoming the middle-income trap**.

What is the Middle Income Trap?

- A **Middle Income Trap** occurs when a country that has successfully moved from low-income to middle-income status gets “stuck” and fails to transition to high-income status.
 - According to the **World Bank**, this typically happens when a country reaches about **11% of US per capita income levels**.
 - At this point, countries find themselves in a challenging position: **they become too expensive to compete with low-wage economies in manufacturing exports**, yet lack the technological sophistication and innovation capabilities to compete with advanced economies.
- The trap manifests when **traditional growth drivers begin to lose their effectiveness**. Countries in this situation often face rising wages that **make labor-intensive exports less competitive**, while simultaneously struggling to develop the innovation and productivity levels needed for knowledge-based growth.
 - To escape this trap, the World Bank recommends a “**3i**” approach: **Investment in physical and human capital, Infusion of new global technologies, and fostering domestic innovation capabilities**.
- The challenge is significant - over the last 34 years, **only 34 middle-income economies** (defined as those with per capita incomes between \$1,136 and \$13,845) have successfully made the transition to high-income status, demonstrating **how difficult it is to break free from this economic plateau**.

How has India's Income Level Evolved Over Time?

- **1950s-1970s (Post-Independence Era)**: India started with a per capita income of just ₹ 265 in 1950-51.
 - The **period saw slow growth at around 3.5%**. Agriculture dominated the economy. **Poverty rates** remained high at about 45%.
 - The period was marked by **heavy state intervention, license raj, and emphasis on public sector enterprises**.
- **1980s-1990s (Pre & Early Liberalization)**: Per capita income growth accelerated to 5.6% in the 1980s.
 - The **1991 liberalization** marked a **pivotal shift**, opening up the economy. Services sector began its rise, surpassing agriculture's share in GDP.
 - The **middle class started expanding**. Foreign exchange reserves grew to **USD 5.8 billion in 1991**.

- **2000-2010 (High Growth Phase)**: India achieved its **high growth phase with GDP growing at 8-9% annually**.
 - In terms of constant (1999-2000) prices, the **per capita income was Rs 16,173 in 2000-01 and rose to Rs 24,295 by 2007-08**.
 - The services sector became dominant. Software service exports increased from US \$0.50 million in 1990 to \$5.9 billion in 2000-01 to **23.6 billion dollars in 2005-06**.
- **2010-2020 (Mixed Growth Phase)**: Growth became more volatile but averaged 6-7%. Per capita income reached ₹1,08,645 (2019-20, constant prices).
 - Middle-class expanded significantly, with about 400 million people joining this segment.
 - However, inequality widened - the **top 1% owned 40.5% of national wealth by 2021**.
- **2020-Present (Post-Covid Recovery)**: Despite Covid setback, India's GDP reached **\$3.75 trillion**.
 - **Per capita income recovered to ₹1,72,000 (2022-23)**. However, **K-shaped recovery** is evident.
 - **Gig economy expanded with 7.7 million workers**. Digital payments hit a record with **Unified Payments Interface (UPI)** processed ₹80.8 lakh crore (\$964 billion) in April-July 2024, marking a 37% year-on-year increase.
 - Unemployment remains at **8.1% (CMIE, April 2024)**.

Why Navigating the Middle Income Trap is Difficult for India?

- **Premature Deindustrialization**: India is experiencing **premature deindustrialization**, a phenomenon where the manufacturing sector's share in GDP and employment peaks at **lower levels of per capita income compared to early industrializers**.
 - The manufacturing's share in GDP has stagnated around **15-17%** for the past decade, **significantly below the targeted 25%**.
 - This trend is particularly concerning as it **limits the potential for productivity gains and technological spillovers** typically associated with a robust manufacturing sector.
 - The recent **Production-Linked Incentive (PLI) scheme**, while promising, has shown mixed results across sectors.
- **Services-Led Growth Model Limitations**: India's growth has been primarily driven by the services sector, which contributes over **50% to the country's GDP**.

- While this has been a strength, it poses challenges for widespread job creation and inclusive growth.
 - The inability to create **mass employment in high-productivity sectors** limits the potential for rapid increases in per capita income, a crucial factor in escaping the middle income trap.
 - The recent report that the global technology spending growth rate has **dropped from 8.2% in 2022 to 4.4% in 2023** further highlights the vulnerabilities of this growth model.
 - **Declining Total Factor Productivity Growth:** India's **Total Factor Productivity (TFP)** growth, a key indicator of economic efficiency and technological progress, has been declining.
 - During the pandemic, the TFP for India declined by **2.9% in 2020** and marginally improved by **0.1% in 2021**.
 - This decline indicates that India's recent growth has been **more input-driven rather than efficiency-driven**, a characteristic that typically hinders countries from escaping the middle income trap.
 - The challenge is compounded by India's **low R&D expenditure**, which stands at **0.6-0.7% of GDP**, significantly below other emerging economies like **China (2.1%)** and **US (2.8%)**.
 - **Informal Sector Dominance and Low Productivity:** India's economy is characterized by a large informal sector, which accounts for about **90% of the workforce**.
 - This high level of informality leads to **low productivity and limited access to credit and technology**.
 - The Covid-19 pandemic exacerbated this issue, with the informal sector bearing the brunt of job losses.
 - The challenge of **formalizing the economy while ensuring job creation remains significant**, as evidenced by the **slow uptake of schemes like e-Shram portal**.
 - **Demographic Dividend at Risk of Becoming a Burden:** While India's young population is often cited as an advantage, recent data suggests this **dividend might be at risk**.
 - Youth unemployment rate for those in the **15-29 years** age group rose to **10.2% in 2023-24**.
 - Furthermore, it is estimated that **only 2.3 % of the workforce** in India has undergone formal skill training.
 - The skill mismatch is evident in the IT sector, where studies have shown that **85% of the fresh engineering graduates are not immediately employable**.
 - This mismatch between education outcomes and industry requirements **could turn India's demographic dividend into a burden**, trapping a large portion of the population in low-productivity jobs.
 - **Global Economic Headwinds:** India's path out of the middle income trap is complicated by a challenging global economic environment.
 - The **IMF's World Economic Outlook (October 2023)** projected global growth to slow from **3.5% in 2022 to 3% in 2023 and 2.9% in 2024**, citing factors like geopolitical tensions and monetary tightening.
 - India's export growth has been impacted, with merchandise exports contracted **9.3% to USD 34.7 billion in August 2024**.
 - These global headwinds make it **harder for India to rely on export-led growth strategies** that have historically helped countries escape the middle income trap.
 - **Infrastructure and Logistics Bottlenecks:** Despite significant investments, India's infrastructure still lags behind many middle-income countries, hampering productivity and competitiveness.
 - The **World Bank's Logistics Performance Index 2023** ranked India **38th out of 139 countries**, indicating room for improvement.
 - While initiatives like the National Infrastructure Pipeline aim to invest ₹111 lakh crore in infrastructure by 2025, challenges persist in areas such as **power supply reliability, transportation efficiency, and digital connectivity**.
 - These infrastructure gaps **increase the cost of doing business, reduce efficiency, and make it harder for India to attract the high-value industries** necessary for transitioning to a high-income economy.
- What Measures can Help India to Overcome the Middle-income Trap?**
- **Boost Manufacturing Competitiveness through Targeted Industrial Policies:** India should refine and expand its **Production-Linked Incentive scheme**, which has shown promise in sectors like electronics and pharmaceuticals.
 - There is a need to extend the scheme to **new emerging sectors like green hydrogen and AI hardware**.
 - Simultaneously, focus on **reducing input costs for manufacturers by rationalizing import duties on key components and raw materials**.

- Implement a time-bound plan to improve logistics efficiency, aiming to reduce **India's logistics costs from the current 14% of GDP to the global average of 8%**. The recent **National Logistics Policy (2022)** provides a framework for this, but its execution needs to be accelerated with clear milestones and accountability measures.
- **Accelerate Digital Public Infrastructure and Skill Development:** Leverage India's digital public infrastructure, **India Stack**, to create a **comprehensive digital skilling ecosystem**.
 - Expand the **Digital India initiative** to include a **national digital skills registry that matches skilled workers with job opportunities across sectors**.
 - Collaborate with industry leaders to develop and continuously update curriculum for emerging technologies.
 - This digital push should be complemented by modernizing traditional vocational training institutes **to align with Industry 4.0 requirements**.
- **Enhance R&D Spending and Foster Innovation Ecosystems:** Increase public R&D expenditure from the **current 0.7% of GDP to 2% by 2030**, with a focus on applied research in key sectors like **renewable energy, biotechnology, and advanced materials**.
 - Establish sector-specific innovation clusters across the country, modeled on successful examples like the **Bengaluru tech cluster**.
 - These clusters should **integrate academia, industry, and startups**, with the government providing shared infrastructure and regulatory sandboxes.
 - The recent success of India's space program, particularly the **Chandrayaan-3 mission**, demonstrates the country's innovative potential when resources are strategically allocated.
- **Innovation-Driven Manufacturing Policy:** Instead of competing with China on mass manufacturing, India could focus on **high-value specialized manufacturing**.
 - For instance, the PLI scheme's success in **mobile manufacturing** (attracting Apple) could be replicated in emerging sectors like **green hydrogen equipment or electric vehicles**.
 - Create specialized manufacturing zones with plug-and-play infrastructure and R&D facilities, similar to **Taiwan's Hsinchu Science Park**.
 - Focus on **developing complete manufacturing ecosystems rather than isolated units** - for example, not just solar panels but the entire solar value chain from **polysilicon to recycling**.
- **Skills-Education Integration Framework:** Transform education by integrating industry requirements directly into curriculum design.
 - Create a **national digital skills platform** that tracks real-time industry demands.
 - Implement mandatory industry internships from high school onwards, similar to **Germany's dual education system**.
 - Establish **sector-specific centers of excellence in tier-2/3 cities**, like the upcoming **semiconductor fabrication facility in Gujarat**.
 - Link **education funding to employment outcomes** to ensure practical skill development.
- **Green Technology Leadership:** Position India as a global leader in climate solutions. Scale the **International Solar Alliance** model to create similar alliances for **green hydrogen and battery technology**.
 - Create a national carbon market with international linkages, similar to the **EU's emissions trading system**.
 - Implement **green SEZs where only zero-emission industries** are allowed, with special incentives for green tech innovation. Use India's G20 presidency momentum to establish **global green technology standards that align with Indian capabilities, enhancing India's domestic economy**.
- **Reform Market Regulations:** India should focus on liberalizing product and factor markets to encourage competition and reduce inefficiencies.
 - Overcoming regulatory constraints, **especially those related to small and medium enterprises (SMEs)**, will enable the growth of high-potential firms, while removing subsidies that promote inefficiency and lack of competition.
 - **South Korea's model can be a lesson for India**, showing the importance of state neutrality and merit-based support for businesses, **letting underperformers fail**.
 - Strong business houses can drive growth by investing in innovation and new technologies, as seen with South Korea's chaebols, now global leaders in innovation.

Conclusion:

India's journey to escape the middle-income trap will require a **strategic focus on boosting manufacturing, fostering innovation, and addressing productivity challenges**. Leveraging digital infrastructure, enhancing skills, and embracing green technologies are critical steps to ensure sustainable growth. By executing **targeted policies effectively**, India can transition to a high-income economy while maintaining.



Universal Basic Income: Transforming Welfare in India

*This editorial is based on “**A modified UBI policy may be more feasible**” which was published in The Hindu on 18/10/2024. The article highlights the potential of a simplified Universal Basic Income (UBI) in India, using models like PM-KISAN to provide a basic safety net. It discusses the benefits of reduced administrative costs and fewer exclusion errors, while addressing fiscal and implementation challenges.*

Tag: S Tag: GS Paper - 3, Employment, GS Paper-2, Government Policies & Interventions

The concept of **Universal Basic Income (UBI)** has gained renewed attention in India as a potential solution to address rising unemployment and inequality exacerbated by automation and artificial intelligence.

While the idea has been debated for years, with proponents arguing it could **replace inefficient welfare schemes, questions of feasibility and desirability persist**. The potential for a modified, less ambitious version of UBI in India, considering **existing cash transfer schemes like PM-KISAN**, is worth exploring. A universal income transfer of **approximately 1% of GDP per capita** could serve as a foundational social safety net. This approach could offer advantages such as reduced administrative costs and exclusion errors, while also addressing concerns about fiscal constraints and implementation challenges.

What are the Arguments in Favor for UBI in India?

- **Structural Economic Transformation:** Implementing UBI could catalyze a structural transformation of India's economy by addressing the **persistent issue of disguised unemployment in the agricultural sector**.
 - **Economic Survey 2023-24** says that the Indian agriculture sector provides livelihood support to about **42.3% of the population** and has a share of **18.2% in the country's GDP** at current prices, indicating low productivity.
 - A UBI could provide the **financial cushion necessary for surplus agricultural laborers** to transition to more productive sectors.
 - This could potentially accelerate India's economic modernization, similar to the structural changes seen in **East Asian economies like South Korea**.
- UBI could facilitate a similar shift in India, potentially boosting overall economic productivity and growth rates.
- **Reforming the Social Security Framework:** UBI presents an opportunity to overhaul India's fragmented social security system.
 - The current system, with its **myriad schemes**, suffers from high exclusion errors and also takes a major chunk of budgetary allocation.
 - The total expenditure on **Central Sector Schemes** in 2022-2023 amounted to **₹14,45,922.58 crore**.
 - The National Food Security Act covers **67% of the population**, but more than **90 million eligible people** have been excluded from legal entitlements under the **Targeted Public Distribution System (TPDS)**.
 - UBI could serve as a foundation for a more comprehensive and efficient social security framework.
 - By providing a universal floor, it allows for **targeted top-ups for specific vulnerabilities (e.g., disability, old age)** without the complexity and errors of the current system.
 - This approach aligns with the **growing global trend towards integrated social protection systems**, as advocated by the **World Bank's Adaptive Social Protection framework**.
- **Demographic Dividend Optimization:** India is in a crucial phase of its demographic transition, with a median age of **28.4 years**.
 - However, the potential demographic dividend is threatened by high youth unemployment (**23.22% in 2022, as per ILO estimates**) and underemployment. UBI could optimize this demographic opportunity by **providing young people with resources to invest in skills development, entrepreneurship, or higher education**.
 - This could lead to a more skilled workforce and increased innovation, critical for India's ambitions in high-tech sectors.
 - For instance, an **OECD report from March 2023** noted that a shortage of green skills is holding back growth in sustainable development jobs.
 - A **tied UBI could facilitate this upskilling** by reducing the opportunity cost of education and training.

- **Climate Resilience and Adaptive Capacity:** India is highly vulnerable to climate change impacts, with the World Bank estimating that climate change could push 45 million Indians into poverty by 2030.
 - UBI could enhance climate resilience by providing a **financial buffer against climate shocks** and facilitating adaptation strategies.
 - For instance, during extreme weather events, **UBI could reduce distress migration and allow affected populations** to rebuild more effectively.
 - Moreover, by providing a safety net, UBI could make it **politically feasible to implement necessary but potentially disruptive climate policies**, such as **carbon pricing** or **phasing out or phasing down fossil fuel subsidies**.
 - This aligns with the concept of “**just transition**” advocated in COP 28 in 2023.
 - **Redefining Work and Productivity:** UBI has the potential to reshape societal notions of work and productivity in India.
 - By providing **basic economic security**, it could value forms of work currently unrecognized, such as **care work**, **community service**, or **artistic pursuits**.
 - This is particularly relevant in the Indian context, where traditional forms of work and knowledge systems **often go unrecognized in formal economic metrics**.
 - According to the National Sample Survey, women spend **299 minutes a day on unpaid domestic services** for which men spend only 97 minutes.
 - Only **22% of women aged 15-59 years** were engaged in paid work in comparison to nearly **71% of men**.
 - UBI could **implicitly compensate for this unpaid work**, potentially leading to a more equitable distribution of household labor and a reevaluation of what constitutes productive work in society.
 - **Data-Driven Policy Implementation:** Implementing UBI at scale would generate an **unprecedented amount of data on income, consumption patterns, and economic behavior** across India's diverse population.
 - This data goldmine could revolutionize **evidence-based policymaking in India**. For instance, real-time data on consumption patterns in place of the
- Household Consumption Expenditure Survey** could inform more targeted and effective monetary and fiscal policies.

 - UBI, implemented through digital payments, could exponentially expand this capability, allowing for more **responsive and nuanced economic governance**.
- **Geopolitical Soft Power and Global Leadership:** By successfully implementing the **world's largest UBI program**, India could position itself as a global leader in innovative social policy.
 - This could significantly enhance **India's soft power and influence in international forums**, particularly in discussions on global inequality.
 - As debates on UBI gain traction globally, India's experience could provide valuable lessons for other developing countries.
 - This aligns with India's aspirations for greater global influence, as evidenced by its **G20 presidency in 2023** where it championed the **cause of the Global South**.
 - A successful UBI program could become a **cornerstone of India's development diplomacy**, similar to how its **digital public infrastructure initiatives** have gained international recognition.
 - **Addressing Extreme Poverty and Malnutrition:** Despite significant economic growth, India still grapples with extreme poverty and malnutrition.
 - According to the **State of Food Security and Nutrition in the World, 2023**, around **74% of India's population could not afford a healthy diet**, and 39% fell short of a nutrient-adequate one
 - The **Global Hunger Index for 2024** states that a 'serious' level of hunger is prevalent in India.
 - It ranks **India 105th among 127 countries**, giving it a score of 27.3.
 - A UBI could provide a direct and immediate boost to the incomes of the poorest, **helping to alleviate extreme poverty**.
 - **Fostering Entrepreneurship and Innovation:** By providing a basic financial security, a **UBI could encourage more Indians to take entrepreneurial risks** and pursue innovative ideas.
 - This is particularly relevant given India's push towards becoming a **USD 5 trillion economy** and its focus on startups.

- A UBI could act as a **de facto seed fund for micro-entrepreneurs**, especially in rural and semi-urban areas where access to formal credit is limited.
- It could also support the **gig economy workers**, whose numbers are projected to **grow to 23.5 million by 2029-30**, as per a **NITI Aayog** report, by providing them with a stable income base.

What are the Arguments Against UBI in India?

- **Fiscal Unsustainability:** Implementing a UBI in India faces severe fiscal constraints. The International Monetary Fund recent data stated that **combined debt of central and state governments** stood at **81% of GDP in 2022-23**.
 - A comprehensive UBI program, even at a **modest level**, would require **substantial additional expenditure**.
 - For instance, a UBI of just ₹1,000 per month for all adults would cost approximately **3-4.9% of GDP**, based on current population estimates.
 - This would either necessitate drastic cuts in other essential public expenditures or lead to unsustainable fiscal deficits.
 - The recent debates surrounding India's fiscal consolidation path, **with the government aiming to reduce fiscal deficit to 4.5% of GDP by 2025-26**, highlight the challenges of introducing such a massive new expenditure program.
- **Inflationary Pressures:** A large-scale cash transfer program like UBI could potentially trigger significant inflationary pressures in the Indian economy.
 - This is particularly concerning given India's recent struggles with inflation - the **Consumer Price Index (CPI) inflation** rose to **5.49% in September 2024**.
 - The sudden injection of cash through UBI could **lead to demand-pull inflation**, especially in sectors with supply constraints.
- **Labor Market Distortions:** Critics argue that UBI could create **disincentives for work**, particularly in the low-wage sectors that form a significant part of India's economy.
 - **Worker Population Ratio (WPR)** in urban areas was **just 46.8% in April – June 2024 for persons of age 15 years and above**. A guaranteed income might further reduce this, **especially among marginal workers**.
- UBI, without any work requirement, could **potentially have a pronounced effect**. This could **exacerbate labor shortages in key sectors like agriculture and construction**, which are crucial for India's economic growth.
- **Targeting and Equity Concerns:** A universal program by definition would provide benefits to **both poor and non-poor**, raising questions of **equity and efficient use of limited resources**.
 - India is one of the most unequal countries in the world, with the top 10% of the population holding **77% of the total national wealth**- a universal transfer might be seen as regressive.
 - The opportunity cost of providing UBI to **higher-income groups is significant**. This raises ethical questions about the most effective use of public resources in a developing economy with pressing needs in health, education, and infrastructure.
- **Implementation Challenges:** India's diverse and complex socio-economic landscape poses **significant implementation challenges for a UBI program**.
 - Despite progress in financial inclusion (nearly **90% of those aged 18 and above** had access to an account at a formal financial institution in 2020-21), last-mile delivery remains a challenge.
 - Issues like **identity verification, network connectivity, and banking access** could lead to exclusion errors. Moreover, the potential for fraud and leakage is significant.
 - A recent **CAG** report noted that almost **7.5 lakh beneficiaries** of **Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana** were linked to single mobile number
- **Opportunity Cost and Development Trade-offs:** Allocating a large portion of government expenditure to UBI could **crowd out investments in critical areas like healthcare, education, and infrastructure**.
 - India's public health expenditure remains low at **2.1% of GDP**. Also, government spending on education has already declined from **3.1% to 2.9% of GDP over the past decade**. Diverting resources to UBI could further impede progress in these crucial developmental areas.
- **Global Economic Competitiveness:** Implementing UBI could **potentially impact India's global economic competitiveness**, particularly in labor-intensive industries.

- India's competitive advantage in sectors like **textiles and manufacturing** is partly due to its **lower labor costs**.
- In India, the average factory worker gets paid less than **USD 2 per hour**. This cost advantage has been crucial in attracting foreign investment and boosting exports. However, a UBI could lead to **upward pressure on wages, potentially reducing this competitive edge**.

What are the Major UBI Experiments Across the Globe?

➤ **United States:**

- **Alaska Permanent Fund:** Since 1982, citizens receive **USD 1,000–2,000** annually from the state's oil and gas revenues.
- **Freedom Dividend:** Proposed by Andrew Yang in the 2020 presidential campaign, offering **USD 1,000 monthly** to each American adult to address job losses due to automation.

➤ **Norway:**

- While **Norway is not a UBI country**, it closely resembles one due to its welfare state model. **All citizens have access to education, health care, and income** through social security.
- However, recipients must meet conditions like seeking work and paying taxes.

➤ **Finland:**

- In 2016, Finland launched a basic income experiment with **2,000 unemployed citizens**, who received USD 640 per month.
- The program led to improved health and happiness among participants, who were also relieved of the bureaucratic burden of proving unemployment eligibility.

➤ **Brazil:**

- **Bolsa Família:** Launched in 2004, this UBI-like program provides **20% of the minimum wage to Brazil's neediest 25%**, helping them afford basic necessities like food, clothing, and school supplies.
- **Santo Antônio do Pinhal:** One of the first true UBI systems, where long-term residents receive a portion of the city's tax revenue.
- **Quatinga Velho:** A privately funded UBI pilot active since 2008 has improved living conditions, health, and nutrition, particularly among children.

How can India Pave the Way for the Implementation of Universal Basic Income?

- **Phased Implementation and Pilot Programs:** India should start with targeted pilot programs in diverse regions to **test UBI's effectiveness and identify implementation challenges**.
 - The **state of Sikkim's proposal in 2019 to implement UBI by 2022**, although delayed, provides a potential model.
 - Building on the success of **previous cash transfer experiments, like the SEWA Bharat and UNICEF study in Madhya Pradesh (2011-2012)**, India could initiate pilots in both rural and urban areas, covering different socio-economic contexts.
 - These pilots should run for **at least 2-3 years to capture long-term effects**.
- **Leveraging Digital Infrastructure:** India's robust digital infrastructure, particularly the **JAM (Jan Dhan-Aadhaar-Mobile) trinity**, provides a strong foundation for UBI implementation.
 - To build a base for UBI, India should focus on improving last-mile connectivity and digital literacy.
 - The **BharatNet project** and **Digital Saksharta Abhiyan (DISHA)** should be linked and expanded, especially in rural areas, to ensure better utilization of digital payment systems.
 - These steps would not **only facilitate UBI distribution but also promote financial inclusion and digital empowerment**.
- **Gradual Consolidation of Existing Schemes:** Instead of an **abrupt shift to UBI**, India should **gradually consolidate its existing social welfare schemes**.
 - This process could start by identifying **overlapping and inefficient programs** for phased replacement with direct cash transfers.
 - For instance, the **fertilizer subsidy could be converted into direct payments to farmers, similar to PM-KISAN**.
 - The **Public Distribution System (PDS)** could be partially replaced with **cash transfers in urban areas where market access is better**, while maintaining in-kind transfers in food-insecure regions.
 - This gradual approach would allow for smoother transition and better assessment of the impact on beneficiaries.
- **Progressive Funding Mechanism:** To make UBI fiscally sustainable, India needs to **expand its tax base and explore innovative funding mechanisms**.

- The recent surge in GST collections, reaching ₹1.78 lakh crore in March 2024, shows potential for increased revenue.
- Additionally, **rationalizing regressive subsidies**, like the LPG subsidy which often benefits higher-income groups, could free up resources.
- A phased reduction in **corporate tax exemptions**, which amounted to ₹1.03 lakh crore in 2020-21, could also contribute to UBI funding.
- **Adaptive Payment Structure:** To address concerns about work disincentives and ensure sustainability, India could implement an adaptive UBI structure.
 - This could involve a **base payment for all**, with additional amounts for vulnerable groups like the **elderly, disabled, or those in economically backward regions**.
 - The payment could be **indexed to inflation**. This structure would be similar to **China's dibao system**, which provides a basic living allowance.
- **Integration with Skill Development and Employment Programs:** To counter potential negative effects on labor market participation, **UBI should be integrated with skill development and employment programs**.
 - The **Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 3.0**, could be expanded and linked to UBI recipients.
 - Recipients could be incentivized to **participate in skill development programs** tied with UBI amounts for a fixed period post-training.
 - This approach would align with **India's goal of harnessing its demographic dividend** and could **help address the skills gap** highlighted in the India Skills Report 2022.
- **Robust Monitoring and Evaluation System:** Implementing a comprehensive monitoring and evaluation system is crucial for the success of UBI in India.
 - This system should leverage **big data analytics and AI to track the program's impact on poverty, inequality, and overall economic indicators**.
 - The **India Stack's Data Empowerment and Protection Architecture (DEPA)** could be utilized to ensure secure and consensual use of beneficiaries' financial data for impact assessment.
 - Regular **social audits, similar to those conducted for MGNREGA**, should be mandated to ensure transparency and accountability.
 - Additionally, **an independent evaluation board**, comprising economists, social scientists, and policy experts, should be established to provide periodic assessments and recommendations for program optimization.

Conclusion:

While **UBI may not be a silver bullet**, phased implementation through pilot programs and leveraging existing cash transfer schemes like **PM-KISAN** could offer a viable pathway towards a more inclusive and resilient economy. **Careful consideration of trade-offs and a balanced approach is essential for its success.**



Reimagining the Role of Civil Society Organizations

This editorial is based on "[Civil society organizations too need to be accountable](#)" which was published in Hindustan Times on 14/10/2024. The article brings into picture the critical need for accountability among Civil Society Organizations in India, emphasizing that their influence on public policy must be grounded in compliance with legal standards. Recent violations of the Foreign Contribution Regulation Act highlight the urgent necessity for transparency and alignment with democratic principles to maintain public trust.

Tag: S Tag: GS Paper - 2, GS Paper - 3, Non-Governmental Organizations, Government Policies & Interventions

In India, **Civil Society Organizations (CSOs)** play a crucial role in advocating for social justice and policy reform, yet they **often operate under a veil of exceptionalism**, claiming intimidation by the State when faced with legal scrutiny. This duality highlights a pressing need for **accountability**.

Recent actions against certain think tanks for violations of the **Foreign Contribution Regulation Act, 2010 (FCRA)** underscore the importance of compliance and transparency in their operations. As entities influencing public policy and opinion, CSOs must **align their practices with democratic principles** and the rule of law to maintain public trust and uphold the integrity of civil society.

What is the Role of Civil Society Organisations in India?

- **Advocacy and Policy Influence:** CSOs in India play a crucial role in advocating for marginalized groups and influencing policy decisions.
 - They act as a **bridge between citizens and the government**, bringing important issues to the forefront of public discourse.
 - Through research, campaigns, and lobbying efforts, CSOs have been instrumental in shaping legislation and government programs.

- A notable example is the **Right to Information (RTI) movement** started by Mazdoor Kisan Shakti Sangathan, which led to the passage of the RTI Act in 2005.
- A recent example is the role of CSOs in advocating for the **Rights of Persons with Disabilities Act, 2016**, which led to its implementation and subsequent amendments.
 - Organizations like the **National Centre for Promotion of Employment for Disabled People (NCPEDP)** have been at the forefront of this advocacy.
- **Social Service Delivery:** CSOs significantly contribute to filling gaps in public service delivery, especially in areas where government reach is limited.
 - They provide essential services in healthcare, education, sanitation, and disaster relief, often reaching the most vulnerable populations.
 - During the **Covid-19 pandemic**, CSOs played a vital role in supporting communities. For instance, **Goonj, a prominent CSO, launched the 'Rahat**
- **Governance and Accountability:** CSOs serve as **watchdogs**, promoting transparency and accountability in governance.
 - They **monitor government programs, conduct social audits, and expose corruption**, thereby strengthening democratic processes.
 - The **Association for Democratic Reforms (ADR)**, for example, has been instrumental in pushing for electoral reforms as seen in **Association For Democratic Reforms vs Election Commission Of India 2024** and increasing transparency in political funding.
 - Their **analysis of electoral bonds and campaigns for voters' right to information** have led to significant public discourse and legal challenges, culminating in the **Supreme Court's recent decision to strike down the electoral bonds scheme** in February 2024.
- **Community Mobilization and Empowerment:** CSOs play a crucial role in mobilizing communities, raising awareness about rights and entitlements, and empowering marginalized groups.
 - They foster collective action and build local leadership, enabling communities to address their own challenges.
 - The **Self-Employed Women's Association (SEWA)**, for instance, has been pivotal in organizing informal sector women workers.
- With 2.9 million workers associated with the Self-Employed Women's Association across 18 states, they have successfully advocated for the **rights of these workers**, leading to significant policy changes.
- **Innovation and Social Entrepreneurship:** CSOs are often at the **forefront of developing innovative solutions** to social problems, fostering social entrepreneurship, and promoting sustainable development.
 - They pilot new approaches that can later be scaled up or adopted by the government. **Akshaya Patra Foundation**, for example, has revolutionized mid-day meal programs in schools through its centralized kitchens.
 - As of 2023, **they serve over 2 million children daily across 22,367 schools in 15 states and 2 Union Territories**, demonstrating how CSO innovations can significantly impact public service delivery at scale.
- **Environmental Conservation and Climate Action:** In recent years, CSOs have become increasingly crucial in **addressing environmental challenges and promoting climate action in India**.
 - They raise awareness, conduct research, and implement grassroots initiatives for sustainable development.
 - The **Centre for Science and Environment (CSE)**, for instance, has been instrumental in shaping India's climate policy. Their research and advocacy efforts have contributed to the implementation of stricter vehicle emission norms and the promotion of renewable energy.
 - In 2023, **CSE's "State of India's Environment" report** significantly influenced policy discussions on air pollution and climate change mitigation strategies.
- **Digital Rights and Cyber Security:** As India rapidly digitalizes, CSOs are playing an emerging role in protecting digital rights, promoting cyber security, and ensuring equitable access to digital technologies.
 - Organizations like the **Internet Freedom Foundation (IFF)** have been at the forefront of this movement. IFF's advocacy and legal interventions have been crucial in challenging **surveillance technologies, protecting data privacy, and promoting net neutrality**.
 - Their **campaign against the use of Aadhaar biometric and facial recognition enabled attendance systems** has sparked a national debate on balancing security needs with privacy rights.

- **Promotion of Civic Engagement and Participatory Democracy:** CSOs play a vital role in deepening democracy by promoting civic engagement and participatory governance.
 - They encourage **citizen participation in decision-making processes** and foster a culture of active citizenship. The **Mazdoor Kisan Shakti Sangathan (MKSS)** in Rajasthan has been pioneering participatory social audits of schemes.
 - Organizations like **PRS Legislative Research** have been working to enhance citizens' understanding of complex legislative processes.

What are the Key Issues Related to Civil Society Organizations in India?

- **Funding Constraints and Financial Sustainability:** CSOs in India face significant challenges in securing stable and diverse funding sources.
 - The **Foreign Contribution (Regulation) Act (FCRA) amendments in 2020** have further restricted foreign funding, impacting many organizations' operations.
 - **Domestic philanthropy has not adequately filled this gap**, leaving many CSOs financially vulnerable.
 - According to a recent report **54% of CSOs** reported a decrease in funding **post-Covid-19**.
 - This financial instability has forced many organizations to **scale back operations or shut down entirely**, particularly affecting grassroots organizations working with marginalized communities.
- **Regulatory Environment and Government Scrutiny:** The regulatory landscape for CSOs in India has become increasingly complex and restrictive. A total of **20,701 NGOs** have lost their FCRA licenses since **1976**.
 - This heightened scrutiny has led to **self-censorship among CSOs**, particularly those working on sensitive issues like **human rights or environmental protection**, potentially limiting their effectiveness in advocacy and social change.
- **Lack of Accountability and Transparency:** While CSOs advocate for transparency in governance, some face **criticism for their own lack of accountability and transparency**.
 - Inadequate financial reporting, opaque decision-making processes, and limited public disclosure of activities and outcomes have eroded public trust in some organizations.
- In 2019, the Women and Child Development Ministry has filed an FIR against **NGO Indian Council for Child Welfare (ICCW)** for misusing government-allocated funds and failing to refund the unspent balance.
- This lack of transparency **undermines public confidence**.
- **Political Polarization and Shrinking Civic Space:** The increasing political polarization in India has created a challenging environment for CSOs, particularly those working on sensitive issues like human rights, minority rights, or environmental protection.
 - **Some organizations face accusations of being "anti-national"** or working against India's interests, leading to public backlash and sometimes legal challenges.
 - The **2023 World Press Freedom Index** ranked **India 161st out of 180 countries**, reflecting the broader constraints on free expression that also affect CSOs.
 - This polarized environment has led some organizations to self-censor or avoid certain issues, potentially limiting their effectiveness in addressing critical social and political challenges.
- **Limited Collaboration and Sectoral Fragmentation:** The CSO sector in India often suffers from **limited collaboration and coordination among organizations**, leading to duplication of efforts and inefficient use of resources.
 - **Competition for funding and recognition** sometimes hinders partnerships that could amplify impact.
 - This fragmentation not only reduces the collective impact of civil society but also weakens its voice in policy advocacy and social change efforts.
- **Impact Measurement and Reporting Challenges:** CSOs often struggle with effectively measuring and communicating their impact, which is crucial for attracting funding and demonstrating value to stakeholders.
 - **Many organizations lack robust monitoring and evaluation systems** or the capacity to conduct rigorous impact assessments.
 - This gap in impact measurement not **only affects organizations' ability to improve their programs** but also makes it difficult to justify their work to donors and policymakers, potentially leading to reduced support and funding.
- **Digital Divide and Technological Challenges:** The rapid digitalization of society has exposed a **significant digital divide** within the CSO sector.

- While some organizations have successfully leveraged technology for their work, many, especially smaller and rural CSOs, struggle with limited digital infrastructure and skills.
- A recent survey stated that **95% of CSOs say the internet is critical to their ability to do their work**, however, as much as 78% lack the digital technology tools to do so.
- This digital divide not only affects CSOs' operational efficiency but also **limits their reach and impact in an increasingly digital world**.
- **Volunteer Management and Retention:** Many CSOs face challenges in attracting, managing, and retaining volunteers, who are often crucial to their operations.
 - **High turnover rates and limited long-term commitment** from volunteers can disrupt program continuity and organizational growth.
 - A recent survey stated that while **78% reported employee participation in volunteering programmes**, only 26% reported the number of volunteers, and 39% reported the number.
 - This inconsistency in volunteer engagement poses challenges for CSOs in planning and executing long-term projects and building sustainable community relationships.

What Measures can be Adopted to Enhance the Role of CSO in India?

- **Streamline and Simplify Regulatory Processes:** The government could streamline FCRA and other regulatory processes to **reduce bureaucratic hurdles for CSOs while maintaining necessary oversight**.
 - This could include creating a **single-window clearance system** for registrations and compliance, digitalizing processes to reduce paperwork, and establishing clear timelines for approvals.
 - Implementing a **risk-based approach to regulation**, where organizations with a track record of compliance face fewer restrictions, **could also be beneficial**. For instance, the initiative by the **Ministry of Home Affairs** to **allow online submission of FCRA annual returns** is a step in the right direction, but this could be expanded to cover all regulatory interactions.
- **Promote Domestic Philanthropy and CSR Partnerships:** Encouraging domestic philanthropy through **tax incentives and simplified giving processes** could help offset the decline in foreign funding.
 - The government could consider increasing the **tax deduction limit under Section 80G of the Income Tax Act** for donations to registered CSOs.

- Additionally, facilitating **stronger partnerships between CSOs and corporates under Corporate Social Responsibility (CSR)** initiatives could provide sustainable funding sources.
- Creating a **national CSR-CSO matching platform**, similar to successful models in other countries, could enhance collaboration and resource allocation efficiency.
- **Invest in Capacity Building and Skill Development:** Establishing a national capacity-building program for CSOs, potentially funded through a public-private partnership model, could address skill gaps in areas like **digital literacy, financial management, and impact measurement**.
 - This program could offer **both online and offline training modules**, mentorship opportunities, and resources tailored to different organizational sizes and focus areas.
 - Collaborating with **academic institutions and corporate training programs** could bring in expertise and resources.
 - The recent **National Education Policy 2020**'s emphasis on skill development could be leveraged to include CSO management as a focus area.
- **Enhance Transparency and Accountability Mechanisms:** Developing a comprehensive, user-friendly national CSO database that includes financial reports, program outcomes, and impact assessments could improve transparency and build public trust.
 - This platform could be modeled after successful international examples like **GuideStar**, adapted for the Indian context.
 - Encouraging CSOs to adopt **standardized reporting formats and undergo voluntary third-party audits** could further enhance credibility.
 - The government could incentivize these practices by offering benefits like **expedited grant approvals or tax incentives** to organizations that maintain high transparency standards.
- **Foster Collaboration and Knowledge Sharing:** Creating sectoral and regional CSO networks or coalitions could enhance collaboration, **reduce duplication of efforts, and amplify collective impact**.
 - These networks could be facilitated through regular conferences, online platforms, and joint projects.
 - Encouraging the **formation of issue-based consortiums**, where CSOs working on similar themes pool resources and expertise, could lead to more effective interventions.

- **Implement Evidence-Based Policymaking:** Establishing formal mechanisms for CSO participation in policy formulation and implementation could enhance the effectiveness of government programs.
 - This could include **mandating CSO representation in relevant government committees**, creating regular consultation forums, and incorporating CSO-generated data and research into policy decisions.
 - The **NITI Aayog's recent initiatives to engage CSOs in policy discussions** could be expanded and institutionalized across all government departments, ensuring diverse and grassroots perspectives inform policymaking.
- **Promote Digital Transformation and Innovation:** Launching a '**Digital CSO**' initiative to support organizations in adopting technology could enhance their efficiency and reach.
 - This could include **providing subsidized access to digital tools**, offering technical support for digital transformation, and creating platforms for sharing innovative tech solutions within the sector.
 - Encouraging **partnerships between tech companies and CSOs** through challenge grants or innovation funds could drive the development of India-specific solutions.
 - The **government's Digital India initiative** could be expanded to specifically address the digital needs of the social sector.
- **Enhance Financial Sustainability Through Social Enterprise Models:** Encouraging CSOs to develop sustainable revenue models by incorporating social enterprise approaches could reduce donor dependency.
 - This could be supported through specialized training programs, **access to low-interest loans for social enterprises**, and creating marketplaces for CSO products and services.
 - The success of organizations like Goonj in developing sustainable models demonstrates the potential of this approach.
- **Strengthen Impact Measurement and Reporting:** Developing **standardized impact measurement frameworks** tailored to different sectors of CSO work could enhance the ability to demonstrate and communicate impact.
 - This could be supported by creating a **national impact measurement resource center**, offering training and tools for CSOs to implement these frameworks.
 - Encouraging the use of technology for real-time data collection and analysis could improve the accuracy and timeliness of impact reporting.

- The government could **consider making standardized impact reporting a requirement for accessing certain funds or benefits**, incentivizing adoption across the sector.

- **Enhance Public Engagement and Volunteerism:** Launching a **national campaign to promote volunteerism** and civic engagement could increase public support and participation in CSO activities.
 - This could include **integrating community service into school curricula**, creating a national volunteer database, and offering incentives like academic credits or skill certifications for volunteer work.
 - Leveraging **social media and digital platforms to connect potential volunteers with CSOs** could streamline engagement.

Conclusion

CSOs in India are **indispensable for fostering social justice** and influencing policy reform. By implementing measures to enhance their capacity, transparency, and collaboration, CSOs can strengthen their role in shaping a more equitable and just society. The path forward requires a **concerted effort from both the government and civil society** to create an enabling environment where these organizations can thrive and fulfill their mission.



Addressing India's Looming Water Crisis

This editorial is based on "[A major new report makes the case for water as a global common good](#)" which was published in The Indian Express on 21/10/2024. The article highlights the urgent global water crisis, warning that demand may exceed supply by 40% by 2030, severely impacting economies and food security. For India, it underscores the need for decisive action on inter-state water disputes and water conservation.

Tag: S Tag: GS Paper - 2, Government Policies and Interventions, GS Paper - 3, Agricultural Resources, Water Resources, Conservation of Resources

A recent report by the **Global Commission on the Economics of Water** warns of a **global water crisis**, with demand projected to **exceed supply by 40% by 2030**, threatening food production and economies. For India, already grappling with **inter-state water disputes** and **conservation challenges**, this report underscores the urgent need for decisive policy reforms to address water stress.

What is the Current Status of Water Availability and Water Stress Level in India?

➤ Current Status of Availability:

- The average annual per capita water availability in India has declined from **1,816 cubic meters** in 2001 to **1,545 cubic meters** based on the 2011 census.
- Projections by the Central Water Commission indicate further decreases to **1,434 cubic meters** by 2025 and **1,219 cubic meters** by 2050.

➤ Water Stress Indicators:

- Annual per capita water availability below **1,700 cubic meters** signifies water stress, while below **1,000 cubic meters** indicates water scarcity.
 - As of now, **India is experiencing water stress**, with geographic and climatic variability causing regional disparities.
- According to the **15th Finance Commission**, approximately **600 million Indians** faced high to extreme **water stress** in 2020.

What are the Primary Water-Related Challenges Confronting India?

➤ Groundwater Depletion: India is facing severe groundwater depletion, particularly in agricultural states.

- **Overexploitation for irrigation** has led to rapidly falling water tables. For instance, in Punjab, rampant tube well irrigation is causing drastic water table drops.
 - Ideally, groundwater should be available at a **depth of 50 ft to 60 ft**, but in Punjab, its level has significantly dropped to **150ft to 200 ft** in most places (as of 2019).
- This issue is critical as groundwater is a **major source for both irrigation and domestic water supply**.

➤ Urban Water Scarcity: Rapid urbanization has intensified water scarcity in Indian cities.

- **NITI Aayog's Composite Water Management Index** has shown that nearly **600 million people** are facing high to extreme water stress.
- The **2019 Chennai water crisis**, where water had to be transported by train, exemplifies the severity of urban water issues.
- Inadequate rainfall in 2023 led to a water crisis in the state of **Karnataka**, especially in its capital, the IT city of **Bengaluru**.
 - The Karnataka government termed **2023 as a drought year**.

- In addition to this, **urban flooding** is increasingly becoming a significant issue. The **Central Water Commission** recorded **184** extreme and severe floods in 2022 and 145 in 2021.

- A **CAG report (2024)** indicated that many recommendations from various committees on flood management remain unfulfilled, highlighting gaps in forecasting and implementation.

➤ Irrigation Efficiency and Agricultural Water Use: As per Central Water Commission, agriculture consumes about **78% of India's water resources**, often inefficiently.

- The shift to **water-intensive crops and outdated irrigation practices** contribute to water stress.
- **NITI Aayog** reported that Indian farmers utilize **three to five times** more water than farmers in the US, China, or Israel to produce equivalent crop yields.
- According to recent estimates, India's **irrigation efficiency is around 38%**, significantly lower than the **global average of 50-60%**, indicating a **critical need for widespread adoption of water-efficient irrigation technologies and crop diversification**.

➤ Water Pollution and River Rejuvenation: India's rivers, particularly the Ganga, face severe pollution from untreated sewage and industrial effluents.

- Over **100 towns and cities** along the Ganga **pour domestic sewage into the river**.
- In 2022, the **Central Pollution Control Board** identified **311 polluted river stretches** across **279 rivers** in 30 States/UTs, based on **Biochemical Oxygen Demand (BOD)** levels exceeding **3 mg/L** during 2019 and 2021.
- The **Standing Committee on Water Resources** highlighted significant pollution in Yamuna river due to **biomedical waste, construction debris, and untreated sewage**.

➤ Climate Change Impact on Water Resources: Climate change is exacerbating India's water stress by increasing the frequency and intensity of extreme weather events like floods and droughts.

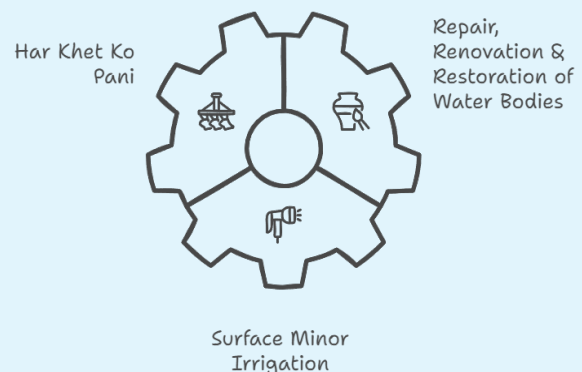
- The country's dependence on monsoon rains, which are becoming increasingly erratic, adds to the vulnerability.
- For example, the **2023 monsoon season** saw extreme rainfall variations across India, with some regions experiencing severe floods while others faced drought-like conditions.
 - Despite the **2024 monsoon season concluding with 7.6% above-average rainfall**, inadequate water management continues to exacerbate the water crisis.

- **Fragmented Governance and Poor Coordination:** The water sector in India suffers from multiple authorities with overlapping jurisdictions - **including the Ministry of Jal Shakti, state water boards, municipal corporations, and panchayats.**
 - For instance, in Delhi alone, seven different agencies handle water management, leading to coordination failures.
 - The **National Water Development Agency** has identified **30** river interlinking projects under the **National Perspective Plan (1980).**
 - As of now, **only the Ken-Betwa Link Project** has received approval, with completion expected by March 2030, highlighting lack of coordination among various levels of government.
- **Inter-State Water Disputes:** India faces numerous long-standing inter-state water disputes, which have become increasingly contentious as water scarcity grows.
 - The **Cauvery water dispute between Karnataka and Tamil Nadu** is a prime example. Karnataka and Tamil Nadu are once again in conflict over sharing excess Cauvery water, with Karnataka requesting to adjust the surplus inflow against future releases, citing the **32% excess rainfall this monsoon.**
 - Tamil Nadu, however, insists on strict adherence to the **Supreme Court's 2018 ruling**, leading to renewed tensions
 - The **Krishna-Godavari dispute** is another major issue. These disputes highlight the **need for more effective interstate water governance mechanisms** and basin-wide management approaches.
- **International Water Sharing Challenges:** India shares many of its river basins with neighboring countries, leading to complex transboundary water issues.
 - The **Indus Waters Treaty with Pakistan**, signed in **1960**, has been under strain in recent years.
 - In **2023**, India issued a notice to modify the treaty, citing Pakistan's "**intransigence**" in **resolving disputes over hydroelectric projects.**
 - The **unresolved issue of Teesta River** water sharing between India and Bangladesh persists despite years of negotiations, further **complicated by recent political tensions in Bangladesh.**
 - The lack of a comprehensive water-sharing agreement for the **Brahmaputra with China** is **another major concern**, especially given **China's dam-building activities upstream.**
 - These international water challenges require diplomatic finesse and highlight the need for more robust transboundary water cooperation frameworks in **South Asia.**

What Key Steps has the Indian Government taken for Water Conservation and Rainwater Harvesting?

- **National Water Policy (2012):** This policy advocates for **rainwater harvesting and conservation**, emphasizing the need to augment water availability through direct rainfall utilization.
- **Jal Shakti Abhiyan (JSA):** Launched in 2019, JSA aims to promote water conservation and harvesting nationwide. The current phase, **Jal Shakti Abhiyan: Catch the Rain (JSA: CTR) 2024**, focuses on constructing and repairing rainwater harvesting structures in all districts, including rural and urban areas.
 - This initiative collaborates with various Central Government schemes, such as:
 - **MGNREGS**
 - **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)**
 - **Pradhan Mantri Krishi Sinchai Yojana (PMKSY)**
- **Atal Bhujal Yojana:** Implemented in **8,213 water-stressed Gram Panchayats** across 80 districts in **7 states** (Haryana, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh), this scheme shifts the focus from groundwater development to sustainable management practices.
- **Urban Guidelines by the Ministry of Housing & Urban Affairs:** Guidelines like the **Unified Building Bye Laws (UBBL) of Delhi (2016)** and **Model Building Bye Laws (MBBL) (2016)** mandate rainwater harvesting and conservation measures, tailored to local conditions.
- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY):** Aimed at improving irrigation accessibility and efficiency, PMKSY encompasses three components:

Components of PMKSY



- **Mission Amrit Sarovar:** This mission focuses on creating and rejuvenating **at least 75 Amrit Sarovars (water bodies)** in every district to facilitate water harvesting and conservation.
- **National Aquifer Mapping (NAQUIM):** The **Central Ground Water Board (CGWB)** completed this project covering approximately **25 lakh sq. km.**
 - The management plans developed include various water conservation measures through recharge structures.

What Measures can be Adopted for More Effective Water Management in India?

- **Modernizing Irrigation Systems:** Implementing **precision irrigation techniques** like drip and sprinkler systems can significantly improve water use efficiency in agriculture.
 - The Punjab government's "**Paani Bachao, Paisa Kamao**" scheme, which incentivizes farmers to reduce groundwater usage, is a promising model.
 - Scaling up such initiatives nationally, **coupled with promoting crop diversification away from water-intensive crops**, could dramatically reduce agricultural water consumption. The government could consider **linking farm subsidies to water-efficient practices to accelerate adoption.**
- **Urban Water Management and Recycling:** Cities need to focus on **reducing water losses**, implementing **water metering**, and **promoting water recycling.**
 - Chennai's initiative to recycle wastewater for industrial use is a model to emulate.
 - The city's **Tertiary Treatment Reverse Osmosis (TTRO) plants** can recycle about **20% of its Chennai sewage**, **reducing freshwater consumption.**
 - Other cities should adopt similar approaches, integrating water recycling into urban planning.
 - **Israel's successful Shafdan facility model** could be adapted for Indian cities too.
 - Implementing **rainwater harvesting in urban areas**, as mandated in cities like **Bengaluru**, can also significantly augment water resources. These measures, combined with smart water management systems and **leak detection technologies**, can improve urban water security.
- **Community-Led Groundwater Management:** Empowering local communities to manage groundwater resources can lead to sustainable usage.
 - The **Atal Bhujal Yojana** is one of the world's largest **community-led groundwater** management programs. It helps villagers understand their water availability and usage patterns to budget water use. Expanding this program and **integrating it with technologies like remote sensing and GIS for aquifer mapping** can enable more informed decision-making at the local level.
- Coupling this with **awareness campaigns and capacity building of local water user associations** can ensure long-term sustainability.
- **Water-Sensitive Infrastructure Design:** Incorporating water-sensitive design principles like **Blue-Green Infrastructure Model** in urban planning can significantly improve water management.
 - This includes creating **permeable surfaces to enhance groundwater recharge**, **developing urban wetlands** for natural water treatment, and integrating stormwater management with urban landscaping.
 - For instance, **Indore's efforts in reviving 330 traditional water supply sources (wells & bawdies)** have not only improved water availability but also enhanced the urban environment.
 - Mainstreaming these approaches in urban development policies and municipal bylaws across India can lead to more water-resilient cities.
 - Design **Mandate climate stress testing** and adaptive design for all new water infrastructure. Implement "**sponge city**" concepts adapted from **China's successful model.**
- **Enhancing Water Storage and Recharge:** Given **India's monsoon-dependent water cycle**, improving water storage is crucial.
 - This does not necessarily mean large dams, **but a network of smaller, decentralized storage structures.**
 - The success of **Rajasthan's Jal Swavlamban Abhiyan**, which created numerous **small water harvesting structures**, demonstrates the potential of this approach.
 - It has **helped recharge groundwater and improve water availability in arid regions.** Combining traditional water harvesting methods with modern technology for site selection and design can create a robust, locally-adapted water storage network across the country.
- **Data-Driven Water Management:** Leveraging technology for real-time monitoring and data-driven decision-making in water management is essential.
 - The **National Hydrology Project**, supported by the **World Bank**, has introduced systems that give reservoir managers accurate, real-time information.

- Expanding this to cover **all major water bodies and integrating it with AI and machine learning** can revolutionize water management.
- For instance, **Bengaluru's use of IoT devices for monitoring borewells** has improved water distribution efficiency.
- Nationwide implementation of such systems can lead to more responsive and efficient water management.
- **Smart Water Pricing Reform:** Introduce **dynamic water pricing based on availability, quality, and usage patterns**.
- **Singapore's tiered pricing model could be adapted.** Use smart meters with AI-driven analytics to implement real-time pricing.
- Also, **implement strict industrial water reuse requirements with technology support.** Provide technical assistance and financial incentives for transition. Establish **water reuse markets between industries and agriculture**.



Conclusion:

The urgency of the water crisis demands decisive action from the Indian government and a collective effort to improve water management practices. Emphasizing effective governance, community involvement, and technological advancements will be crucial in overcoming the current water-related obstacles and fostering a resilient water management framework for the country. This aligns with **Sustainable Development Goal 6 (SDG 6)**, which aims to ensure **availability and sustainable management of water and sanitation for all**.



Reassessing India's Free Trade Agreements

This editorial is based on "[Welcome rethink on FTAs](#)" which was published in The Hindu Business Line on 21/10/2024. The article highlights India's strategic pause in FTA negotiations to safeguard its government procurement policies, which have successfully supported domestic manufacturing and MSEs. It underscores limited opportunities in EU and UK markets despite their perceived attractiveness.

Tag: S Tag: GS Paper - 3, Effect of Policies & Politics of Countries on India's Interests, GS Paper - 2, International Treaties & Agreements Government Policies & Interventions

India's Department of Commerce is pausing **Free Trade Agreement (FTA)** negotiations to reassess its stance, particularly on government procurement policies. While developed nations push for open procurement access in FTAs, India has effectively used procurement to boost domestic manufacturing and support MSEs, achieving **₹82,630.38 crore in 2023-24**. Despite the attractiveness of **European Union** and **United Kingdom** procurement markets, historical data suggests limited opportunities for Indian exporters. This pause allows India to carefully reconsider its position, ensuring domestic policies remain intact.

India's Major Free Trade Agreements



- EFTA: European Free Trade Association
- TEPA: Trade and Economic Partnership Agreement
- ECTA: Economic Cooperation and Trade Agreement
- CEPA: Comprehensive Economic Partnership Agreement
- CECPA: Comprehensive Economic Cooperation Partnership Agreement
- FTA: Free Trade Agreement
- PTA: Preferential Trade Agreement

What are the Benefits of Free Trade Agreements for India?

- **Enhanced Market Access and Export Growth:** India's FTA with UAE demonstrates this benefit powerfully - **exports to UAE grew by 11.8% to reach \$31.3 billion in FY23 after Comprehensive Economic Partnership Agreement implementation.**
 - The agreement has opened up preferential access for Indian goods in over **97% of UAE's tariff lines**, particularly benefiting textiles, gems and jewelry, and engineering goods sectors.
 - These recent successes have created a template for India's ongoing negotiations with larger markets like the **EU and UK**, where similar preferential access could significantly boost India's export potential.
- **Strategic Investment Inflows and Manufacturing Growth:** The recent agreement with the **European Free Trade Association** exemplifies this benefit, with its unprecedented **\$100 billion investment commitment over 15 years.**
 - This investment focus represents a new approach in India's FTA strategy, **linking trade access with concrete investment promises.** The investment chapters in modern FTAs are particularly boosting India's manufacturing ambitions - for instance, the **UAE-India CEPA has already facilitated several manufacturing investments**, including a \$2 billion **food processing facility.**
 - These investments contribute directly to Make in India goals while creating employment opportunities and technology transfer.
- **Supply Chain Resilience and Diversification:** Post-pandemic, FTAs are helping India reduce dependency on single sources and build resilient supply chains.

- The **Australia-India Economic Cooperation and Trade Agreement (ECTA)** for instance, provides assured access to **critical minerals** needed for India's green technology and EV manufacturing.
- The ongoing negotiations with the EU and UK could **further strengthen India's position in global supply chains**, particularly in sectors like **pharmaceuticals and automotive components**.
- **Technology Access and Innovation Ecosystem:** Modern FTAs are facilitating technology transfer and innovation partnerships.
 - The **India-Japan CEPA** has been instrumental in bringing advanced manufacturing technologies, particularly in the **electronics and automotive sectors**.
 - The recent EFTA agreement, while protecting **India's generic pharmaceutical interests by rejecting data exclusivity**, includes provisions for technology cooperation in emerging areas like green technology and digital innovation.
 - This aspect of FTAs is becoming increasingly important as **India positions itself in global value chains**.
- **Services Sector Growth and Professional Mobility:** Recent FTAs show significant gains for India's services sector.
 - The **UAE CEPA** includes unprecedented provisions for **mutual recognition of professional qualifications** and easier visa access for skilled professionals.
 - The **Australia ECTA** provides quota for **Indian chefs and yoga teachers**, while ongoing EU negotiations focus on **IT/ITeS sector access**.
- **Sectoral Competitiveness and Quality Standards:** FTAs are driving quality improvements and competitiveness in Indian industry.
 - For example, the textiles sector saw a major growth in exports to Australia of an average of **11.84% over the last 5 years**, driven by quality upgrades to meet Australian standards.
 - Similar improvements are visible in **pharmaceutical exports under various FTAs**, with Indian companies increasingly meeting global quality benchmarks. This competitive pressure is actually helping Indian industries prepare for global competition.

What are the Key Issues Related to India's FTAs?

- **Trade Deficit Concerns:** India's trade deficits with FTA partners have consistently widened post-implementation.

- With **ASEAN**, the trade deficit increased from **USD 5 billion in 2010 (when FTA was implemented) to over USD 43.57 billion in FY23**.
- The India-Korea CEPA has seen a similar trend, with the deficit growing to **USD 9.5 billion in 2021-22**.
- Analysis shows that India's FTA partners often utilize the agreements more effectively - for instance, **India's FTA utilization remains very low at around 25%**, while utilization for developed countries typically sits between **70-80%**.
- **Rules of Origin Issues:** Misuse of **Rules of Origin** has become a critical concern, particularly with **re-routing of Chinese goods through FTA partners**.
 - A 2020 report stated that Customs have detected fraudulent claims under FTA to the tune of **Rs 1,200 crore**.
 - Indian manufacturers stated that imports are hurting domestic industry as the **Chinese firms are resorting to dumping their products by misusing the FTA route**.
 - The issue is particularly acute in sectors like **electronics and textiles**.
- **Non-Tariff Barriers:** While FTAs reduce tariffs, **non-tariff barriers often persist and limit market access**. Indian pharmaceutical exports face significant regulatory hurdles in the EU despite proposed FTA negotiations.
 - Recent data shows that Indian pharma companies spend 15-20% more on compliance for EU markets compared to other destinations.
 - Similarly, Indian food exports face **strict SPS (Sanitary and Phytosanitary)**.
 - A total of **3,925 human food export** shipments from India were refused entry at US customs in the last 4 years.
 - Popular **Indian spice brand MDH**, under scrutiny for alleged contamination in some products, has since 2021 seen an average **14.5% of its US shipments rejected**.
- **Impact on Domestic Industries:** FTAs have had a negative impact on many domestic industries, especially **small and medium enterprises (SMEs)** and traditional sectors like agriculture and dairy.
 - **Cheap imports of agricultural and dairy products from FTA partner** countries have placed immense pressure on local farmers and producers, who find it difficult to compete.
 - In 2022, the Indian government delayed negotiations for an FTA with Australia due to concerns raised by Indian dairy farmers, who feared losing out to competition from Australian dairy products.

- Recently, **Indian Commerce and Industry Minister** stated that India's dairy sector will not receive duty concessions under any Free Trade Agreements due to its **sensitivity involving small farmers' livelihoods**
- Similarly, India's textile sector, which employs millions, has struggled with the influx of cheaper textile imports from countries like Bangladesh.
 - In 2006, India permitted the **duty-free import of readymade garments from Bangladesh under the South Asian Free Trade Agreement (SAFTA)**. This has led to a rise in apparel imports made from Chinese fabrics and yarns.
 - **Bangladesh imports these fabrics from China**, manufactures garments using its low-cost labor, and then exports the finished products to India without incurring import duties.
- **Lack of Improved Access for Indian Services:** India's FTAs have not sufficiently secured reciprocal market access for its competitive service sectors, such as IT, finance, and professional services.
 - Many FTA partner countries impose **stringent regulatory barriers, preventing Indian service providers** from benefiting fully from the agreements.
 - This issue became evident in the India-ASEAN FTA, where **while goods trade increased, Indian service providers struggled to enter Southeast Asian markets** due to several restrictions.
 - A similar problem has emerged in **India's ongoing negotiations with the UK**, where India is pushing for the **liberalization of services and visa-related matters**, particularly regarding the movement of professionals
- **Intellectual Property Rights Tensions:** IPR provisions in FTAs, particularly with developed partners, often create tensions with India's domestic policies.
 - The ongoing **India-EU FTA negotiations** face challenges over pharmaceutical patent protection, EU demands could increase medicine costs if implemented.
 - Similar issues exist in negotiations with the UK, where data exclusivity requirements could impact India's generic drug industry.
- **Environmental and Labor Standards:** New-age FTAs increasingly include environmental and labor standards that could impact competitiveness.
 - The **EU's Carbon Border Adjustment Mechanism** could affect **USD 8 billion** worth of Indian exports despite FTA preferences.

- Labor standard requirements in proposed FTAs with developed nations could increase compliance costs for **labor-intensive sectors like textiles and leather**, affecting their export competitiveness.
- **Geopolitical Concerns:** India's strategic and geopolitical concerns significantly influence its approach to FTAs, particularly in the context of rising tensions with China.
 - India has been cautious about joining large regional agreements like the **Regional Comprehensive Economic Partnership (RCEP)**. In 2019, **India opted out of the RCEP negotiations**, citing concerns about unequal market access and the potential negative impact on sectors such as agriculture, dairy, and small-scale industries.
 - Additionally, **India was apprehensive about China's economic dominance within the agreement**, which could lead to increased trade imbalances and dependency on Chinese goods, undermining India's economic security.

What Strategies can India Pursue to Negotiate FTAs that Effectively Safeguard its National Interests?

- **Strategic Negotiation Framework:** Develop a **data-driven negotiation framework** using sector-specific impact assessment models.
 - Establish **clear thresholds for market access commitments** based on domestic industry readiness scores (measured through **productivity, quality standards, and competitiveness indices**).
 - Create an **AI-powered trade analytics system** to monitor real-time trade flows and predict impact scenarios. For example, implement a system similar to **KOSIS KOREAN Statistical Information Service** that provides dynamic impact assessments.
 - Set up a permanent multi-stakeholder negotiation team combining technical experts, industry representatives, and government officials.
- **Rules of Origin Enforcement Mechanism:** Strengthen the **online Certificate of Origin management system** with blockchain technology for real-time verification.
 - Implement mandatory **geo-tagging and digital tracking** for sensitive import categories. Deploy AI-based risk assessment systems to flag suspicious trade patterns. For instance, establish a system similar to **Singapore's Networked Trade Platform that tracks credentials across supply chains**.
 - Create dedicated RoO enforcement cells at major ports with advanced testing facilities for value addition verification.

- **Domestic Industry Preparedness Program** Launch sector-specific competitiveness enhancement programs before FTA implementation.
 - Create a dedicated fund for technology upgradation and quality certification support. Establish industry-specific training centers in partnership with FTA partner countries.
 - Like Setting up **more Japan-India Manufacturing Institutes** in key industrial clusters. Develop a rating system for **export-ready firms** and provide targeted support based on ratings.
- **Services Trade Enhancement:** Create a comprehensive database of non-tariff barriers in services sectors across FTA partners.
 - Establish **mutual recognition agreements** for professional qualifications on priority basis.
 - Develop a **digital platform for service providers to report market access issues**. For example, implement a system similar to the **EU's Trade Barriers Reporting mechanism**. Set up dedicated service export promotion councils with market-specific strategies.
- **MSME Integration Strategy:** Establish MSME export facilitation centers in all major industrial clusters with **FTA-specific advisory services**.
 - Create a digital platform connecting MSMEs with potential buyers in FTA partner countries. Provide financial support for international certification and compliance.
 - Launch an **"MSME Global Connect" program** with targeted interventions for each FTA market. Develop specialized credit schemes for MSME exporters with performance-based incentives.
- **Digital Trade Infrastructure:** Develop secure data exchange protocols with FTA partners for seamless digital trade. Create standardized **digital documentation systems accepted across FTA networks promoting India Stack**.
 - Establish cross-border digital payment using **UPI mechanisms** with partner countries.
 - Set up dedicated cyber security frameworks for cross-border digital trade.
- **Value Chain Integration Program:** Identify strategic value chains where India can play a larger role and develop targeted interventions.
 - **Create specialized industrial parks** for deeper integration with FTA partner value chains. Establish supplier development programs with major companies from FTA partners.

- Launch **sector-specific skill development initiatives** aligned with value chain requirements.
- **Review and Renegotiation Mechanism:** Implement regular review mechanisms with clear performance metrics for each FTA.
 - Establish **trigger mechanisms for safeguard measures** based on import surge indicators. Create a **permanent joint working group with each FTA partner** for continuous dialogue. Develop clear protocols for addressing emerging issues and concerns.

Conclusion:

India's strategic pause in FTA negotiations highlights the need to **reassess government procurement policies while safeguarding domestic manufacturing and MSEs**. By prioritizing thorough evaluations and addressing existing challenges, India can ensure that future trade agreements **not only promote economic growth but also align with national interests**. A balanced approach will enable India to harness the benefits of FTAs while protecting its vital industries.



Evolving Landscape of India-China Relations

This editorial is based on "[India-China agreement: Breaking a stalemate](#)" which was published in The Indian Express on 23/10/2024. The article brings into picture the recent India-China agreement to restore mutual patrolling rights in Depsang Plains and Demchok, marking the first major breakthrough since the 2020 border crisis. This progress, though limited, comes ahead of the BRICS Summit in Kazan, Russia.

Tag: GS Paper - 2, India and its Neighbourhood, Important International Institutions, Groupings & Agreements Involving India and/or Affecting India's Interests, International Treaties & Agreements, Effect of Policies & Politics of Countries on India's Interests

The recent agreement between **India and China** to restore **mutual patrolling rights in Depsang Plains and Demchok in Ladakh** marks the first significant breakthrough since the **2020 border crisis**. This diplomatic progress, though limited as it focuses only on reversing Chinese transgressions rather than resolving the broader boundary dispute, comes at a strategic time when Indian Prime Minister and Chinese President engaged in their first formal talks in five years on the sidelines of the **BRICS summit in Russia**.



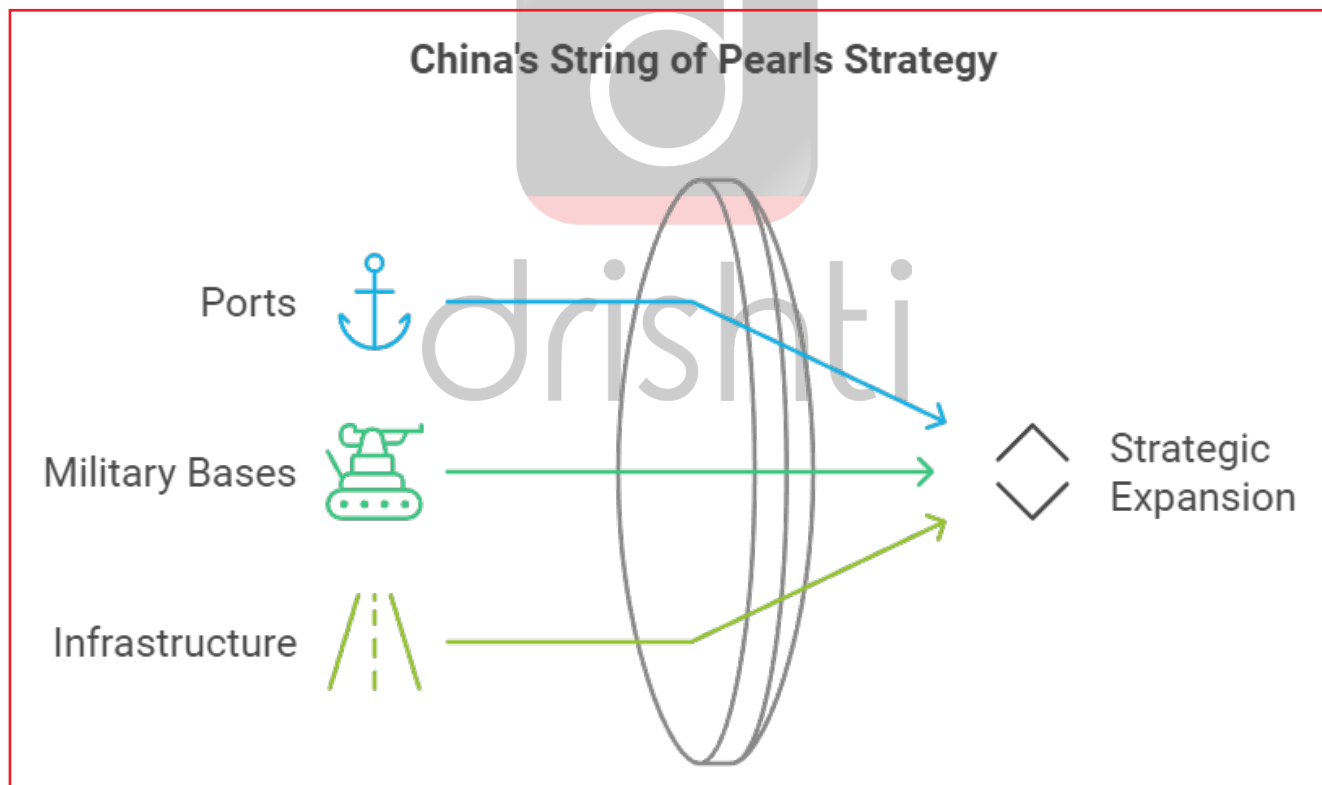
What is the Significance of China for India?

- **Industrial Raw Material Dependency:** China has emerged as India's largest trading partner in the FY 2023-24 with **USD 118.4 billion two-way commerce (Global Trade Research Initiative)**, despite border tensions.
 - India heavily relies on Chinese imports for critical industrial raw materials and intermediate goods.
 - Over **70% of India's Active Pharmaceutical Ingredients (APIs)** are sourced from China, making the pharmaceutical industry particularly dependent.
 - In the financial year 2023-24, India imported electronic components worth over **USD 12 billion from China**.
 - At present, India depends on imports for nearly **80% of its solar equipment**, with **China supplying over 60% of these imports (Policy Circle Bureau)**.
 - Recent efforts to establish domestic manufacturing capabilities will take years to significantly reduce this dependency.
- **Technology and Digital Infrastructure:** Despite security concerns and app bans, Chinese technology continues to influence **India's digital landscape**.
 - Chinese smartphone manufacturers still dominate the Indian market with over **75% market share collectively (Counterpoint Research)**.
 - Critical telecommunications equipment, despite restrictions, often has **Chinese components or technology**. India's emerging sectors like **electric vehicles** significantly depend on **Chinese battery technology and components**.
- **Investment and Expertise:** Chinese technical expertise remains valuable for Indian industrial development. Chinese companies have significant experience in infrastructure development and high-speed rail systems, **which India seeks to develop**.
 - Several Indian unicorn startups have received substantial Chinese investments, crucial for their growth phases.
 - As of 2020, **18 Unicorn companies** in India had over **USD 3,500 million of Chinese investments**
- **Trade Route Dependency:** India's trade routes and regional connectivity initiatives often intersect with Chinese influence.
 - Many of India's trading partners in **Southeast Asia** have strong economic ties with China. The **Regional Comprehensive Economic Partnership (RCEP)**, though India opted out, shows China's significant role in regional trade architecture.

- Over 55% of India's trade passes through the South China Sea and Malacca Straits. (Ministry of External Affairs)
- Maritime trade routes crucial for India's commerce pass through regions where China has significant presence.

What are the Major Areas of Contention Between India and China?

- **Border Disputes and Territorial Claims:** The 3,488-km Line of Actual Control (LAC) remains the most volatile flashpoint, with frequent standoffs and incidents.
 - The Indian and Chinese militaries have been locked in a standoff since May 2020 following the **fierce clash in the Galwan Valley**
 - China currently occupies approximately 38,000 sq km in Aksai Chin and claims 90,000 sq km of Arunachal Pradesh (which it calls South Tibet). (Ministry of External Affairs)
 - Recent satellite imagery shows China constructing **dual-use villages along the LAC** and significant military infrastructure upgrades.
- **Economic Imbalances and Trade Deficit:** India faces a massive trade deficit with China, reaching \$85 billion in 2024 according to a report published in The Hindu.
 - Over the past 5 years the exports of China to India have increased at an annualized rate of 9.61%. (The Observatory of Economic Complexity)
 - India has implemented anti-dumping measures against Chinese products but still China has consistently made backdoor entry into India through ASEAN intra-trade and bilateral FTAs.



- **Water Resource Disputes:** China controls the upstream regions of major rivers flowing into India, including the Brahmaputra (Yarlung Tsangpo).
 - China has constructed multiple dams, including the **massive Zangmu Dam near the Bhutan-India border** and plans for the **world's largest hydroelectric project at Medog**.
 - There's no water-sharing treaty between the two countries, and following the **Doklam standoff** on the border of India and China in 2017, China stopped releasing hydrological data on the Brahmaputra.
- **Cyber Threats:** China has been in the spotlight for cyber attacks in India. In 2022, China-linked hackers reportedly targeted seven Indian power hubs.

- Over **300 Chinese apps** have been banned since **2020**. Concerns over 5G technology led to the effective **exclusion of Huawei and ZTE from India's telecom infrastructure**.
- A recent report by SentinelOne claims that the **2022 ransomware attack on AIIMS Delhi** was orchestrated by the **Chinese threat actor group ChamelGang**.
- **Regional Influence Competition:** China's **Belt and Road Initiative** investments exceed **USD 62 billion in Pakistan (CPEC) alone**, challenging India's regional influence.
 - China has established bases or port facilities in **Pakistan, Sri Lanka, Myanmar and Maldives**. Also, Chinese economic influence in **Nepal, Bhutan and Bangladesh** has grown significantly, creating a "**String of Pearls**" around India.
 - India's counter-initiatives, including the **Necklace of Diamonds strategy**, are still in their early stages.
- **Strategic Alliances and Regional Partnerships:** China's deep military cooperation with Pakistan, including **sharing of nuclear technology** and defense equipment concerns India.
 - India's growing alignment with the **US** and especially **QUAD** (including joint military exercises like **Malabar**) has antagonized China.
 - India's oil exploration projects in Vietnam's EEZ face Chinese opposition.
 - Approximately **\$200 billion of India's trade** passes through the South China Sea annually. (Observer Research Foundation)
 - China's expanding naval presence in the Indian Ocean, including **submarine deployments and research vessels like in Hambantota Port**, concerns India.
- **Diplomatic and International Forums:** China's continued **protection of Pakistan-based terrorists at UN forums** frustrates India.
 - Competition for influence in international organizations like **SCO and BRICS** creates tensions. China's opposition to India's role in global governance reforms continues.
 - Chinese opposition to **India's NSG membership** and **UNSC permanent seat** aspirations continues.
- Focus on developing **domestic manufacturing capabilities in key areas like APIs, electronics, and solar equipment** through initiatives like **Semiconductor Mission** (**USD 10 billion investment**).
- Foster partnerships with countries like **Japan, South Korea, and EU nations** for technology transfer and investment in critical sectors.
- Strengthen **MSME sector** to develop local supply chains and reduce import dependency.
- Implement **smart protectionist measures** while maintaining **WTO compliance**.
 - Develop **quality standards and certification processes to manage imports**. Create incentives for domestic value addition in manufacturing.
- **Strategic Military Modernization:** Accelerate military infrastructure development along the LAC, **including 73 strategic roads and advanced landing grounds**.
 - Enhance surveillance capabilities through satellite and drone technology, following **October 2024 procurement of 31 Predator drones**.
 - Strengthen **mountain warfare capabilities through specialized training** and equipment acquisition. Develop quick reaction forces and improve logistics capabilities in border areas.
- **Regional Leadership Enhancement:** Strengthen partnerships with neighboring countries through **increased development assistance and infrastructure projects**.
 - Expand initiatives like **BIMSTEC and Indian Ocean Rim Association** to counter BRI influence.
 - Develop alternative supply chain networks through initiatives like **Supply Chain Resilience Initiative** with Japan and Australia. Increase cultural and educational exchanges with Southeast Asian nations.
- **Diplomatic Engagement Strategy:** Maintain dialogue through multiple channels while standing firm on core interests.
 - Engage in **multilateral forums like SCO and BRICS** while **strengthening QUAD partnerships**. Develop **issue-based coalitions** with like-minded countries on specific challenges. Balance relationship with **US, China and Russia to maintain strategic autonomy**.
 - Recent examples include successful management of border tensions through diplomatic channels while maintaining trade relations.

What Measures can India Adopt to Balance its Relations with China?

- **Economic Diversification and Self-Reliance:** India should continue expanding its PLI scheme to reduce critical sector dependencies.

- **Economic Leverage Development:** Identify and utilize Indian market strengths in negotiations with China.
 - Develop **alternative markets for Indian exports through FTAs with the UK and EU.**
 - Create policy frameworks to screen investments while maintaining beneficial economic ties. Strengthen India's position in global supply chains through initiatives like **PM Gati Shakti.**
 - Recent success includes **redirection of some global supply chains to India** under **China+1 strategy** and through decoupling initiatives.
- **Maritime Strategy Enhancement:** Strengthen naval capabilities and presence in the Indian Ocean Region.
 - Accelerate development of port infrastructure and connectivity through the **Sagarmala Project.**
 - Enhance **maritime cooperation with QUAD and ASEAN nations.** Improve surveillance and monitoring capabilities in **strategic waterways like Arabian Sea.**

Conclusion:

The recent agreement between India and China to restore mutual patrolling rights in Depsang Plains and Demchok is a **positive step towards stabilizing the fragile border situation.** India must continue to pursue a multifaceted strategy that combines **economic diversification, military modernization, regional leadership, and diplomatic engagement** to balance its relations with China.

■■■

United Nations Peacekeeping Paradox

*This editorial is based on “**The world needs blue helmets who act as blue helmets**” which was published in The Hindu on 23/10/2024. The article highlights the UN's diminished role as a ‘bystander’ in major conflicts like Ukraine and Gaza, despite having a robust peacekeeping force and past successes in places such as Cambodia and Sierra Leone. Its effectiveness is limited by the veto power of the P5 members in the Security Council, intensifying calls for reform.*

Tag: GS Paper - 2, Important International Institutions, Groupings & Agreements Involving India and/or Affecting India's Interests, International Treaties & Agreements, Effect of Policies & Politics of Countries on India's Interests

Despite its **extensive peacekeeping force** and successful missions in places like **Cambodia and Sierra Leone**, the **United Nations** now plays a ‘bystander’ role in key conflicts such as **Ukraine and Gaza**. Its effectiveness is undermined by the veto power held by the **P5 members** of the Security Council. This situation has intensified calls for reform, particularly for **expanding permanent membership to include India**, which would amplify the voice of the global South. Also, enhancing the veto system could lead to more decisive peacekeeping actions.

What is United Nations Peacekeeping?

- **About:** UN Peacekeeping refers to the **activities carried out by the United Nations (UN) to help maintain or restore international peace and security** in conflict-affected areas.
 - Established to respond to the complex nature of conflicts and to support countries in transition from conflict to peace,
 - UN Peacekeeping operates under the **principles of consent, impartiality, and non-use of force**, except in **self-defense** and defense of the mandate
 - Although the majority of peacekeepers are military or police, approximately **14% are civilians.**
- **Inception and Evolution:** The first UN peacekeeping mission was established in **May 1948** when the UN Security Council authorized the deployment of a small number of military observers to the Middle East.
 - This mission formed the **United Nations Truce Supervision Organization (UNTSO)**, aimed at monitoring the **Armistice Agreement between Israel and its Arab neighbors.**
 - Over the past seven decades, more than **1 million men and women** have served under the UN flag in over **70 peacekeeping operations.**
 - Currently, **100,000 military, police, and civilian personnel** from **125 countries** are engaged in **14 active peacekeeping operations.**
- **Achievements (as of 2022):**
 - **Conflict Resolution:** UN peacekeepers have successfully resolved conflicts in countries such as **Cambodia, El Salvador, Mozambique, and Sierra Leone.** Overall, interstate conflicts have **decreased by 40% since 1945.**
 - **Humanitarian Aid:** Peacekeepers have protected over **125 million civilians in conflict zones** and facilitated the delivery of humanitarian assistance, supporting refugee returns and resettlement.

- **State Building:** They have supported **democratic elections in over 75 countries** and helped establish functioning government institutions, alongside assisting in security sector reforms and training.

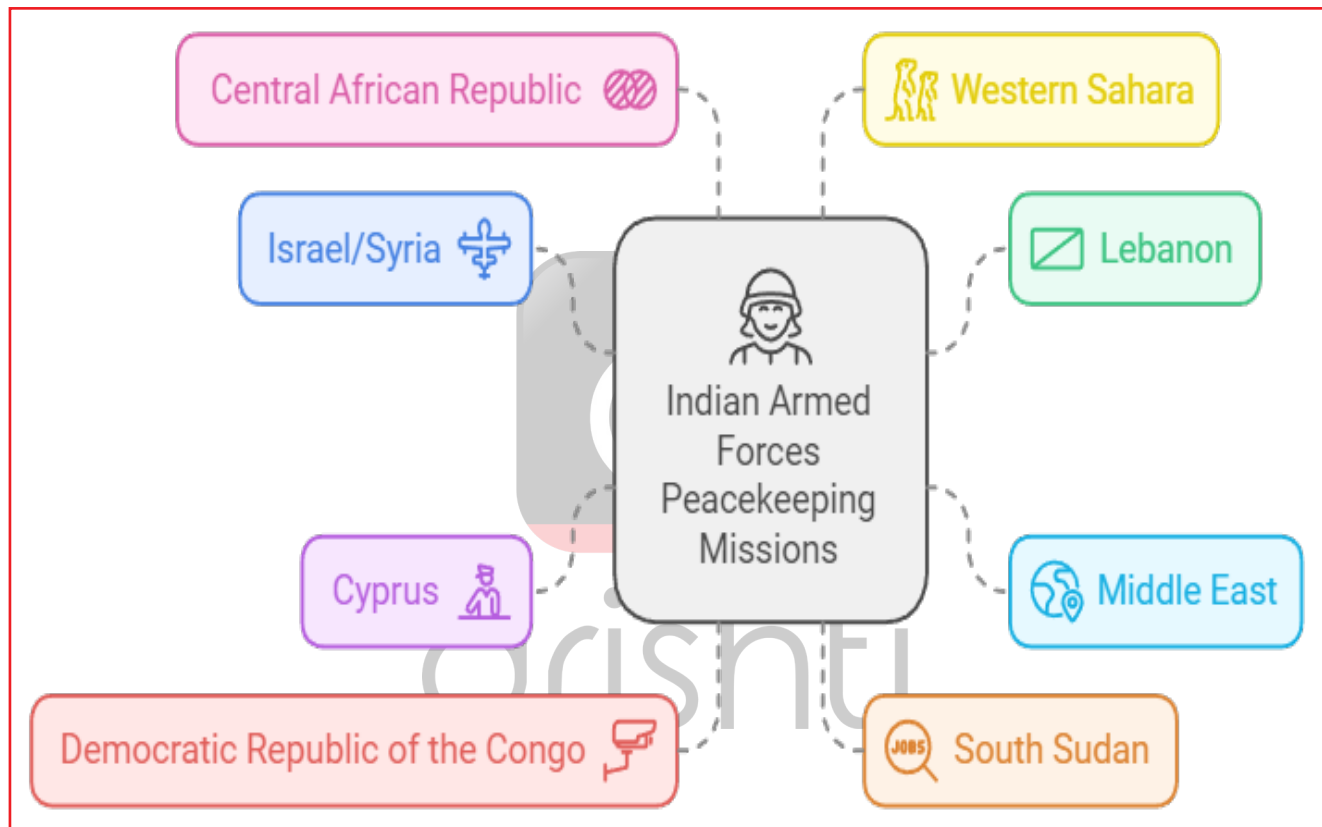
What Factors have Contributed to the Diminishing Role of Peacekeeping Forces?

- **Power Politics and Veto Exploitation:** The increasing polarization among P5 members has led to **frequent use of veto power, particularly in critical situations.**
 - Since 2011, **Russia has used its veto 19 times**, with 14 focused on Syria with remaining vetoes addressed **Ukraine, Srebrenica, Yemen, and Venezuela.**
 - In **2023**, the United States vetoed a **UN Security Council** resolution calling for “**humanitarian pauses**” to provide aid to millions in Gaza.
 - This deadlock prevents timely deployment of peacekeepers when they are most needed, as seen in both current conflicts (**Russia-Ukraine and Israel-Hamas**) where many civilians have lost lives.
 - The **politicization of peacekeeping decisions** has transformed the UNSC from a **peace enforcer to a debate forum.**
- **Resource Constraints and Funding Challenges:** Peacekeeping missions face severe funding shortfalls. If this trend persists, the United Nations will run out of funds to sustain its peacekeeping operations, which involve around **100,000 troops in 14 global hotspots.**
 - Major powers’ reluctance to increase funding has led to understaffed missions. For instance, **UNIFIL in Lebanon** operates with limited resources despite increased tensions.
 - This financial strain compromises the effectiveness and morale of peacekeeping forces.
- **Changing Nature of Conflicts:** Modern conflicts involve complex **urban warfare, cyber elements, and non-state actors**, which traditional peacekeeping isn’t equipped to handle.
 - The Gaza conflict exemplifies this, where **traditional buffer-zone peacekeeping approaches are inadequate for urban combat situations.**
 - Similarly, in **Ukraine**, the **hybrid warfare involving cyber attacks** and information warfare presents challenges beyond conventional peacekeeping capabilities.
 - This evolution of warfare requires new approaches that current UN mandates and training do not address.
- **Sovereignty Concerns and Host State Resistance:** There’s growing **resistance from host nations against UN peacekeeping presence**, viewing it as interference in internal affairs.
 - **Sudan’s rejection of UNAMID, Mali’s forced withdrawal of MINUSMA, and Democratic Republic of Congo’s push for MONUSCO’s exit** demonstrate this trend.
 - These premature exits often leave civilian populations vulnerable and negate years of stabilization efforts, as seen in Mali where violence nearly peaked after MINUSMA’s withdrawal.
- **Credibility Crisis and Past Failures:** Historical failures continue to haunt UN peacekeeping’s reputation.
 - The **inability to prevent genocides in Rwanda and Srebrenica**, coupled with recent inaction in contemporary conflicts, has eroded global confidence.
 - Sexual exploitation scandals involving peacekeepers and **instances of disease transmission (Haiti cholera outbreak)** have further damaged credibility, making host nations and local populations skeptical of UN presence.
- **Emerging Regional Alternatives:** Regional organizations are increasingly taking lead roles in peacekeeping operations.
 - The **African Union’s peace operations in Somalia (ATMIS)**, and Arab League’s growing role in regional disputes show a shift toward regional solutions.
 - These organizations often have **better local understanding and faster deployment capabilities**, though they may lack UN’s resources and international legitimacy.
- **Technology and Capability Gaps:** Most UN peacekeeping forces lack modern military technology and surveillance capabilities crucial for contemporary conflicts.
 - While private military companies and national armies deploy drones, AI-enabled systems, and advanced communications,
 - UN forces often operate with **basic equipment.** The inability to effectively monitor **cease-fire violations in tech-enabled conflicts** (as seen in Ukraine) demonstrates this technological disadvantage.
- **Lack of Political Will for Reform:** Despite numerous proposals for reforming UN peacekeeping, including the **2015 HIPPO report recommendations**, implementation remains slow.

- The proposed expansion of the **Security Council to include nations like India (contributing 5,700 peacekeepers)** and reforms in veto power remain stalled.
- This **institutional inertia** prevents adaptation to new challenges and maintains outdated operational models.

What is India's Contribution to Peacekeeping Missions?

- **Historical Leadership and Personnel Contribution:** India has been the largest **cumulative contributor of UN peacekeepers**, with more than **2,53,000 troops**, one of the largest numbers from any country, **participating in more than 49 missions**.
 - **160 Indian Army soldiers** have made the supreme sacrifice to ensure peace across the globe.
 - Indian Armed Forces are deployed across many countries in peacekeeping missions:



- **Technical and Medical Expertise:** Indian peacekeepers have established themselves as technical experts across missions, particularly in medical support.
 - India has mobilized efforts to assemble two teams of medical specialists to be deployed in the **Hospitals at the UN Missions in DR Congo and South Sudan**.
 - India contributed **two engineering companies**, a headquarters company, a logistics company, staff officers, and military observers to the **ONUMOZ mission in Mozambique (1992-94)**.
- **Specialized Military Capabilities:** India has provided specialized units like attack helicopters, transport aircraft, and engineering companies.
 - **Indian Aviation Contingent-I (IAC-I)** was inducted at **Goma (with four Mi-25 attack helicopters and five Mi-17 utility helicopters)** in 2003 providing critical air support.
 - India's signal units have established and maintained communication networks in various missions.
- **Training and Capacity Building:** The **Centre for UN Peacekeeping (CUNPK) in New Delhi** has a track record of having more than 67,000 personnel who have participated in 37 out of the 56 U.N. peacekeeping missions.
 - India has been **pioneering pre-deployment training**, especially in areas like sexual exploitation and abuse prevention, having trained 100% of its personnel in these aspects.

- **Policy Contributions and Reforms:** India has been instrumental in shaping UN peacekeeping policies, particularly through its **presence in the C-34 (Special Committee on Peacekeeping Operations)**.
 - The country has consistently pushed for **greater representation of troop-contributing countries in decision-making processes**, leading to improved consultation mechanisms.
- **Women in Peacekeeping:** India has deployed **Female Engagement Teams (FETs)** in **Democratic Republic of Congo and Abyei (the second-largest Indian women contingent after Liberia)**.
 - India has also deployed women military police in **Golan Heights** and women Staff Officers/ Military Observers in various missions.
 - **Major Radhika Sen** has been selected to be awarded with **"Military Gender Advocate of the Year 2023"** by the **UN Headquarters**, which is a testament to the positive contribution of the **Indian Women in the UN peacekeeping initiatives**.
- **Humanitarian Assistance and Community Engagement:** Indian peacekeepers have excelled in community engagement and quick impact projects.
 - Approximately **1,160 Indian troops in South Sudan** are also involved in rehabilitating roads and enhancing the capacity of local communities.
 - Despite being a developing country, India has consistently contributed to the **UN Peacebuilding Fund**.
 - Additionally, India shipped out 200,000 doses of Covid-19 vaccines in 2021 to **inoculate UN blue helmets** serving in peacekeeping missions, demonstrating its **commitment to peacekeepers' health and safety**.

What Measures can be Adopted to Enhance the Effectiveness of Peacekeeping Missions?

- **Security Council Reform and Decision-Making:** The UNSC needs urgent structural reform, including expansion of permanent membership to **include regional powers like India, Brazil, and South Africa**.
 - Implementation of a **"code of conduct" for veto use** in cases involving mass atrocities or genocide.
 - Introduction of a **weighted voting system for peacekeeping deployment decisions**, reducing P5 paralysis.
 - Creation of a rapid response mechanism for emergency deployment in cases of imminent
- civilian danger. Establishment of **clear, achievable, and time-bound mandates** for missions with specific exit strategies.
- **Financial and Resource Enhancement:** Implementation of **mandatory funding mechanisms** to prevent delays in member state contributions.
 - Creation of a **dedicated peacekeeping reserve fund for rapid deployment** and emergency situations.
 - Development of **public-private partnerships for mission logistics** and support services.
 - Timely payment of **performance-based financial incentives for troop-contributing countries** (in 2017, the **UN owed India \$55 million for its contributions** to peacekeeping operations, a matter that India expressed concern over).
 - Establishment of **regional peacekeeping equipment hubs** to reduce deployment times and costs.
- **Technological Modernization:** Integration of **AI and machine learning** for threat assessment and early warning systems.
 - Deployment of **advanced surveillance technology** including UAVs and satellite imagery for better situational awareness.
 - Implementation of **blockchain for transparent supply chain management and resource tracking**.
 - Enhancement of cybersecurity capabilities to protect mission communications and data. Development of mobile applications for real-time information sharing and civilian protection alerts.
- **Training and Capacity Building:** Establishment of **standardized global training centers** with mission-specific simulation capabilities.
 - Implementation of mandatory **cross-cultural and language training for all peacekeepers**.
 - Development of specialized training modules for urban warfare and counter-terrorism operations. Creation of joint training exercises between different troop-contributing countries. Integration of local knowledge and cultural understanding into training programs.
- **Gender Mainstreaming and Inclusion:** Implementation of gender-responsive budgeting in mission planning.
 - Increase in **female peacekeepers' deployment with targeted recruitment strategies**.
 - Creation of specialized gender advisory roles at all mission levels. Development of gender-sensitive protection strategies. Enhancement of women's participation in peace processes.

- **Accountability and Oversight:** Implementation of **zero-tolerance policies for misconduct with swift investigation mechanisms.**
 - Creation of independent oversight bodies for mission performance evaluation. Development of transparent reporting systems for operational effectiveness.
 - Establishment of community feedback mechanisms for mission assessment. Enhancement of internal audit and anti-corruption measures.
- **Regional Partnerships:** Development of **formal partnerships with regional organizations like AU, EU, ASEAN.** Creation of joint rapid response capabilities with regional forces. Implementation of shared logistics and support systems.
 - Development of **comprehensive exit strategies from the mission planning stage.** Implementation of sustainable peace-building initiatives.

Conclusion:

Despite its extensive peacekeeping force and past successes, the **UN's effectiveness in contemporary conflicts** is hindered by the veto power of the P5 members and resource constraints. To enhance its role, the UN must undergo structural reforms, including **Security Council expansion and financial reforms.** Additionally, it needs to modernize its approach to peacekeeping, adapting to the evolving nature of conflicts and investing in technology.

■ ■ ■

CSR: From Mere Compliance to Impact

*This editorial is based on “**Why reforms in the CSR ecosystem are needed**” which was published in Hindu Business Line on 24/10/2024. The article brings into picture the significant growth in annual CSR investments in India, now at ₹30,000 crore, since the mandate in 2014. However, challenges such as unequal power dynamics, short implementation windows, and reliance on intermediaries impede the achievement of meaningful long-term impact.*

Tag: GS Paper - 2, Government Policies & Interventions, GS Paper - 3, Mobilization of Resources, Management of Social Sector/Services

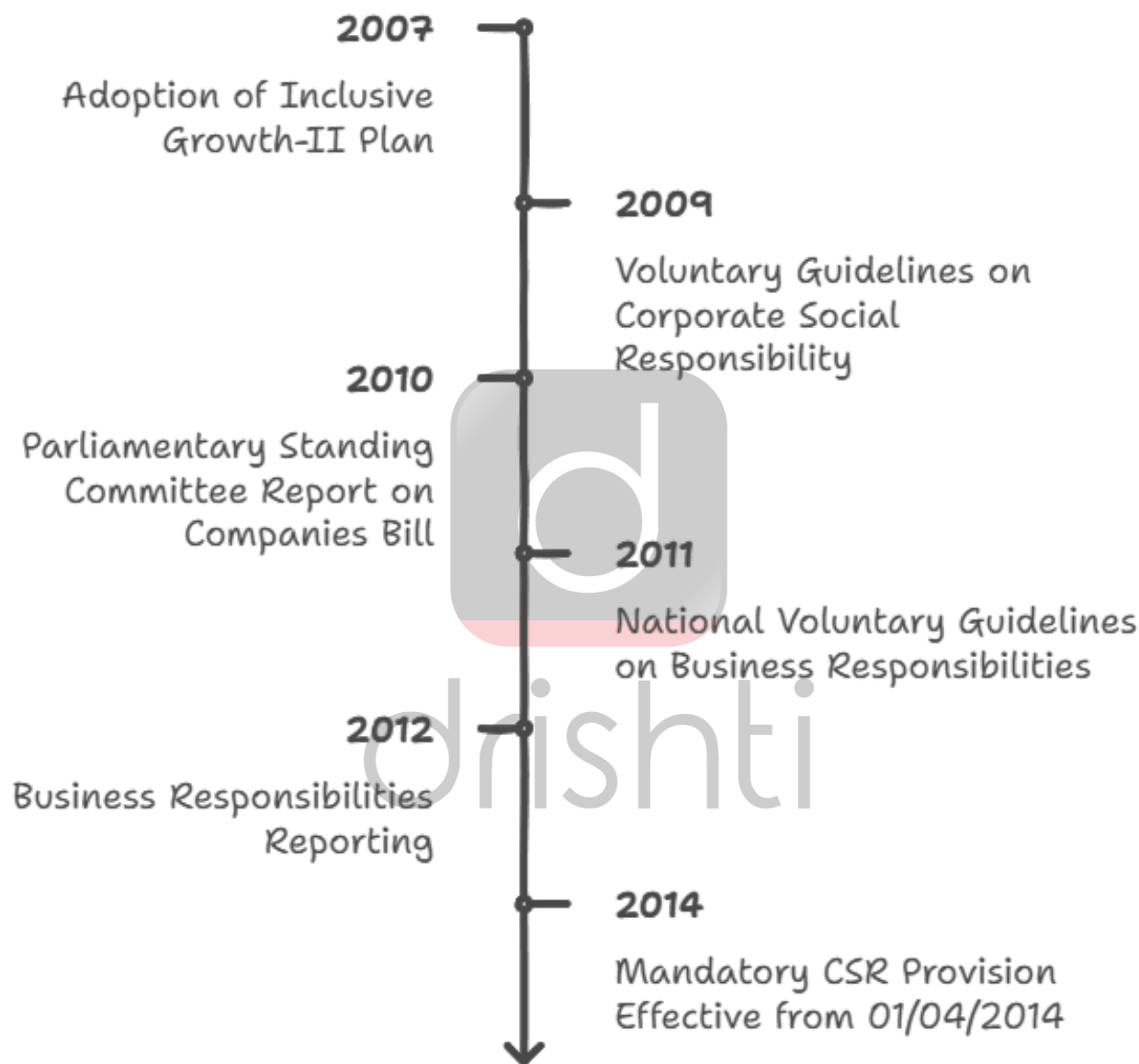
As India marks a decade since mandating **Corporate Social Responsibility** through law in **2014**, the annual CSR investments have reached a substantial **₹30,000**

crore. While the law requires eligible companies to spend **2% of their profits on social causes**, the implementation faces several challenges. The unequal power dynamics between corporations and NGOs, **short implementation windows, and over-reliance on middleman agencies** often hinder meaningful long-term impact.

What is Corporate Social Responsibility?

- **About: Corporate Social Responsibility (CSR)** is a business model where companies voluntarily integrate **social, environmental, and ethical considerations** into their operations and interactions with stakeholders.
 - CSR aims to make businesses accountable for their impact on society **beyond just profit, focusing on sustainable development**, community welfare, and ethical practices.
- **CSR under the Companies Act, 2013:**
 - CSR provisions under **Section 135** of the **Companies Act, 2013**, became effective from **April 1, 2014.**
 - These provisions reflect India's commitment to **inclusive growth** by mandating corporate contributions towards social, environmental, and human development.
 - CSR provisions apply to companies meeting any of the following criteria in the preceding financial year:
 - **Net worth:** More than INR 5 billion.
 - **Turnover:** More than INR 10 billion.
 - **Net profit:** More than INR 50 million.
 - Such companies must spend a minimum of **2% of their net profit over the last 3 years on CSR activities.**
- **Origins and Development of CSR Guidelines:**
 - The **Ministry of Corporate Affairs (MCA)** initiated CSR concepts with the **Voluntary Guidelines on Corporate Social Responsibility, 2009**, aiming to mainstream responsible business practices.
 - These guidelines evolved into the **National Voluntary Guidelines (NVGs) on Social, Environmental, and Economic Responsibilities of Business, 2011**, which outlined key principles for corporate responsibility.
 - In **March 2019**, the NVGs were updated to the **National Guidelines on Responsible Business Conduct (NGRBC)**, incorporating international standards, such as the **UN Guiding Principles on Business & Human Rights (UNGPs)**, **UN Sustainable Development Goals (SDGs)**, and the **Paris Agreement.**

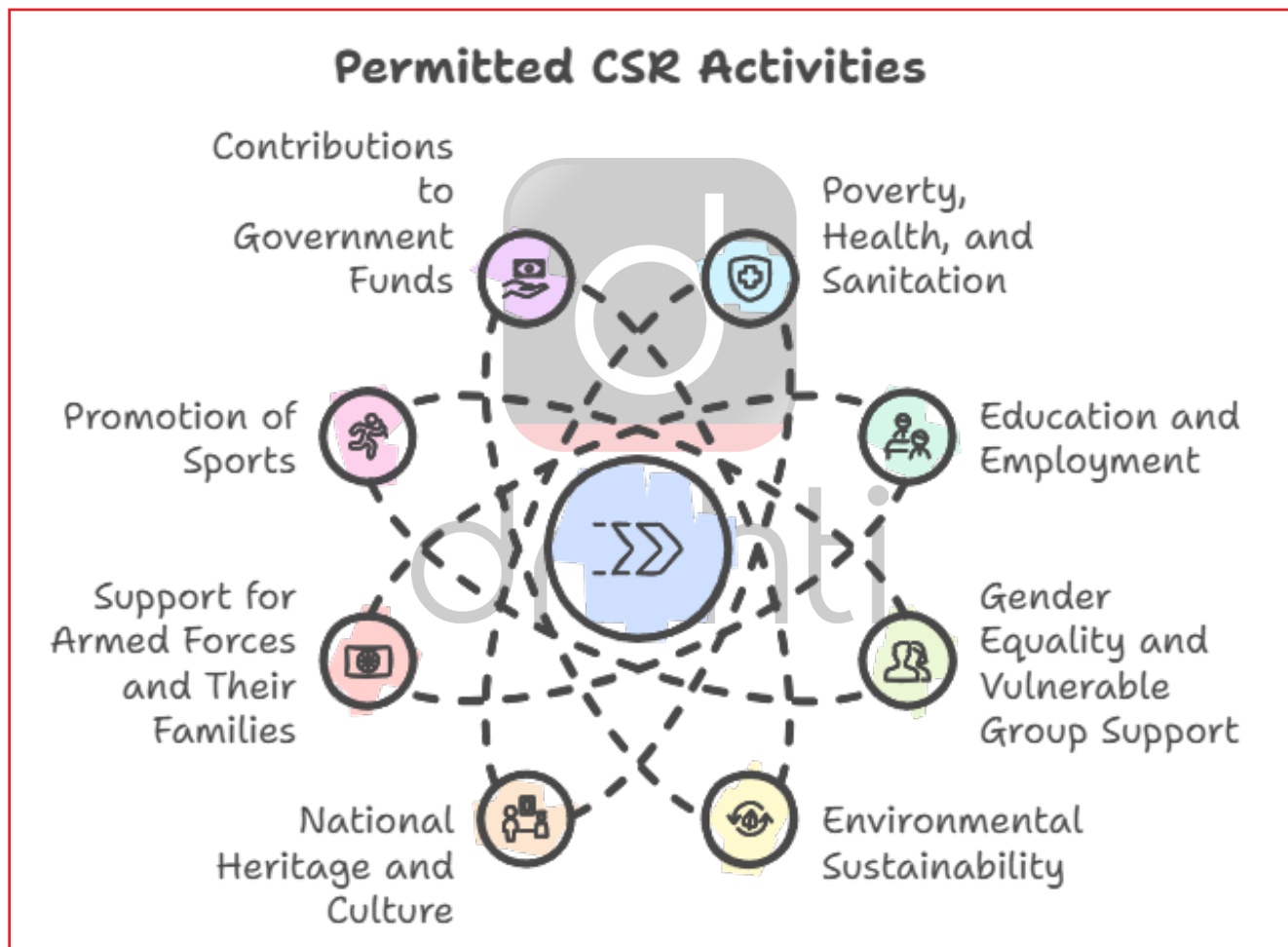
Key Milestones in Corporate Social Responsibility



What is the Significance of CSR Activities in India?

- **Poverty Alleviation and Rural Development:** CSR initiatives are instrumental in supporting poverty reduction and rural development programs, often focusing on education, healthcare, and infrastructure.
 - For instance, more than **₹12,300 crores were spent on rural development projects**, directly impacting poverty-stricken communities.
- **Improvement in Public Healthcare:** With healthcare infrastructure still developing in rural and semi-urban areas, CSR activities significantly bridge gaps by funding hospitals, mobile clinics, and health awareness programs.
 - Companies like **Reliance and Infosys** have contributed substantially to Covid-19 relief efforts, establishing **oxygen plants** and funding vaccinations across India.
 - Spending on health in FY22 stood at **₹7731 crore** underscoring the sector's priority for CSR funding

- **Environmental Sustainability and Climate Action:** CSR initiatives focus on sustainability efforts, including **afforestation**, water conservation, and **clean energy** projects.
 - ITC Limited's 'Mission Sunehra Kal' works on water conservation, benefiting millions of people in water-stressed areas.
 - In FY22, India's CSR spending on environment and sustainability more than doubled to **₹2,392 crore**, which made the sector the biggest recipient of such funds after health and education.
- **Educational Opportunities and Skill Development:** Education and skill development are essential CSR focus areas, with many companies providing scholarships, building schools, and funding vocational training centers to promote employability.
 - In 2023, HCL Technologies launched a **digital literacy program** that has reached thousands of rural youths, providing them with skills to access better employment.
 - Education continues to get the **highest amount under companies' CSR expenditure with Rs 10,085 crore**, making it a significant area of impact



- **Enhancement of Community Infrastructure:** Infrastructure development, including the construction of roads, sanitation facilities, and community centers, improves the quality of life for underserved communities.
 - Vedanta's CSR efforts including 'Swasth Gaon Abhiyaan', provides end-to-end healthcare services across **1,000 villages**, enhancing sanitation and reducing health risks.
- **Boosting Economic Self-Sufficiency and Livelihood Programs:** CSR programs in India often target economic empowerment through livelihood and self-sufficiency initiatives, especially for women and marginalized groups.
 - Hindustan Unilever's 'Prabhat' initiative focuses on rural **women's empowerment** by training them in entrepreneurial skills.
 - These programs help individuals create independent income sources, reducing dependency and promoting economic resilience

- **Corporate Reputation and Stakeholder Engagement:** CSR enhances corporate reputation by demonstrating a company's commitment to societal welfare, which builds trust with customers, investors, and other stakeholders.
 - For example, **Mahindra Group** has been planting **one million trees** every year which has boosted its brand value as a socially responsible corporation, attracting greater investor confidence.
- **Alignment with Sustainable Development Goals:** CSR in India aligns well with the United Nations' Sustainable Development Goals, focusing on areas like poverty eradication, quality education, and climate action.
 - Many Indian corporations, such as **Wipro and Tata**, integrate **SDG alignment into their CSR strategy**, which broadens the impact and relevance of their contributions.
 - As of 2023, about **60% of CSR projects** in India directly target **Sustainable Development Goals (Health, Education and Environment)**, marking a trend of integrating global development goals with local action

What are the Major Issues Related to CSR in India?

- **Implementation Gaps & Project Timeline Mismanagement:** Companies often rush to complete CSR projects within **shortened timelines due to delayed board approvals** and budget allocations.
 - This time crunch leads to preference for quick-fix infrastructure projects over sustainable community development initiatives.
 - Also, unspent CSR funds due to delayed approvals **hit five-year high of Rs 1,475 crore in FY23**.
- **Uneven Geographic Distribution** CSR spending remains heavily concentrated in developed states and urban areas.
 - According to 2023 data, **Maharashtra, Gujarat, and Karnataka** received a major **chunk of total CSR funds**.
 - In contrast, all North-Eastern states collectively receive **less than 1% of the CSR funds**.
 - Despite the government advocating CSR investment in **Aspirational Districts**, **only about 2.15% of the total CSR during 2014-22** has been invested in these districts
 - This geographic skew perpetuates regional development disparities, contradicting CSR's core objective.

- **Monitoring & Evaluation Challenges:** The current M&E framework emphasizes **quantitative metrics over qualitative impact assessment**.
 - **Third-party evaluation** agencies often lack standardized assessment methodologies..
 - The lack of standardized impact measurement metrics leads to varied reporting quality. This affects transparency and makes cross-project comparisons difficult.
- **NGO Partnership Issues:** Lack of linkage between **corporate donors and implementing NGOs creates operational challenges**.
 - Also, the short-term nature of CSR commitments affects NGOs' ability to retain skilled staff and plan long-term interventions.
 - **CSR funds legally can not support NGO reserves** but can only cover indirect costs.
 - Also, the growing role of intermediary agencies in CSR implementation creates efficiency and transparency concerns.
- **Compliance Over Impact:** Many companies treat CSR as a mandatory compliance rather than a strategic social investment.
 - The tendency to prefer **safe, established projects over innovative solutions** with a minor share of CSR projects involved in innovative approaches or risk-taking.
 - This **compliance-focused approach limits CSR's potential** for transformative social impact.

What Measures can be Adopted to Enhance the Effectiveness of CSR in India?

- **Strategic Long-term Planning Framework:** CSR projects must shift from annual cycles to mandatory 3-5 year commitments, ensuring sustained impact and proper implementation.
 - This framework should include **rolling budgets with quarterly fund releases, preventing year-end rushes and allowing better resource utilization**.
 - A comprehensive digital project management system must be integrated, tracking milestones and impact metrics in real-time.
 - Organizations should **establish clear phase-wise implementation plans** with defined outcomes and sustainability measures.
 - The framework must include regular review mechanisms, course correction protocols, and clear exit strategies aligned with community self-sufficiency goals.
 - This approach is successfully demonstrated by **Tata's village development program**.

- **Digital Integration & Smart Monitoring System:** Implementation of an integrated digital platform connecting all stakeholders - **companies, NGOs, beneficiaries, and government agencies** - through a single interface.
 - The system should **incorporate blockchain technology** for transparent fund tracking and AI-powered analytics for real-time impact assessment.
 - **Automated reporting systems** should generate standardized impact reports, reducing manual documentation burden.
 - This digital ecosystem must include **beneficiary feedback mechanisms and public dashboards** for transparency.
- **Professional Management & Capacity Building:** Establish dedicated CSR departments led by sector specialists and supported by professional project managers with **domain expertise**.
 - Create comprehensive capacity building programs for implementing partners, including **project management, financial planning, and impact assessment training**.
 - Develop standardized certification programs for CSR professionals, establishing clear career progression paths in the sector.
 - Institute regular **knowledge-sharing forums and mentorship programs connecting experienced organizations** with newer entities.
- **Collaborative Implementation Model:** Form sector-specific CSR consortiums where companies **pool resources and expertise for larger-scale interventions in priority areas**.
 - Establish shared infrastructure and resources, reducing overhead costs and improving efficiency through economies of scale.
 - Create **standardized implementation protocols** and impact measurement frameworks for similar projects across organizations.
 - Develop joint monitoring mechanisms and learning platforms to share best practices and challenges.
- **Geographic Integration & Community Ownership:** Implement **cluster-based development approaches** focusing on comprehensive transformation of specific geographic areas rather than scattered interventions.
 - Establish **district-level CSR coordination cells** aligning corporate initiatives with local development plans and government schemes.
 - Create community monitoring committees with real decision-making powers and resource control.
 - Develop **participatory planning mechanisms ensuring community priorities drive project design and implementation**.

- **Impact Measurement & Sustainability Framework:** Create comprehensive impact measurement systems **combining quantitative metrics with qualitative assessments of social change**.
 - Establish **baseline studies and regular impact audits** using standardized tools across similar projects.
 - Develop **environmental impact assessment protocols** ensuring CSR initiatives contribute to climate resilience. Create long-term impact tracking mechanisms measuring change in community capabilities and social indicators.
- **Geographic Focus & Cluster Development:** Adopt **cluster-based approaches focusing on comprehensive development of specific regions**.
 - Create regional CSR hubs aligned with the **government's aspirational districts program**.
 - Implement **hub-and-spoke models** for project management.

Conclusion:

To enhance **CSR's impact**, India needs long-term planning, **digital integration, professional management, collaborative implementation, geographical focus**, and robust impact measurement. By addressing these issues, India can ensure CSR contributes meaningfully to sustainable development.



Outer Space: Innovation, Security, and Sustainability

*This editorial is based on "**Musk's SpaceX has taken significant leaps in space exploration**" which was published in Livemint on 21/10/2024. The article brings into picture the transformative advancements in space technology, highlighting the shift from expendable rockets to reusable spacecraft led by private companies like SpaceX.*

Tag: GS Paper - 3, Space Technology, Achievements of Indians in Science & Technology

From Neil Armstrong's historic lunar steps to SpaceX's revolutionary 'chopsticks' catching its descending booster, humanity's space ambitions have taken quantum leaps in innovation and cost-effectiveness. The paradigm shift from **expendable rockets to reusable spacecraft**, pioneered by private players like SpaceX, has dramatically reduced launch costs while expanding possibilities for space exploration. As **India strengthens its own space capabilities through ISRO** and emerging private players, the focus must be on fostering a robust R&D ecosystem that can drive similar technological breakthroughs.

What are the Recent Developments Shaping Space Sector Across the Globe?

- **Commercialization of Space Launch Services:** In the past 4 years, SpaceX has launched **13 human spaceflight missions**, safely flying 50 crewmembers to and from Earth's orbit, reducing launch costs to approximately **\$67 million per Falcon Heavy mission**.
 - SpaceX demonstrated **reusable rocket technology** by launching one of its **Falcon 9 boosters** for the 20th time recently.
 - This commercialization has dropped launch costs, with the cost of heavy launches to **Low-Earth orbit (LEO)** has drastically come down **from \$65,000 per kg to just \$1,500 per kg**, according to an estimate from McKinsey.
 - Space tourism initiatives like Blue Origin's New Shepard launched **six crewed flights before its 2022 incident**.
 - Billionaire **Jeff Bezos** embarked on a brief journey to space during the inaugural crewed flight of his rocket, New Shepard.
 - Plans for private space stations are advancing, with **Axiom planning its first module launch in 2026**.
- **Rise of Small Satellite Constellations:** **Starlink** leads with over 6,000 operational satellites as of **September 2024**, providing internet to over 2.3 million subscribers across 60+ countries.
 - **Amazon's Project Kuiper** plans to launch **3,236 satellites by 2029**.
 - **OneWeb**, post-merger with Eutelsat, has deployed 634 satellites for global coverage.
 - **China's Guowang** constellation plans **13,000 satellites**, marking the entry of state actors into the mega-constellation race.
- **Moon Mission Renaissance:** India's Chandrayaan-3 achieved a historic soft landing near the lunar south pole in **August 2023**, making it the fourth country to achieve this feat.
 - **Japan's SLIM mission** demonstrated **precise landing capabilities in January 2024**. **NASA's Artemis** program has begun, with **Artemis II scheduled for 2025**, while China plans to establish a lunar research station with completion targeted between **2028 and 2035**.
 - Private companies like Intuitive Machines and Astrobotic are pioneering **commercial lunar payload services**.
- **Mars Exploration Advancement:** **India's Mangalyaan, UAE's Hope probe, NASA's Perseverance rover, and China's Tianwen-1/Zhurong missions** are key major advancements.

- The **Rosalind Franklin rover** is slated for a launch to Mars in **2028**.
- This mission aims to explore the Martian surface in search of signs of past life and to gather crucial data about the planet's geology and environment.
- **Defense Space Capabilities:** The U.S. Space Force received a **\$30 billion budget for FY2024**, focusing on space domain awareness and resilient satellite networks.
 - India established the **Defence Space Agency** and demonstrated **ASAT capabilities through Mission Shakti**.
 - Also, India is planning to launch its own space station by 2030,
 - China's continued development of counter space capabilities, **including the SJ-21 satellite** with potential robotic arm technology, has prompted increased global focus on space security.
- **Deep Space Exploration:** NASA's **OSIRIS-REx** successfully returned asteroid samples from **Bennu** in 2023.
 - ESA's **JUICE mission** launched to study **Jupiter's moons**. China announced its **Tianwen-4 mission to study Neptune**, marking the first dedicated mission to the ice giant.
 - The **James Webb Space Telescope** continues to revolutionize our understanding of distant galaxies and exoplanets.

What are the Key Issues Arising Out of Advancement in the Space Sector?

- **Space Debris Crisis:** Millions of pieces of orbital debris exist in **Low Earth Orbit (LEO)** at least **26,000** the size of a **softball** or larger that could destroy a satellite on impact
 - **Russia's 2021 ASAT test** created over 1,500 trackable debris pieces.
 - The February 2022 **near collision risk between Starlink and China's space station** highlighted the urgent need for international traffic management.
 - Cleanup costs are estimated at **billions** with current technology limited to removing only a few objects annually.
 - The United Nations treaties, including the **Convention on International Liability for Damage Caused by Space Objects (1972)** and the **Convention on Registration of Objects Launched into Outer Space (1976)**, aim to regulate space debris.
 - However, these frameworks remain largely ineffective in enforcement.

- **Weaponization of Space:** The **U.S. The Space Force's 2024** budget increased by \$30 billion, focusing on space warfare capabilities.
 - Recent satellite jamming incidents **during conflicts (notably in Ukraine)** show increasing **space-based electronic warfare**.
 - Over **80 countries** own satellites and many of these countries consider access to space systems and services as important contributors to their national security, raising concerns about **potential space militarization**.
 - Also, Developing nations face a **"space divide"** with limited access to crucial satellite services, affecting disaster management and communications.
- **Environmental Impact of Launches:** Studies show **rocket launches contribute to ozone depletion**, with aluminum oxide particles from solid rocket motors particularly concerning.
 - SpaceX's increased launch frequency releases significant upper atmosphere pollutants, with each **Falcon 9** launch producing approximately **336 tons of CO2**.
 - Satellite **re-entries are releasing increasing amounts of aluminum** in the upper atmosphere. Environmental impact assessments lag behind the rapid increase in launch frequency.
- **Legal and Regulatory Gaps:** The **1967 Outer Space Treaty** remains inadequate for current commercial space activities.
 - Property rights in space remain undefined, **creating uncertainty for lunar and asteroid mining plans**.
 - Space tourism operates in a **regulatory grey area**, with the regulatory bodies struggling to define safety standards after **Virgin Galactic's flight path deviation incident**.
- **Space Spectrum Allocation Conflicts:** There is a dramatic **increase in satellite constellation applications since 2019**, straining available radio frequencies.
 - Second-gen Starlink satellites leak **30 times more radio interference**, threatening astronomical observations.
 - Developing countries struggle to **protect their orbital slots** and spectrum rights against larger operators.
- **Space Supply Chain Vulnerabilities:** Critical materials for spacecraft remain concentrated in a few countries (**China controls 90% of rare earth processing**).
 - The space industry's dependence on specific regions (like **Taiwan for chips**) creates strategic vulnerabilities.
 - India's import costs in the space technology sector are **12 times higher than the earnings from exports**

What are the Key Recent Developments in the Indian Space Sector?

- **Status:**
 - In 2021, the Indian space industry contributed **2% to global share in the space sector**. This is expected to rise to 8% by 2030 and further to **15% by the year 2047**.
 - Also, India allows **100% FDI in the space sector**
- **Policy Frameworks and Government Support:**
 - **Indian Space Policy 2023:** This policy defines the role of private sector players and streamlines authorization processes for both government and private space activities.
 - **IN-SPACE:** The Indian National Space Promotion and Authorization Centre serves as a single-window agency, promoting private sector collaboration and supporting industry clusters, manufacturing hubs, and incubation centers.
 - **New Space India Limited (NSIL):** As ISRO's commercial arm, NSIL drives high-tech collaborations, creating demand for private sector involvement through technology transfers and aggregating resources.
- **Recent Achievements**
 - **Chandrayaan-3 Lunar Landing:** The historic lunar south pole landing led to August 23 being celebrated as **"National Space Day"**.
 - It highlights India's technological prowess and symbolizes the "Make in India" vision in space exploration.
 - **X-ray Polarimeter Satellite (XPoSat):** Launched in January 2024, it is advancing India's capabilities in space-based astronomy.
 - **Aditya-L1 Mission:** Launched to study the Sun's atmosphere, this mission represents India's expanding interest in solar research.

ISRO LAUNCH VEHICLES

BACKGROUND

First rocket developed by ISRO - SLV (Satellite Launch Vehicle)

Successor of SLV - Augmented Satellite Launch Vehicle (ASLV)

Polar Satellite Launch Vehicle (PSLV)

About

- The Workhorse of ISRO
- 3rd gen, 4-staged launch vehicle (1st, 3rd stages - solid fuel; 2nd, 4th stages - liquid fuel)

Capacity

- Delivers earth-observation/remote-sensing satellites
- Used to launch satellites of lower mass (~1400 Kg)

4 Variants:

- PSLV-CA PSLV-QL PSLV-DL PSLV-XL

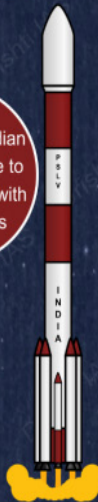
Launches Satellites in

- Low inclination LEO Sub-GTO GTO

Important Launches

- First successful launch - October 1994
- Chandrayaan-1 (2008)
- Mars Orbiter Spacecraft (2013)

PSLV is 1st Indian launch vehicle to be equipped with liquid stages



Geosynchronous Satellite Launch Vehicle (GSLV)

About

- 4th Gen, 3-staged launch vehicle
- Much more powerful rocket, carries satellites much deeper into space
- Has an indigenous Cryogenic Upper Stage

Capacity

- Delivers communication-satellites
- Carries heavier satellites (~2200 kg to GTO)
- Carries 10,000-kg satellites to LEO

Launches Satellites in

- Primarily Geosynchronous Transfer Orbit (GTO) (~36000 Km altitude)

Important Launches:

- Chandrayaan-2 Upcoming Gaganyaan



Launch Vehicle Mark-III

About

- Aka GSLV Mk-III
- 3-stage launch vehicle (2 solid propellant and 1 core stage comprising liquid and cryogenic stages)

Capacity

- 4,000-kg of satellites into GTO
- 8,000 kg of payloads into LEO

Launches Satellites in

- GTO Medium Earth orbit (MEO)
- LEO Missions to moon, sun

Mk-III versions have made ISRO entirely self-sufficient in launching its satellites



Small Satellite Launch Vehicle (SSLV)

About

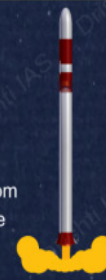
- Developed specifically for small and micro-satellites

Capacity

- Satellites up to 500 kg

Launch Limit

- 500 km planar orbit (LEO) from Satish Dhawan Space Centre



Drishti IAS

Startups and Private Sector Growth:

- Rising Startups:** The sector boasts **101 space-related startups**, with total funding of **USD 108.5 million**.
 - Skyroot Aerospace** launched India's first privately developed rocket, **Vikram-S**;
 - Agnikula Cosmos** established a private launch pad
 - Bellatrix Aerospace** specializes in propulsion technologies.

What Measures can be Adopted for More Balanced Development of the Space Sector?

- International Space Traffic Management Framework:** Establish a **UN-led Space Traffic Management** authority with binding regulatory powers, similar to the **International Civil Aviation Organization** for aviation.
 - Implement mandatory space debris mitigation guidelines with penalties for non-compliance.
 - Create a global space object registration system with **real-time tracking capabilities**.
 - Require **collision avoidance systems** for all new satellites, following **OneWeb's LeoLabs Collision Avoidance**.
 - Develop international standards for **satellite end-of-life disposal**.

- **Space Sustainability Fund and Incentives:** Create a global fund for debris removal and sustainability projects.
 - Offer **tax incentives for companies developing green propulsion systems**
 - Implement a “**polluter pays**” principle with **orbital usage fees** based on satellite lifetime and debris risk.
 - Support development of reusable technology, noting SpaceX’s achievement of reducing launch costs.
- **Democratizing Space Access:** Develop **regional space ports** through public-private partnerships.
 - Create technology transfer programs between **established and emerging space nations**, similar to **ESA’s successful cooperation with African space agencies**.
 - Establish international satellite data sharing protocols, following **ISRO’s disaster monitoring data sharing model**.
 - Support small satellite development in developing nations through technical assistance and launch quotas.
- **Enhanced Space Education and Workforce Development:** Launch global space education initiatives.
 - Establish international space universities in developing regions. Create apprenticeship programs linking traditional space agencies with the private sector, like **NASA’s successful Commercial Crew program model**.
 - Support STEM education focusing on space technology in developing nations through scholarship programs.
- **Environmental Protection Measures:** Mandate environmental impact assessments for all launches, measuring upper atmosphere effects.
 - Require use of **green propulsion systems**. Establish space environment monitoring network tracking launch impacts on atmosphere.
 - Create **recycling requirements for space hardware**. Implement carbon offset requirements for space activities.
- **Legal and Regulatory Framework Modernization:** Update **Outer Space Treaty** through additional **protocols** addressing commercial space activities.
 - Establish a **clear property rights framework for space resources** while protecting scientific interests.

- Develop standardized safety regulations for space tourism, learning from **Virgin Galactic incidents**. Implement cybersecurity standards for space infrastructure protection.

Conclusion:

The **exponential advancements in space technology** have broadened humanity’s capabilities but also pose significant challenges, from space debris to regulatory gaps. For a sustainable and balanced global space ecosystem, collaborative frameworks, democratized access, and robust regulatory measures are essential. **India, leveraging both ISRO and private partnerships**, has the potential to emerge as a **major global player in space exploration**.



Investing in Women and India's Prosperity

*This editorial is based on “**Big gender shift in our workforce**” which was published in Hindu Business Line on 25/10/2024. The article brings into picture the significant rise in India’s female labor force participation, which grew from 24.5% to 41.7% over five years. Despite this progress, concerns persist over job quality, with many women working unpaid, though a promising rise in women entrepreneurs points to potential transformative change.*

Tag: GS Paper - 1, Role of Women, Social Empowerment, Issues Related to Women

In a remarkable shift over the past 5 years, **India’s female labor force participation** has surged from **24.5%** to **41.7%**, marking a **silent revolution in women’s economic engagement**. While the number of working women has nearly doubled from **11 crore to 21 crore** between FY19 and FY24, a concerning trend emerges in job quality - **women are three times more likely than men to work as unpaid helpers** in family enterprises. Yet, there’s hope in the rising tide of **women entrepreneurs**, with those running their own enterprises increasing from **2.5 crore to 6.4 crore**, potentially catalyzing a transformative shift in India’s economic and social fabric.

What Major Factors have Contributed to the Increase in Female Labor Force Participation in India?

- **Educational Empowerment:** Female enrolment in higher education increased to **2.07 crore in FY22** from **1.57 crore in FY15**, i.e. a 31.6% increase.

- **National Education Policy 2020's** emphasis on **gender inclusion** and vocational training has particularly benefited women in both rural and urban areas.
- The establishment of **more women's colleges and gender-neutral institutions** has improved accessibility to education.
- Growing digital literacy through initiatives like the **Digital Saksharta Abhiyan (DISHA)** has equipped women with crucial skills for modern employment.
- The **correlation between education and workforce participation** is evident in states like **Kerala and Tamil Nadu**, where higher female literacy rates align with greater workforce participation.
- **Infrastructure and Mobility Improvements:** The expansion of **safe public transportation**, particularly in urban areas, has made commuting more feasible for working women.
 - Initiatives like **"Pink Buses" in major cities** and improved last-mile connectivity have addressed safety concerns.
 - **Metro rail projects in 20+ cities** have particularly benefited urban working women. The rise of **women-friendly workspaces** and **creches** in commercial areas has also supported this trend.
- **Digital Economy and Remote Work:** Covid-19 accelerated the **adoption of remote work**, creating flexible opportunities particularly beneficial for women balancing domestic responsibilities.
 - The growth of **e-commerce and social commerce platforms** has enabled women to start online businesses from home, with platforms like **Meesho** reporting **9 million women entrepreneurs**.
 - The gig economy's expansion has created flexible earning opportunities, with companies like **Urban Company** aiming to have **30% women in leadership roles in 2 years**.
 - Remote work policies have especially benefited urban educated women, with the IT sector showing **36% women participation**.
- **Government Policy Initiatives:** Targeted policies like **Mudra Yojana** have provided crucial financial support, with **69% of the total 44.46 crore loans** sanctioned to women as of **November, 2023**.
 - The **Stand-Up India scheme** has helped **1.34 lakh entrepreneurs, 81% of them are women**.
 - **Extended maternity leave (26 weeks)** and mandatory creche facilities in large organizations have supported working mothers.
- The proportion of women trained under the **Pradhan Mantri Kaushal Vikas Yojana** has increased commendably, **from 42.7% in FY16 to 52.3% in FY24**.
- **Jan Dhan Yojana** has brought **more than 29 crore women** into the banking system, facilitating financial independence.
- Till **February 2023, 8.93 Crore women from Rural Households** have been mobilized into **82.61 lakh Self Help Groups (SHGs)** under **Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM)**.
 - The **Lakhpati Didi scheme** is a significant enhancement to the SHG initiative.
- **Changing Social Dynamics:** Shrinking family sizes (**Total Fertility Rate down to 2.0- National Family Health Survey-5**) have reduced domestic responsibilities.
 - The median age at marriage for women aged 25-49 increases from **17.1 years for women** with no schooling to **22.8 years for women with 12 or more years of schooling**.
 - Growing urbanization has weakened **traditional social constraints on women's employment**. Rising costs of living and aspirational lifestyles have necessitated dual-income households.
 - The success of women leaders like **Kiran Mazumdar-Shaw** (founder of Biocon), **Falguni Nayar** (CEO of Nykaa), **Sudha Murty** (Founder of Infosys Foundation and current **Rajya Sabha** member) has created positive role models, encouraging more women to pursue careers.
- **Corporate Sector Initiatives:** Companies have increasingly adopted diversity policies with specific targets for women employees.
 - **Flexible working hours, and return-to-work programs** have retained women talent.
 - The share of women employees across the **top five IT companies stood at 34.1% at the end of the first quarter of 2023-24**.
 - Additionally, the implementation of the **POSH (Prevention of Sexual Harassment) initiative** and the **Vishakha Guidelines** has established a safer and more inclusive workplace for women, further promoting gender equality in the corporate sector.
- **Healthcare and Wellbeing Support:** Improved access to healthcare through Ayushman Bharat has reduced health-related barriers to work.
 - Women represent about **49% of Ayushman Card recipients**. Additionally, there are **141 Health Benefit Packages (HBPs)** specifically designated for women.
 - Better maternal healthcare services have supported working mothers' needs.

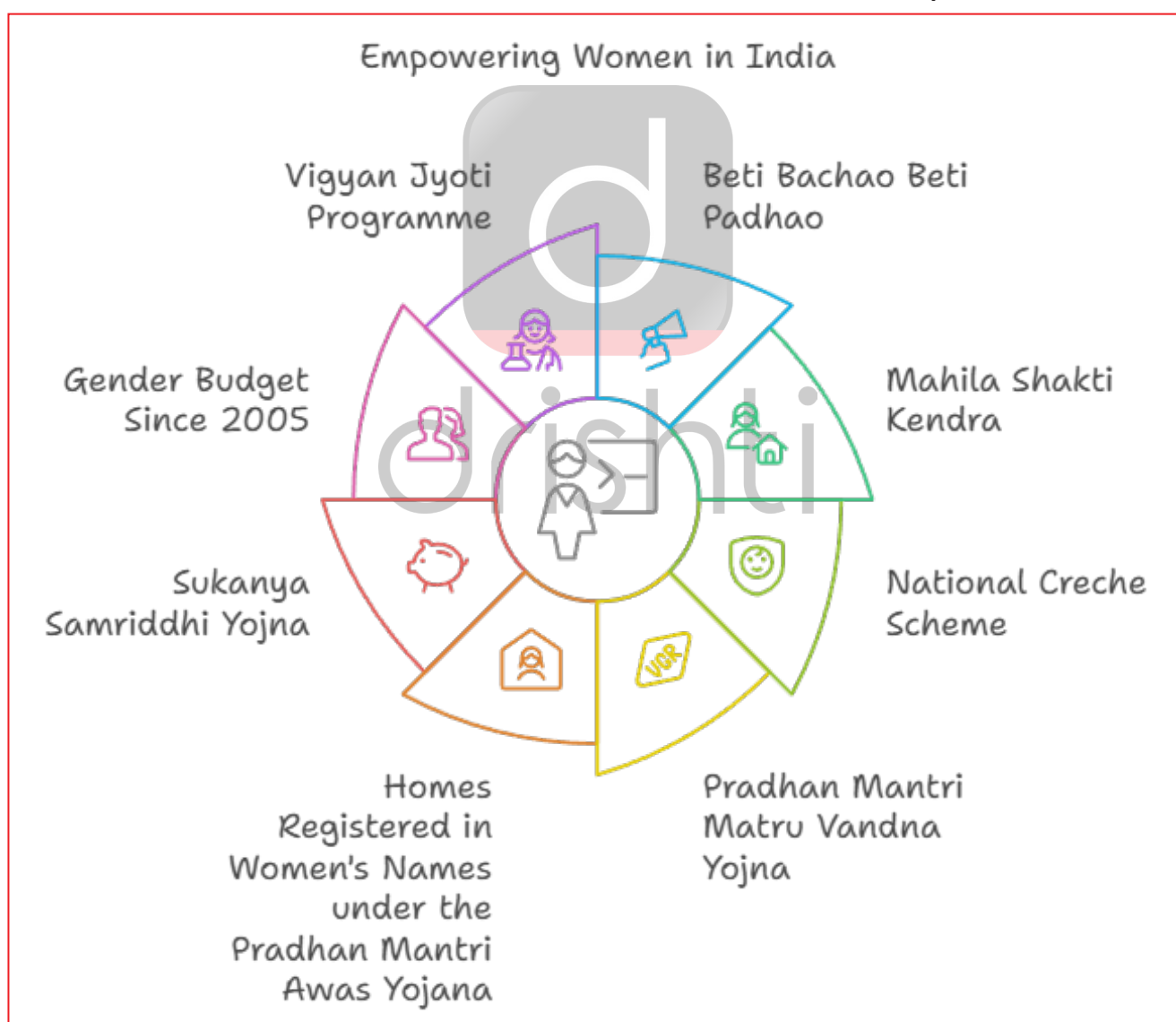
- The expansion of affordable childcare facilities has supported working parents, with Anganwadi services covering **more than 8.7 crore children**.

What are the Existing Barriers to Women's Economic Empowerment?

- **Wage Discrimination and Pay Gap:** According to PLFS data, women earn only **₹16,500 monthly in regular jobs** compared to **₹22,100 for men**, showcasing a stark 25% gender pay gap.
 - The disparity is even more pronounced in **self-employment**, where women earn just **₹5,500 against men's ₹16,000**.
 - Industry-specific analysis shows that even in sectors like IT, where women representation is high, **they earn 26-28% less than male counterparts**.
 - This persistent **pay gap discourages enhanced workforce participation** and limits financial independence.
- **Undervaluation of Care Economy:** Women's unpaid care and domestic work in India represents an **economic value of almost 15%-17% of the GDP**. (Time Use Survey conducted by the **National Statistical Organization** in 2019)
 - According to **Organisation for Economic Co-operation and Development (OECD)** data, women in India currently spend up to **352 minutes per day** on domestic work, **577% more than men (52 minutes)**.
 - Professional caregivers (**nurses, childcare workers, elderly care providers**) face systematic wage penalties, earning less than comparable skill jobs.
 - Despite contributing significantly to human capital formation, care work remains **invisible in policy frameworks and national accounts**.
- **Safety and Mobility Concerns:** There has been a **4% increase in registered crimes against women** in India, according to the 2022 report of **National Crime Records Bureau (NCRB)** affecting workplace commuting decisions.
 - In 2021, an online survey across metropolitan areas indicated that almost **56% of the women** who used public transport reported **being sexually harassed**.
 - Recent incidents like the **tragic assault of a young female doctor at RG Kar Medical College** have further underscored the fear and insecurity that many women experience while engaging in public life.
- **Access to Capital and Financial Resources:** According to the latest **"Men and Women" report** from the **National Statistical Office**, women account holders hold only **20.8% of the total bank deposits in India**.
 - Women-led businesses make up nearly **one-fifth of MSMEs**, but they **only receive 7% of the total outstanding credit** allocated to this sector, according to the RBI.
 - Collateral requirements affect women disproportionately, with only **13% owning agricultural land assets**.
 - Also, digital financial literacy remains low among women. According to **National Family Health Survey-5**, only **22.5% of women** with mobile phones use them for financial transactions.
- **Educational and Skill Gaps:** While enrollment has improved, women's **dropout rates** remain high at **33% (UNICEF)**.
 - Women make up **only 28% of the workforce in STEM** (science, technology, engineering, and math).
 - Vocational training reaches **only 2% of women in workforce age**, compared to 8% of men.
 - In 2022-23, **only 18.6% of women** aged 18-59 had ever received vocational training and this gap has increased over the years.
 - Alarming, in 2021, women made up **only 7% of skill trainees**, despite **17% of Industrial Training Institutes (ITIs) being women-only**.
- **Entrepreneurial Ecosystem Challenges:** Women-owned MSMEs constitute only **20% of registered enterprises**.
 - The **Periodic Labour Force Survey-2020-21**, reveals that 59% of the female workforce is engaged in self-employment, with **38% operating their enterprises independently**, likely as **subsistence entrepreneurs** who may not have the same access to markets as larger, more established businesses.
 - Also, a recent survey also shows that in rural areas, **27% of women entrepreneurs** do not plan to sell any part of their produce, using it solely for household consumption, compared to 10% of men entrepreneurs.
 - This reflects the pronounced market access issues faced by women.
- **Legal and Policy Implementation Gaps:** India boasts some of the **most progressive maternity benefit laws** globally.

- However, since a significant portion of the workforce is engaged in **informal employment**, approximately **93.5% of women workers in the country** are unable to access these maternity benefits
- Sexual harassment prevention laws show weak implementation, **70% of affected working women** do not report workplace sexual harassment.
- In terms of the government's total expenditure, the **gender budget** only remains at **4.96%**.
- **Climate Change and Women's Livelihood at Risk:** According to the UN Environment, **80% of the people displaced by climate change are women** or girls facing heightened risks of poverty, violence or unintended pregnancies as they migrate to safer locations.
 - **Heat stress** in an average year is reducing the income of female-headed households by **8%** compared to male-headed households, and extreme precipitation events by **3%** compared to male-headed households
 - Women comprise a low percentage of the workforce in sectors pivotal for green transition, such as renewable energy and manufacturing.
 - Women comprised merely **11% of workers in the solar rooftop sector**.

What are the Indian Government Initiatives Related to Women's Economic Empowerment?



What Measures can be Undertaken to Strengthen Women's Economic Empowerment in India?

- **Care Economy Recognition and Support:** Pilot a **Universal Basic Care Income (UBCI) Scheme** to recognize and compensate unpaid care work.

- Create a **National Care Economy Framework** with comprehensive benefits and social security for care workers.
 - Establish **Care Credits in pension systems**, recognizing years spent in unpaid care work.
 - Develop **Professional Care Service Hubs** in urban centers, supported by public-private partnerships (similar to **successful models in Japan**).
 - Mandate **care infrastructure (childcare)** in all workplaces above 25 employees with tax incentives for compliance.
 - **Digital Inclusion and Technology Access:** Launch a new **"Digital Shakti"** combining smartphone subsidies with digital literacy training for women.
 - Create **women-focused digital banking products** with simplified KYC and lower transaction costs.
 - Establish **Digital Skills Centers** modeled in the lines of the **Common Service Centre** with focus on emerging technologies and remote work skills.
 - Introduce **"Tech-Sakhis"** program for peer-based digital mentoring in rural areas.
 - Provide tax incentives for companies hiring women in remote tech roles, following successful models like **Nasscom Foundation's Women Wizards**
 - **Gender-responsive Financial Services:** Mandate gender-disaggregated lending targets for banks with incentive structures.
 - Create **specialized credit scoring models** accounting for women's unique financial patterns.
 - Establish a **Women Entrepreneurship Fund** with credit guarantee coverage. Launch **women-focused angel investment networks and venture funds** with government backing.
 - Simplify collateral requirements through **group guarantee mechanisms** and innovative credit products.
 - **Workplace Safety and Mobility Solutions:** Implement **"Safe City"** initiatives with tech-enabled public transport monitoring and emergency response.
 - Mandate **safety audits and infrastructure upgrades** in all business districts.
 - Strengthen workplace harassment prevention through **anonymous complaint management systems** with strict measures to prevent its misuse.
 - **Skill Development and Career Progression:** Establish **Industry-Academia Women's Skill Councils** for demand-driven training.
 - Create **"Second Chance" education programs** with flexible timing for working women.
 - Launch mentor networks connecting experienced professionals with emerging women leaders.
 - Implement **paid apprenticeship programs** specifically for women in non-traditional sectors.
 - **Entrepreneurship Support Ecosystem:** Create **One-Stop-Shop Business Facilitation Centers** for women entrepreneurs.
 - Establish market linkage platforms exclusively for **women-owned businesses**.
 - Mandate a **fixed percentage of procurement from women-owned enterprises in government contracts**.
 - **Legal Framework and Policy Implementation:** Strengthen **equal pay legislation with mandatory pay transparency** (as done by **Board of Control for Cricket in India** recently) requirements.
 - Implement **gender-responsive budgeting** at all government levels with clear outcome metrics.
 - Enhance maternity benefit implementation through **technology-enabled monitoring systems**. Strengthen property rights enforcement for women through **simplified legal procedures**.
 - **Rural Women's Economic Empowerment:** Scale up **Farm-Producer Organizations with women leadership** and ownership.
 - Create **Rural Enterprise Zones** with specialized infrastructure for women-led businesses.
 - Establish **Agricultural Technology Training Centers** focused on women farmers. Develop rural digital commerce platforms with integrated logistics support. Launch specialized financial products for rural women entrepreneurs with flexible terms.
- Conclusion:**
- The surge in India's female labor force participation is a testament to the country's evolving social and economic landscape. However, challenges like **wage discrimination, care economy neglect, safety concerns, and access to capital persist**. Addressing these barriers through targeted policies, inclusive infrastructure, and supportive social norms is crucial to unlock the full potential of women and drive India's sustainable development. By empowering women economically, India can not **only achieve inclusive growth but also shape a more equitable and prosperous future**.
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Strategic Vision in the Evolving BRICS Landscape

This editorial is based on “[Why this is not just another BRICS in the wall](#)” which was published in The Indian Express on 25/10/2024. The article discusses the Kazan Declaration from the 16th BRICS Summit emphasized multilateralism for equitable global development, outlining India’s vision for an expanded BRICS. Originally formed by Brazil, Russia, India, and China in 2006, BRICS now includes South Africa and new partners, focusing on economic cooperation and reforming global governance.

Tag: GS Paper - 2, Important International Institutions, Groupings & Agreements Involving India and/or Affecting India’s Interests, International Treaties & Agreements, Effect of Policies & Politics of Countries on India’s Interests

The **16th BRICS Summit** in Kazan, Russia, focused on “Strengthening **Multilateralism** for Just Global **Development** and **Security**,” highlighting the bloc’s commitment to tackling global challenges. **India** presented its vision for an **expanded BRICS**, marking a pivotal moment in the organization’s evolution. Founded in **2006**, **BRICS** aimed to leverage **Brazil, Russia, India, and China’s** strengths while maintaining ties with **developed nations**. It now includes **South Africa, Egypt, and Saudi Arabia**, reflecting its **expanding influence**.

BRICS leaders assert their **non-alignment** and commitment to partnership with all nations. The **Kazan Declaration** further emphasized **intra-BRICS cooperation** and innovative **financial solutions**, such as promoting **local currency trade**.

What is Genesis, Evolution and Significance of BRICS?

Milestones in BRICS Formation

First Summit

The inaugural BRIC Summit takes place in 2009 in Russia.

Informal Establishment

BRIC is formally established in 2006 at the UN.

Term Introduction

Jim O'Neill introduces the term BRIC in 2001.

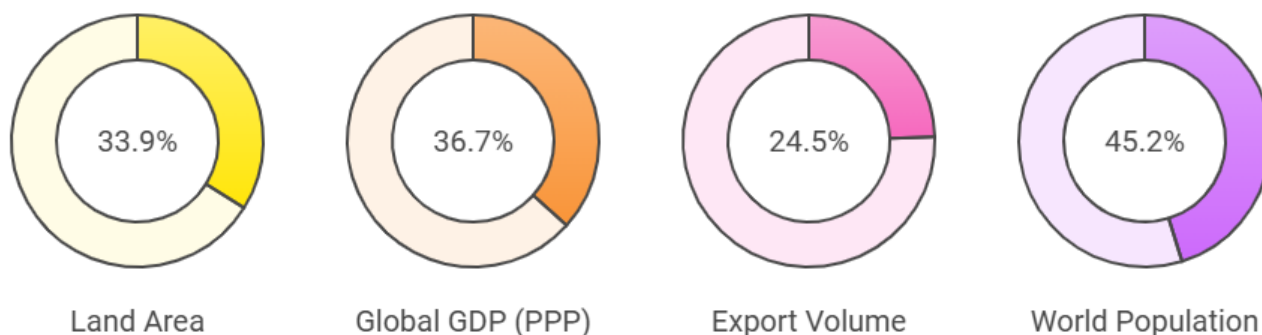


➤ **Evolution:**

- **Membership Expansion:** South Africa joined BRICS in **2010**, enhancing the bloc's representation of emerging economies.
 - In **2024**, the **BRICS group expanded** further with the addition of **Egypt, Ethiopia, the UAE, Iran, and Saudi Arabia**, broadening its influence and development agenda.
- **Significant Membership Changes:** The inclusion of **Egypt, Ethiopia, the UAE, Iran, and Saudi Arabia** marks a pivotal moment for BRICS, enhancing its regional influence and cooperation.
 - The **ten BRICS nations** now represent over a quarter of the global economy and nearly **half of the world's population**.
 - The membership of major oil-producing nations like the **UAE** and **Saudi Arabia** enhances BRICS' capacity to influence global energy markets.
 - The diversity among new members emphasizes the importance of consensus-based decision-making, a foundational value for BRICS.
- **Institutional Growth:** BRICS has evolved to advocate for reforms in global governance structures, including the **UN** and **WTO**, and to promote changes within financial institutions like the **World Bank** and **IMF**.
 - Key mechanisms such as the **Contingency Reserve Arrangement (CRA)** and the **New Development Bank (NDB)** (set up by the **Fortaleza Declaration**) have been established to support financial stability and development.

➤ **Significance:**

Key Contributions and Demographics of BRICS Nations



- **Economic Growth Metrics:** As of 2023, the BRICS bloc accounted for around **37% of global GDP**.
 - BRICS has surpassed the **G7** in combined GDP (in PPP terms) and growth rates, demonstrating its rising importance in the global economy.
 - Enhanced **intra-BRICS cooperation** supports this growth, yielding tangible benefits for member populations.
- **Shaping Geopolitical Landscape:** BRICS plays a vital role in influencing the geopolitical landscape and advocating for reforms in global governance structures.
 - Its consensus-driven approach necessitates active participation and leadership from member states to navigate complex global issues.
- **Women's Empowerment:** BRICS highlights the importance of women's empowerment and decision-making participation, supported by the **Ministerial Meeting on Women's Affairs** and the **BRICS Women's Forum**.
 - The **BRICS Women's Business Alliance** fosters entrepreneurship through initiatives like a digital platform and regional offices to enhance support for women entrepreneurs.
- **Affordable Housing and Urban Development:** BRICS countries are advancing affordable housing and urban resilience through initiatives like the **BRICS Urbanization Forum and Municipal Forum**, in line with the **2030 Sustainable Development Agenda**.

How BRICS Countries Compare in Population and Economy

Population, gross domestic product (GDP), and exports as a share of the world for BRICS countries as compared to the U.S. and Europe

	Population	GDP	Exports
India	18%	3%	3%
China	18%	17%	11%
Brazil	3%	2%	1%
Russia	2%	2%	2%
Ethiopia	2%	0%	0%
Egypt	1%	0%	0%
Iran	1%	0%	0%
South Africa	1%	0%	0%
Saudi Arabia	0%	1%	1%
United Arab Emirates	0%	0%	1%
Europe	6%	17%	31%
United States	4%	26%	10%

Note: Data is for 2023.

What are the Significance and Challenges of BRICS for India?

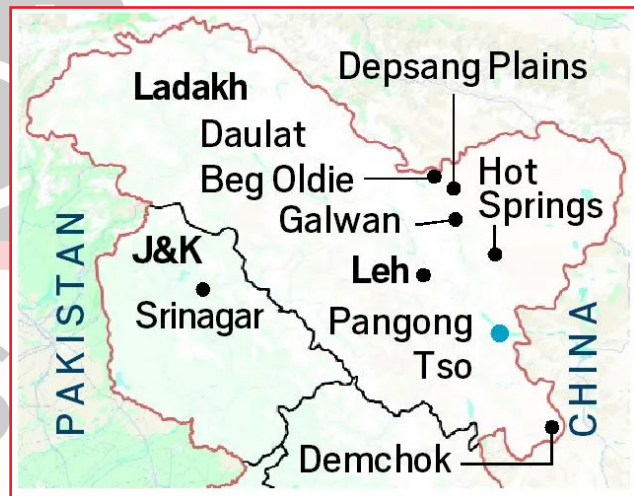
➤ Significance of BRICS for India:

- **Geopolitical Influence:** BRICS provides India a key platform to balance the dominant **Russia-China axis** and assert its own multipolar vision in global politics.
 - For instance, by collaborating on the sidelines of **16th BRICS Summit**, Indian and Chinese negotiators have reached an agreement on “patrolling arrangements” along the **Line of Actual Control (LAC)**, enabling disengagement and resolving issues that surfaced in these areas in 2020.
 - Also, BRICS allows India to advocate for reforms in the **global financial system**, seeking greater representation for developing economies in institutions like the IMF and World Bank.
- **Developmental Financing:** In the past five years, the **NDB** has approved 70 projects worth USD 25.07 billion across member countries, including **18 projects in India totaling USD 6.9 billion**.
 - It underscores India’s strategic position within the BRICS framework, enhancing its infrastructure development and economic growth while fostering greater regional cooperation among member countries.
- **Voice for Developing Nations:** As a prominent member of BRICS, India can amplify its role as a **voice for the Global South**, especially on issues like **fair trade, climate responsibility, and sustainable development**.
 - BRICS serves as a platform where India can advocate for the interests of developing nations, pushing back against policies from advanced economies that may hinder growth in emerging markets.
- **Counterterrorism Collaboration:** India has used BRICS to bring a strong focus on **counter-terrorism**, urging member countries to address specific aspects like **terror financing** and **regional security challenges**, which are critical for India’s **national and regional security**.

- **Strategic Partnerships with New Members:** The recent inclusion of countries like **Saudi Arabia, UAE, and Ethiopia** further solidifies India's partnerships, especially in vital areas like energy, trade, and infrastructure.
 - For instance, **Saudi Arabia and UAE** are significant trade and energy partners for India, while **Ethiopia's** strategic location and resource potential enhance India's presence in **East Africa**, thereby supporting its regional interests.
- **Challenges for India in BRICS:**
- **Diverse Member Interests:** The **BRICS** grouping consists of countries with varying economic systems, political structures, and strategic interests, which poses coordination challenges for cohesive action.
 - For India, aligning its priorities with those of all BRICS members, including countries with different regional goals like **China, Brazil, and Russia**, is often complex and requires careful diplomacy.
- **China's Dominance:** China's substantial economic leverage within BRICS may overshadow India's influence, especially with the group's growing dependence on Chinese trade and investment.
 - China's share in India's industrial goods imports jumped to **30%** from 21% in the last 15 years.
 - Further, China's strained relations with **Russia** complicate BRICS dynamics. Despite shared interests in countering Western influence, tensions like **territorial disputes** and competition for regional dominance may hinder unified decision-making.
 - This dominance presents a challenge for India, as it has a significant trade deficit with China and must navigate this imbalance while trying to assert its own economic agenda within BRICS.
- **Managing Regional Rivalries:** BRICS now includes countries with historical rivalries, such as **Saudi Arabia and Iran**, whose tensions could impact group cohesion.
 - India faces the challenge of balancing its relationships with these nations, as regional rivalries could complicate BRICS decision-making and create divisions that make it harder to achieve consensus on key issues.
- **Global Governance Model:** Amid global economic uncertainty, trade tensions, and protectionism, BRICS faces the challenge of developing an inclusive governance model that promotes stability.

What are the Highlights of the India-China Agreement at Kazan?

- **Patrolling Agreement:** Indian and Chinese negotiators have reached an agreement on "patrolling arrangements" along the **Line of Actual Control (LAC)**, enabling **disengagement** from tensions that arose in **2020**.
 - This pact was discussed between **India and China** at the **BRICS summit** in Kazan.
- **Restoration of Rights:** The agreement allows Indian troops to patrol in **Depsang Plains** and **Demchok**, resuming pre-May 2020 activities.
- **Troop Reduction:** The deal aims to lower the presence of **50,000 to 60,000 troops** on each side, with implementation expected in **10 days**.
- **Caution Ahead:** Divergent statements suggest a need for **trust-building**, with India insisting that normalization hinges on resolving border issues. Future talks will involve **Special Representatives**.



What are the Major Highlights of the Kazan Declaration of the 16th BRICS Summit?

- **Comprehensive Framework:** The summit concluded with the adoption of the **Kazan Declaration**, a vital document outlining key areas of cooperation among BRICS nations.
 - This declaration reinforces the bloc's commitment to **mutual respect, sovereign equality**, and a **fairer international order**.
- **Strategic Importance:** The declaration sets a foundation for enhanced collaboration across various sectors, aiming for **sustainable development and peace**, which are crucial for addressing the complex challenges facing the Global South.
- **Diplomatic Resolutions of Conflict:** BRICS leaders reaffirmed the importance of resolving the **Russia-Ukraine conflict** through diplomatic channels.

- The declaration voiced serious concern over the **humanitarian crisis** in the **Occupied Palestinian Territory**, particularly regarding the escalation of violence in **Gaza and the West Bank**.
- They expressed support for mediation efforts, highlighting adherence to the principles of the **United Nations Charter**.
- This stance reflects BRICS's commitment to multilateralism and peaceful conflict resolution, positioning the bloc as a mediator in global conflicts.
- **G20 and Multilateralism:** The summit reiterated the significance of the **G20** as a key platform for global decision-making, advocating for its continued and effective functioning based on consensus.
 - BRICS nations expressed their commitment to maintaining a strong and effective IMF as part of the **Global Financial Safety Net**.
 - The leaders called for reforms that better align the IMF's structure and operations with the interests of emerging economies, signaling a push for a more equitable global financial system.
- **Trade & Dedollarization:** A key outcome was the agreement to promote trade and financial transactions in local currencies among BRICS nations, which aims to reduce dependency on the U.S. dollar.
 - BRICS is developing a **digital currency** to reduce reliance on Western currencies. The currency may be gold-backed for added security and appeal to nations seeking financial independence.
 - This initiative aims to hedge against inflation and **lessen U.S. dollar dependence** amid global tensions.
 - Also, **BRICS Pay** is an independent, decentralized payment messaging system designed to facilitate **cross-border finance**, operating without direct affiliation to the BRICS organization or its councils.
- **BRICS Grain Exchange :** Leaders discussed the establishment of a **BRICS Grain Exchange** and the exploration of a cross-border payment system.
 - A **grain exchange** enables trading of grain commodities, improving market efficiency, price discovery, and food security among participating countries.
- **Global Responsibilities:** The summit emphasized the need for enhanced collaboration in health systems,

supporting initiatives like the **BRICS R&D Vaccine Center** and the **Integrated Early Warning System for infectious diseases**.

- Also, this commitment underscores the importance of environmental stewardship, with BRICS nations.
- The leaders recognized India's initiative for an **International Big Cats Alliance**, committing to work together on conservation efforts for endangered species.

What Should be the Way Forward?

- **Strengthen Diplomatic Engagements:** India should deepen **diplomatic engagements** within **BRICS** to bridge differing national interests.
 - By fostering strong bilateral ties with new and existing members, India can facilitate greater consensus, particularly on issues like **trade, climate action, and security**.
 - For India, it's essential that BRICS doesn't align as an **anti-West bloc** but instead advances a cooperative global framework that accommodates both developed and emerging economies.
 - This requires India to advocate for **balanced policies** that avoid fragmenting the global economic order.
- **Enhance Trade and Investment Ties:** Expanding trade with **BRICS** nations, especially with new members like **UAE and Saudi Arabia**, could help reduce India's trade imbalance with **China**.
 - Leveraging these economic partnerships can diversify India's trade portfolio and strengthen its position within **BRICS**.
- **Promote Multilateral Reforms:** India should continue advocating for reforms in global institutions like the **IMF and World Bank**, emphasizing fairer representation for developing nations.
 - A reformed multilateral system would align with **BRICS'** shared vision and bolster India's leadership role in promoting an equitable global order.
- **Advance Counterterrorism Collaboration:** India can work within BRICS to build more structured cooperation on **counter-terrorism** efforts, addressing issues like financing and radicalization.
 - Strengthened security collaboration can enhance BRICS' collective resilience to global security threats, benefiting India's national security agenda.

- **Leverage BRICS for Energy Security:** As India's energy needs grow, partnerships with **energy-rich BRICS** members like **Saudi Arabia and Russia** can secure long-term energy supplies.
 - Collaborating on **energy infrastructure and exploring renewable energy** within BRICS can diversify India's energy sources, promoting sustainable energy security.
- **Support South-South Cooperation Initiatives:** India should use BRICS as a platform to drive **South-South cooperation**, focusing on **technology transfer, sustainable development, and infrastructure investments**.
 - Strengthening cooperation among developing nations within BRICS aligns with India's vision of a multipolar world and enhances its influence in the **Global South**.
- **Promote a Balanced BRICS Identity:** To avoid BRICS becoming an **anti-West bloc**, India should champion a balanced identity for the group, emphasizing cooperation with both Eastern and Western economies.
 - This will allow BRICS to emerge as an inclusive platform, promoting a global governance model that bridges **East-West divides** and accommodates India's multi-alignment strategy.

Conclusion

BRICS serves as a vital platform for **emerging economies** to collaborate on **economic growth** and **geopolitical stability**. Its significance lies in advocating for **developing nations**. Strengthening **diplomatic ties**, enhancing **trade relations**, and advancing **counterterrorism initiatives** are essential for realizing BRICS's potential in **sustainable development and global equity**.



Scaling Electric Vehicles in India

*This editorial is based on "**The private sector holds the key to India's e-bus push**" which was published in The Hindu on 28/10/2024. The article discusses that the **PM E-DRIVE scheme advances electric buses in public transport, but private operators' exclusion may limit scalability. Financing options and shared charging infrastructure are key for broader EV adoption.***

Tag: GS Paper - 3, Achievements of Indians in Science & Technology, Mobilization of Resources, Sustainable Development, Environmental Pollution & Degradation, GS Paper - 2, Government Policies & Interventions

In a significant step toward achieving India's **climate goals**, the **Union Cabinet** has approved the **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)** scheme, allocating **Rs 4,391 crore** for subsidies to procure **14,028 electric buses** across nine cities. This marks a significant shift toward **electric mobility** in public transport.

Currently, the deployment of electric vehicles has been largely driven by public sector initiatives, particularly the **Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India (FAME India)** scheme. Despite substantial funding, only a small fraction of the **24 lakh** registered buses in India are electric, with private operators making up **93%** of the total but lacking significant incentives.

What are the Benefits of Electric Vehicles (EVs)?

- **Environmental Impact:** EVs produce **zero tailpipe emissions**, making them cleaner and beneficial for urban air quality.
 - They significantly reduce **greenhouse gas emissions**, especially when powered by **renewable energy sources**, helping India work towards its carbon neutrality targets.
- **Lower Running Costs:** EVs are cheaper to operate in the **long run**, with electricity costs typically lower than fuel costs.
 - Government incentives, such as reduced electricity tariffs for **EV charging**, make them even more cost-effective.
- **Reduced Maintenance Requirements:** EVs have fewer moving parts compared to internal combustion engines, leading to lower wear and tear and, subsequently, reduced maintenance costs.
- **Financial Incentives and Tax Benefits:** The government offers various incentives like reduced **registration fees, tax benefits, and subsidies**, making EVs more affordable and encouraging widespread adoption.
- **Enhanced Efficiency:** EVs convert up to **60% of electrical energy** into propulsion, whereas traditional combustion engines (petrol or diesel cars) convert only 17%-21%, making EVs more energy-efficient.
- **Reduced Noise Pollution:** EVs operate quietly, helping to **reduce noise pollution** in crowded urban areas, enhancing driving comfort, and benefiting public health.

What are the Challenges in EV Adoption as Public Transport?

- **High Upfront Costs:** Electric buses and other public transport vehicles are **1.5 to 2 times** more expensive than diesel alternatives.
 - This financial burden is particularly challenging for small private operators who lack sufficient funds.
 - While **electric intercity buses** can be more profitable over their service life, high interest rates and loan costs make them less financially viable during loan periods.
- **Limited Charging Infrastructure:** **Charging stations** are limited to urban areas and largely concentrated in state-run transport hubs.
 - For instance, there were only **12,146 public EV charging stations** operational across the country as of February 2024.
 - **Private bus operators** often find it challenging to set up or access affordable charging facilities, especially in **semi-urban or rural areas**.
- **Financial Risks and Limited Access to Credit:** Banks view EV investments as high-risk due to limited resale value and uncertain battery life, leading to higher interest rates and shorter loan terms.
 - This financial risk deters private players from entering the EV market.
- **Battery Life and Maintenance:** Battery replacement costs are significant, and many operators worry about degradation over time.
 - Additionally, EV technology requires **specialized maintenance**, increasing dependency on technical know-how and specialized services.
- **Grid Stability and Power Supply:** The energy demands for charging EVs are high, especially in densely populated areas.
 - In regions where power cuts are frequent, **grid stability** becomes a concern, hampering the reliability of EV infrastructure.
- **Lack of Skilled Workforce:** EVs require specific skills for maintenance and repairs, and the lack of trained personnel affects the operational efficiency and longevity of EVs in public transport.
- **Private Sector Exclusion:** The public sector has driven electric bus deployment, supported by subsidies under the **FAME India scheme**, which funded 425 buses under **FAME I (2015-2019)** and 7,120 under **FAME II (2019-2024)**.

- However, public transport buses account for **only 7%** of registered buses in India, while private buses, making up 93%, are not included in major national schemes.
- Limited financing, high perceived risks, and low resale values complicate the uptake of electric buses in the private sector.

What are the Government Initiatives to Promote Electric Vehicles?

- **National Level Initiatives:**
 - **Electric Mobility Promotion Scheme 2024 (EMPS):** The **Electric Mobility Promotion Scheme 2024** has an outlay of **Rs 778 Crore** and will be in effect from 1st April 2024, to 30th September 2024.
 - This scheme provides incentives to buyers of electric **two-wheelers (e-2W)** and **three-wheelers (e-3W)**.
 - **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme:** The **FAME India Scheme** was launched in 2015 to promote the adoption of electric and hybrid vehicles in India.
 - **Phase-I (2015-2019)** had an outlay of **Rs 895 Crore**. It supported approximately 2.8 lakh electric and hybrid vehicles, deployed 425 electric and hybrid buses, and sanctioned 520 charging stations.
 - **Phase-II (2019-2024)** has a total budgetary support of **Rs 11,500 Crore** and focuses on the electrification of **public and shared transportation**.
 - The targets include supporting 7,262 electric buses, 155,536 electric three-wheelers, 30,461 electric passenger cars, and 1,550,225 electric two-wheelers.
 - **Production Linked Incentive Scheme for Automobile and Auto Component Industry (PLI-AAT):** It has a budgetary outlay of **Rs 25,938 Crore**.
 - This scheme incentivizes various categories of electric vehicles, including **e-2W, e-3W, e-4W, e-buses, and e-trucks**.
 - **Production Linked Incentive Scheme for Advanced Chemistry Cells (PLI-ACC):** It has an outlay of **Rs 18,100 Crore**. This scheme aims to promote the manufacturing of advanced battery technologies in India.

- **Scheme to Promote Manufacturing of Electric Passenger Cars:** This scheme is designed to attract investments from global **electric vehicle** manufacturers and promote India as a manufacturing destination for electric vehicles.
- **Support for Charging Infrastructure:** The Ministry of Heavy Industries has also sanctioned **Rs 800 Crore** as capital subsidy for establishing 7,432 electric vehicle public charging stations.
 - To date, **Rs 560 Crore** has been released, and an additional **Rs 73.50 Crore** has been sanctioned for the setup or upgrade of 980 public fast charging stations.
- **Phased Manufacturing Program (PMP):** Promotes local manufacturing of EV components through a graded duty structure, boosting indigenous production and reducing import dependency.
- **National Electric Mobility Mission Plan (NEMMP):** Aims to achieve national fuel security by promoting **hybrid and electric vehicles** in the country and envisaging fuel savings of 950 million liters by 2030.
- **National Mission on Transformative Mobility and Battery Storage:** Aims to promote "**Make in India**" in the EV sector by encouraging the localization of battery production and reducing the costs of EVs over time.
- **Battery Swapping Policy:** The government launched a battery swapping policy to reduce charging times and improve electric vehicle (EV) efficiency by allowing users to exchange depleted batteries for charged ones.
 - Released in February 2023, the policy focuses on standardizing battery sizes for **two- and three-wheelers** and includes safety protocols, identification codes, recycling processes, and potential subsidies.
- **Other Government Initiatives:**
 - In the **Union Budget for 2023–2024**, the government extended customs duty exemptions for importing machinery and equipment necessary for manufacturing **lithium-ion cells** for electric vehicle batteries.
 - Both commercial and private battery-operated vehicles are eligible for green license plates and are exempt from permit requirements.
 - **The Goods and Services Tax (GST)** on **electric vehicles** has been reduced from **12% to 5%**,

and the **GST** on **EV charging stations** has been lowered from **18% to 5%**.

- Additionally, a waiver on **road tax** for EVs has been implemented to reduce their initial costs.
- **State-Level Initiatives:** Many Indian states, including **Maharashtra, Delhi, and Karnataka, Uttar Pradesh** offer **subsidies, tax waivers, and incentives** for EV buyers, aiming to boost regional EV sales and establish charging infrastructure.
 - **For example:** In Delhi, **battery electric vehicles (BEVs)** are expected to account for 25% of all vehicle registrations by 2024. Additionally, delivery service providers are required to convert 100% of their fleet to electric vehicles by 2025.

What Should the Way Forward?

- **Inclusion of Electric Buses in Priority Sector Lending (PSL):** By classifying electric buses as a priority sector, banks can provide low-interest loans to small private operators, easing their access to capital and enabling a more equitable EV transition.
- **Development of Shared Charging Infrastructure:** States should focus on setting up public charging hubs in high-traffic areas, accessible to both private and public operators.
 - Developing shared public charging infrastructure, especially in urban areas and key intercity corridors, is essential for encouraging private investment in electric buses.
 - Shared facilities reduce infrastructure costs and make EV adoption viable for smaller operators.
- **Battery-as-a-Service (BaaS) Models:** Encouraging BaaS models, where operators lease rather than buy batteries, would reduce the upfront costs and eliminate concerns over battery degradation.
 - Battery swapping stations should also be promoted to reduce downtime for commercial fleets.
- **Extension of Lease Terms for Electric Vehicles:** Extending lease terms for EV loans to 10-12 years (from the current 3-4 years) could help private operators by spreading out repayment obligations, making EVs financially viable over the long term.
- **Specialized Skill Development Programs:** Technical training centers dedicated to EV maintenance and repair could be set up to ensure a skilled workforce.
 - This initiative would help address the operational challenges and reduce reliance on imported expertise.

- **Enhanced Fiscal Support and Subsidies:** Extending FAME-like incentives to the private sector would encourage more players to adopt electric buses.
 - States could also provide additional subsidies for setting up private charging stations in underserved areas.
 - State governments could offer financial subsidies and ensure minimum energy consumption guarantees to attract private investment in charging infrastructure.
- **Promotion of Public-Private Partnerships (PPPs):** Collaborative **PPP** models for **infrastructure development** could help mobilize private investments in charging infrastructure, especially in urban and intercity routes.
 - Governments could offer land and tax incentives, while private players bring in capital and operational expertise.
- **Strengthening Research and Innovation in Battery Technology:** Investment in battery technology research, particularly for **lithium-ion and alternative energy sources**, could reduce battery costs and dependency on imports, enabling a more sustainable EV ecosystem.

- **Industry Initiative:** In response to growing customer awareness, the industry has been utilizing technological advancements and government support to enhance the availability of sustainable options.
 - Innovative solutions, including fast-charging stations and community charging facilities, have been developed to improve convenience for **electric vehicle (EV)** owners.

Conclusion

India's **transition to electric vehicles (EVs)** is key to achieving **climate goals** and enhancing **urban air quality**. The recent **PM E-DRIVE scheme** supports **electric buses**, yet **excluding private operators** underscores the need for **inclusive policies**. Addressing **high upfront costs, limited charging infrastructure**, and a **skilled workforce shortage** is vital. **Public-private partnerships, innovative financing, and technology advancements** will drive EV adoption across sectors, establishing a **sustainable electric mobility ecosystem** for a cleaner future.

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Drishti Mains Questions

1. Discuss the key challenges and opportunities in India's logistics sector, highlighting the role of infrastructure development and technology in improving efficiency and reducing costs.
2. Discuss the prospects and challenges of private sector participation in India's nuclear energy program. How can India ensure national security while encouraging technological and financial investment?
3. Analyze the significance of bilateral trade between India and Germany in changing geopolitics.
4. Discuss the key challenges faced by wildlife conservation initiatives in India. How do these challenges undermine the effectiveness of existing conservation policies?
5. West Asia has often been a region of continuous geopolitical turmoils. Analyze the factors behind this persistent instability and explain how India can maintain a balanced approach in its ties with the region.
6. Antimicrobial Resistance poses a significant threat to public health in India, with implications for healthcare systems, food security, and economic development. Examine the government's efforts to tackle AMR and discuss what more can be done to strengthen India's response to this growing challenge?
7. The Indian Ocean holds immense strategic significance for India's security, trade, and regional influence. Analyze the key challenges and opportunities for India in the Indian Ocean region.
8. The Indian judiciary has been hailed for upholding constitutional values, but recent challenges of pendency, judicial overreach, and infrastructure limitations have raised concerns. Discuss the role of judicial reforms in addressing these issues, citing specific initiatives and their impact on access to justice and judicial efficiency.
9. India has made significant strides in fostering an innovation-driven economy, yet several challenges hinder its full potential. Discuss the key drivers behind India's innovation growth and the critical roadblocks to translating research into commercial success.
10. What strategies can be adopted to ensure the successful implementation of carbon trading in the agricultural sector, thereby reducing greenhouse gas emissions and promoting sustainable farming practices?
11. Discuss the impact of the Right to Information (RTI) Act on governance and accountability in India. In your view, what are the major challenges faced by the RTI framework in recent years, and how can these challenges be addressed to enhance its effectiveness?
12. In light of the growing gig economy, what actions can India take to protect the rights and ensure fair wages for gig workers?
13. Evaluate the challenges to food security in India and their impact on hunger levels. How can India ensure sustainable food security to eliminate hunger?
14. India is at risk of falling into the middle-income trap amidst global economic headwinds. Discuss the key factors contributing to this risk and suggest a strategic roadmap for India to overcome it and transition to a high-income economy.
15. Universal Basic Income (UBI) has been proposed as a solution to address poverty and inequality in India. Discuss the feasibility of implementing UBI in the Indian context, considering its potential benefits and challenges.
16. Discuss the role of Civil Society Organizations in promoting social justice and policy reform in India. How can accountability be strengthened within these organizations to enhance their effectiveness?

Drishti Mains Questions

17. "Water scarcity and management have emerged as critical challenges in India, exacerbated by factors such as urbanization, climate change, and population growth". What solutions can be implemented to enhance sustainable water management practices in the country?
18. Discuss the impact of India's Free Trade Agreements (FTAs) on its economic growth and trade relations and suggest measures to enhance their effectiveness.
19. The India-China relationship is characterized by both cooperation and confrontation. Discuss in reference to how economic interdependence influences India's foreign policy decisions in the Indo-Pacific region.
20. Examine India's contributions to United Nations Peacekeeping Operations and assess their impact on global peace and security.
21. Examine the significance of Corporate Social Responsibility in fostering sustainable development in India. Identify the key challenges companies encounter in executing CSR initiatives and propose strategies to improve their effectiveness and societal impact
22. The weaponization of space presents significant challenges to global security and stability." Analyze the factors driving space weaponization and suggest measures to ensure the peaceful use of outer space.
23. Discuss the significant changes in female labor force participation in India over the past five years. What factors have contributed to these changes, and what challenges do women still face in terms of job quality and economic engagement?
24. What are the major economic and geopolitical challenges within BRICS, and how can India address them to enhance its cooperation in the group?
25. Assess the effectiveness of the various government initiatives in promoting electric vehicles and addressing adoption barriers in public and private sectors.