



Monthly Editorial Consolidation



01st June to 29th June 2024

Drishti, 641, First Floor, Dr. Mukharjee Nagar, Delhi-110009
Inquiry (English): 8010440440, Inquiry (Hindi): 8750187501
Email: help@groupdrishti.in

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Revamping India's Tourism Sector

This editorial is based on "The skilling potential of tourism" which was published in The Business Line on 28/05/2024. The article explores the "Hunar se Rozgar" (Skill to Employment) scheme, focusing on its role in the tourism sector and its impact on employment opportunities.

Tag: GS Paper - 3, Mobilization of resources, Employment, Inclusive Growth.

In 2009, the **Ministry of Tourism** implemented a scheme called 'Hunar se Rozgar Tak' (Skill to Employment), which is relatively less known. This initiative primarily targets **school dropouts**, providing them with training for either **employment or self-employment**, and operates with an annual budget of approximately **₹30 crore**.

The **Hunar se RozgarTak (HSRT)** scheme aims to bridge the gap between the demand and supply of a skilled workforce by providing **market-relevant training** and promoting self-employment and entrepreneurship among the urban poor.

Despite endeavours to incorporate the unorganised sector into mainstream employment through essential **skills training**, there persists a noticeable gap in youth employment. It's important to note that strengthening the **tourism sector in India** could enhance the scheme's effectiveness, potentially attracting more participants and fostering employment opportunities within this vital industry.

The Indian Tourism sector ranks among the **fastest-growing economic sectors** in the country. In light of India's G20 Presidency and the **India@75 Azadi ka Amrit Mahotsav** celebrations, the Ministry of Tourism has designated 2023 as the '**Visit India Year**' to promote inbound travel.

The one land that all men desire to see and having seen once, by even a glimpse, would not give the glimpse for all the shows of all the rest of the globe combined. – "Mark Twain"

What is the Current Status and Potential of India's Tourism Sector?

➤ Current Status:

○ Economic Development:

- India's rank on the **World Economic Forum's Travel & Tourism Development Index 2024** has risen to **39th place** and it contributes **7% to India's Gross Domestic Product (GDP)**.

- Cumulative **FDI equity inflow** in the **Hotel and Tourism industry** was **USD 17.1 billion** during the period April 2000-December 2023, this constitutes **2.57%** of the total FDI inflow received across sectors.

- As per **India Brand Equity Foundation (IBEF)** report on the Growth of Tourism and Hospitality Industry, Travel and tourism are two of the largest industries in India, with a total contribution of about **USD 178 billion** to the country's GDP.

○ Employment Generation:

- Travel & Tourism generated **32.1 million jobs**, accounting for **6.9% of total employment in 2021**
- For instance, the hospitality industry, including **hotels, restaurants, and travel agencies**, employs millions of people directly and indirectly.

○ Tourists Arrival:

- Domestic tourism has been a driving force for the industry, with over **1.8 billion domestic tourist visits in 2019**, contributing significantly to the economy.
- As per the **Ministry of Tourism, Foreign Tourist Arrivals (FTAs)** in December 2023 were 1,070,163.
- FTAs during the period January-December 2023 were 9,236,108 as compared to 6,437,467 in January-December 2022.

○ Top Destinations:

- Popular destinations include the Taj Mahal in Agra, the Golden Temple in Amritsar, the beaches of Goa, the backwaters of Kerala, and the hill stations of Himachal Pradesh and Uttarakhand.

➤ Potential:

- **International Tourist arrival:** The country's big coastline is dotted with several attractive beaches. With this, the travel market in India is projected to reach **USD125 Billion** by the Financial Year 2027 and International Tourist arrival is expected to reach **30.5 million by 2028**.
- **Job Opportunity:** By **2029**, it is expected to account for about **53 million jobs**. In India, the industry's direct contribution to the GDP is expected to record an annual growth rate of **7-9%** between 2019 and 2030.
- **Business Growth:** The travel market in India is projected to reach **US\$ 125 billion by FY27** from an estimated **USD 75 billion in FY20**.

- The Indian airline travel market was estimated at **~USD 20 billion** and is projected to double in size by **FY27** due to improving **airport infrastructure** and growing access to passports.
- The Indian **hotel market** including domestic, inbound, and outbound was estimated at **~USD 32 billion in FY20** and is expected to reach **~USD 52 billion by FY27**, driven by the surging demand from travellers and sustained efforts of travel agents to boost the market.

Note: In 2012, National Geographic's Traveller magazine named Kerala as one of the "ten paradises of the world" and "50 must see destinations of a lifetime". Travel and Leisure also described Kerala as "One of the 100 great trips for the 21st century".

What is the Significance of the Tourism Sector in India?

- **Foreign Exchange:**
 - Tourism significantly impacts the balance of payments, being India's third-largest foreign exchange earner.
 - Examples such as the influx of **international tourists to the Taj Mahal** in Agra, which generates substantial foreign exchange revenue.
- **Multiplier Effect:**
 - Tourism has '**positive spillover effects**' on other sectors such as food and catering, hotels and restaurants, real estate, and transportation.
 - For example, the rise in tourism in a city like **Jaipur** has led to increased demand for local crafts, real estate developments, and transportation services.
- **Inclusive Growth:**
 - The tourism industry stimulates economic activity in fragile and remote rural, tribal, and hill areas with relatively poor infrastructure, **unlocking the value of cultural heritage and ecological sites.**
 - For example, eco-tourism initiatives in the northeastern states of India have created job opportunities and promoted sustainable development in these regions.
- **Inter-cultural exchanges:**
 - It fosters new ideas, promoting tolerance and acceptance of diversity, thus helping build social capital in India.
 - For example, festivals like the **Jaipur Literature Festival** and **Goa Carnival** attract visitors from all over India, fostering a sense of national unity and cultural exchange.
- **Strategic Diplomacy Tool:**
 - Tourism enhances bilateral relations and people-to-people connections, creating sustainable "**dependency bonds**" that ensure peace.

- For example, India's cultural exchanges with countries like **Japan and South Korea** through tourism have strengthened diplomatic ties and mutual understanding.

What are the Various Issues Associated With the Tourism Sector in India?

- **Inadequate Infrastructure:**
 - Many tourist destinations **lack essential infrastructure**, such as adequate air, rail, and road connectivity, reliable internet access, and proper hospitality, health, and sanitation facilities.
 - For example, remote areas in the **North-East** and certain **rural tourist spots** often struggle with poor connectivity and basic amenities.
- **Governance Challenges:**
 - There are several governance issues, including a **lack of clear guidelines** for tourists, **poorly regulated health and hygiene standards**, inefficiently managed tourist information centres, and cumbersome visa regulations.
 - All these challenges in the long run deter potential visitors.
- **The multiplicity of Taxes:**
 - The tourism industry faces a complex tax structure, with multiple taxes applied across the entire value chain, from **tour operators and transporters to the airline industry and hotels.**
 - This complexity makes tourism an expensive endeavour in India. For example, **high Goods and Service (GST) rates** on hotel rooms and tour services can significantly increase costs for tourists.
- **Unskilled Human Resources:**
 - There is a **shortage of skilled manpower** in the tourism sector, including a lack of relevant skills such as **multilingual abilities** and professional training.
 - For instance, the limited number of trained multilingual guides can hinder the experience of international tourists.
- **Safety of Tourists:**
 - Safety concerns, including instances of crimes against tourists such as theft and duping, particularly affect women.
 - For example, A foreign women tourist was gang-raped in Jharkhand's Dumka district in March 2024.

What are the Different Initiatives Related to Tourism in India?

- **Boosting Tourist Place Attractiveness:**
 - **Swadesh Darshan Scheme:** The **Swadesh Darshan Scheme** was launched to develop **theme-based tourist circuits** across India, leveraging cultural, historical, and natural heritage.
 - Improved infrastructure and tourist experiences in circuits like the **Buddhist Circuit, Coastal Circuit, Desert Circuit, and Eco Circuit.**
 - **PRASAD Scheme:** Focuses on the development and beautification of pilgrimage sites.
 - **HRIDAY (Heritage City Development and Augmentation Yojana):** Aims to preserve and revitalize heritage cities.
 - **Paryatan Parv:** A nationwide campaign to encourage domestic tourism, involving cultural events and activities
 - **Dekho Apna Desh Initiative:** **Dekho Apna Desh Initiative** encourages domestic tourism by promoting the exploration of India's diverse landscapes and cultural heritage.
 - **Ek Bharat Shreshtha Bharat:** **Ek Bharat Shreshtha Bharat** promotes cultural integration through state pairings, encouraging exchange and collaboration and fostering unity and diversity, enhancing domestic tourism and cultural appreciation.
- **National Tourism Policy, 2022:** The Policy aims at improving framework conditions for tourism development in the country, supporting tourism industries, strengthening tourism, support functions and developing tourism sub-sectors and focusing on **Five Key Areas:**
 - Green tourism,
 - Digital tourism,
 - Destination management,
 - Skilling in the hospitality sector and
 - Supporting tourism-related to **Micro, Small and Medium Enterprises (MSMEs).**
- **Digital Initiatives**
 - **e-Visa Facility:** This initiative simplifies the visa application process, allowing tourists to apply online and receive an electronic visa, enhancing convenience and boosting international arrivals.
 - **Web-based E-Ticketing:** Implemented for major tourist attractions and monuments, this system reduces wait times and improves visitor management.

- **National Integrated Database of Hospitality Industry (NIDHI):** A comprehensive database of accommodation units across the country, NIDHI aims to provide accurate and updated information about the hospitality sector.
- **Swachh Paryatan Mobile App:** Launched to address cleanliness issues at tourist spots, this app allows tourists to report unclean areas, ensuring timely action by authorities.

The Hunar Se RozgarTak Scheme

- **About:**
 - The Hunar Se Rozgar Tak (HSRT) scheme, was launched by the Government of India in the year **2009-10** for the creation of employable skills amongst youth.
 - The initiative is fully funded by the Ministry of Tourism.
- **Objective:**
 - The primary goal is to offer **short-term vocational training** to non-literate, semi-literate, and educated unemployed youth **aged 18-28 years** to improve their skills and employability.
- **Target Groups:**
 - The scheme focuses on **school dropouts, unemployed youth, adolescent girls, housewives, and other marginalised groups.**
- **Strengths:**
 - **Appealing core principles of the scheme:** Which focus on providing vocational training and employment opportunities to less educated youth, resonate well with the public and align with broader socio-economic goals.
 - These principles highlight the scheme's commitment to addressing **unemployment and enhancing skills**, making it a desirable initiative for participants and supporters alike.
- **Weaknesses:**
 - **Bureaucratic delays:** Procrastination from both government and private institutions hinders progress.
 - Stakeholders need to streamline processes via an online portal.
 - **Lack of Awareness:** Lack of information, education, and communication (IEC) activities leads to the failure of the scheme.
 - **Implementation Hindrances:** Guidelines are restrictive, favouring government institutions like **Tourist and Hotel Management Institutions.**

What are the Various Strategies Needed to Revamp the Tourism Sector?

➤ Improving Connectivity and Infrastructure Development:

- Enhancing **transportation links** to remote tourist destinations is crucial for encouraging the exploration of lesser-known places.
- **Public-private partnerships** or government investments can drive these improvements, ensuring better accessibility and promoting regional tourism.
 - The **Konkan Railway Corporation Limited (KRCL)** was established as a **joint venture** between the Government of India and various state governments, connecting Mumbai to Mangalore, and passing through scenic coastal areas and remote regions.

➤ Tax Reform and Harmonization:

- Advocate for tax reform to simplify the **complex tax structure** in the tourism industry.
- Work towards harmonizing various taxes levied on tour operators, transporters, airlines, and hotels to create a more uniform and transparent taxation system.
- This can reduce administrative burden and **lowering GST rates** can make tourism more cost-effective for travelers and **compliance costs** for businesses while making tourism more affordable for visitors.

➤ Focusing on Safety and Security:

- Ensuring the safety and security of tourists is vital for the growth of the tourism sector.
- Measures such as deploying **tourism police**, **implementing strict security protocols at attractions**, and promoting safe travel practices will enhance tourists' confidence in travelling within India.

➤ Training Programs:

- Providing comprehensive training programs to the unskilled workforce especially those involved in the tourism industry will enhance service quality, and schemes like **Hunar se rozar tak** can be optimised to promote tourism and employment.
- These programs can focus on customer service, cultural sensitivity, and language skills, ensuring that tourists have a positive experience and feel welcomed.
- **Cultural sensitivity training** for both tourists and industry professionals can reduce misunderstandings and promote respect for local traditions.

➤ Enhancing Online Presence:

- Utilizing social media, travel websites, and virtual tours can significantly boost the visibility of tourist destinations. A strong online presence will attract global attention and make it easier for potential tourists to plan their trips.
- A digital unified system to promote these places can significantly boost tourism and schemes like the "**Ek Bharat Shreshtha Bharat**," mapping out and promoting various attractions through social media.

Conclusion

Leveraging India's rich heritage and diverse cuisine can enhance its soft power and attract foreign revenue and by doing so India can promote employment and attract the unorganised sector, India's philosophy of "**Vasudhaiva Kutumbakam**" supports multilateralism, and culinary tourism can showcase this ethos. The recent **Dharamshala Declaration** recognizes India's potential in global tourism and promotes domestic tourism initiatives.

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India's Leap Towards Green Energy

*This editorial is based on "**Why the old script can't work for India's green transition**" which was published in The Indian Express on 03/06/2024. The article brings into picture the current state of India's Green Energy Transition and calls for reforms in its approach.*

Tag: GS Paper - 3, Issues Relating to Development, Growth & Development, Renewable Energy, Environmental Pollution & Degradation

India finds itself at a **pivotal juncture in its energy journey**, navigating a significant transition towards a **greener and more sustainable future**. Driven by the dual objectives of reducing its dependence on imported fossil fuels and meeting its commitments to decarbonization and sustainability, the country is accelerating its shift towards **clean renewable energy sources**.

As India embarks on this crucial transition, it must navigate the complex interplay between its **energy security, economic competitiveness, and environmental sustainability goals**. The rising tensions between major powers and the race for technological superiority, particularly in the realms of renewable energy and electric vehicles, have significant ramifications for India's green ambitions, including **supply chain resilience, domestic investment climate, and national security considerations**.

What is Green Energy?

- Green energy is defined as energy derived from **renewable sources**. It is also known as clean, sustainable, or renewable energy.
- Green energy generation emits no dangerous **greenhouse gases** into the atmosphere, resulting in **little or no environmental impact**.
- **Solar, wind, geothermal, biogas, low-impact hydroelectricity**, and certain qualified biomass sources are all key green energy sources.



Types of renewable energy sources



Hydropower

Gravitational potential energy of water converted into electrical energy through a hydraulic turbine



Wind energy

Kinetic energy of wind converted into electricity by wind turbines



Solar energy

The sun's energy turned into electricity heat energy by solar panels/solar heaters



Biomass

Energy obtained from plant and animal remains; e.g., burning wood produces heat energy



Geothermal energy

Heat energy trapped underneath the earth's crust converted into electricity by steam turbines



Ocean energy

Oceanic thermal and tidal energy converted into electricity by turbines and other systems



Hydrogen

Hydrogen's potential chemical energy converted into electricity by hydrogen fuel cells

Why is the Green Energy Transition Significant for India?

- **Combating Climate Change and Air Pollution:** India is the third largest emitter of **greenhouse gasses** after China and the US.
 - Also, according to the **2022 State of Global Air Report**, at least 1.6 million deaths were attributable to air pollution alone in India in 2019.
 - Green energy adoption will significantly reduce emissions and improve air quality, leading to a healthier population.
- **Energy Security and Import Dependence:** India is likely to account for **25% of global energy demand growth** over the next two decades exposing the country to price fluctuations and geopolitical tensions.
 - For instance, the ongoing **Russia-Ukraine war** has disrupted global energy markets, leading to a spike in oil prices.
 - Green energy sources offer **greater energy independence and price stability**.
- **Attracting Investments and Global Leadership:** The global focus on sustainability is attracting significant investments in green technologies.

- By transitioning to green energy, India can position itself as a leader in the clean energy sector, attracting investments and fostering technological advancements.
- **Unlocking Opportunities in New Technologies:** The green energy transition opens doors for India to develop and utilize cutting-edge clean energy technologies like **energy storage solutions and smart grids**.
 - This fosters innovation and positions India at the forefront of the **global clean energy revolution**.

What are the Government's Recent Initiatives Related to Green Energy Transition?

- **FDI in Renewable Energy:** Permitting up to 100% FDI under the automatic route for renewable energy projects.
- **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)**
- **Green Energy Corridor (GEC)**
- **National Smart Grid Mission (NSGM) and Smart Meter National Programme**
- **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)**
- **International Solar Alliance (ISA)**
- **Surya Ghar Muft Bijli Yojana**

What are the Major Roadblocks in India's Green Energy Transition?

- **High Dependence on Fossil Fuels:** India's energy mix is still heavily reliant on fossil fuels, with coal accounting for around **55% of the country's electricity generation**.
 - This entrenched dependence on traditional energy sources poses a significant challenge in transitioning towards renewable energy sources.
- **Siloed Policy and Governance:** The current two-pronged approach, with separate ministries managing **fossil fuels and renewables**, lacks coordination.
 - This fragmented structure hinders integrated planning, resource allocation, and achieving long-term goals.
 - For instance, expansion of coal mining by the **Ministry of Coal** might contradict renewable energy targets set by the **Ministry of New and Renewable Energy**.
- **Vulnerability in Green Technology:** India's dependence on imported green technology, particularly China's dominance in solar panels, wind turbines, and critical minerals, creates a vulnerability.

- Around **70% of India's solar power generation capacity** is built on China-made solar equipment.
- This reliance exposes India to potential supply chain disruptions and price hikes if geopolitical tensions rise.
- **Grid Integration Challenges:** The intermittent nature of renewable energy sources like **solar and wind** poses significant challenges in maintaining grid stability and ensuring a reliable and consistent power supply.
- **Limited Energy Storage Capacity:** Energy storage solutions like pumped hydro and battery storage are still in their early stages in India.
 - This **limits the ability to store excess renewable energy** for later use, hindering their effectiveness in meeting peak demand periods.
 - India needs an advanced **battery energy storage system (BESS)** ecosystem to support 500GW of non-fossil energy targets by **2032**.
- **Waste Management of Solar Panels and Wind Turbines:** The increasing use of solar panels and wind turbines raises concerns about their **end-of-life management**.
 - India generated about **100 kilotons (kt) of solar waste** in the financial year (FY) 2022-2023 and it is expected to reach 600 kt by 2030.
- **Water-energy Nexus Challenges:** The water-intensive nature of certain renewable energy technologies, such as **concentrated solar power (CSP)**, poses challenges in water-stressed regions of India.
 - The water level in the **country's 150 main reservoirs** has already dropped to **23%** as per **Central Water Board**, significantly posing a challenge to the adoption of water intensive renewable energy technologies.

How India can Accelerate Green Energy Transition?

- **Green Social Entrepreneurship and Grassroots Innovation:** Fostering a vibrant ecosystem for green social ventures.
 - Providing **seed funding, incubation support, and regulatory frameworks** to empower local entrepreneurs developing innovative solutions for clean energy access in rural areas.
 - These solutions might range from **micro-hydropower plants to community-owned solar farms**.

- **Promoting Energy Democracy:** Empowering communities and individuals to become active participants in the energy transition by encouraging **distributed generation, energy cooperatives**, and community-owned renewable energy projects.
 - Initiatives like the **Dhundi Solar Project in Maharashtra**, where a village collectively owns and operates a solar power plant, can be replicated across the country to drive **grassroots adoption of renewable energy**.
- **Embracing Circular Energy Economy:** Incorporating circular economy principles in the renewable energy sector by promoting the **reuse, repurposing, and recycling of components and materials** used in solar panels, wind turbines, and energy storage systems.
 - Companies like **Attero and Cygni Energy** are pioneering the recycling of lithium batteries that can serve as a role model.
- **Integrating Green Energy with Agriculture:** Exploring innovative solutions like **agrivoltaics**, where solar panels are installed on agricultural lands, allowing for simultaneous energy production and crop cultivation.
 - The pilot agrivoltaic project in **Jodhpur, Rajasthan** has demonstrated the potential of combining solar energy generation with sustainable agricultural practices.
- **Renewable Energy Storage Parks:** Establishing large-scale renewable energy storage parks, combining various storage technologies like **batteries, pumped hydro, and thermal storage**, to enhance grid stability and enable higher renewable energy penetration.
- **Green Gig Economy and Skill Development:** Create a vibrant "**Green Gig Economy**" by upskilling and reskilling the existing workforce for renewable energy jobs.
 - Utilizing online platforms like **Skill India Digital Hub (SIDH)** to connect skilled individuals with freelance work in **solar panel installation, wind turbine maintenance, and electric vehicle repair**.
 - This fosters entrepreneurship and empowers individuals to contribute to the green transition.
- **Considering the Merger of Coal and Renewable Energy Ministry:** Combine the ministries of fossil fuels and renewables into a single energy ministry will enhance coordination, integrated planning, and efficient resource allocation.
 - It will also ensure that policy decisions, like **coal expansion and renewable targets**, are aligned to achieve **long-term energy goals**.



Reimagining India's Agriculture Landscape

*This editorial is based on "**Challenge for farm sector: How to share growth gains**" which was published in The Indian Express on 04/06/2024. The article brings into picture the challenges facing Indian agriculture and emphasizes the need for substantial policy reforms.*

Tag: GS Paper - 3, Irrigation, Agricultural Marketing, E-Technology in the Aid of Farmers

As India embarks on its journey towards a **developed economy**, the agriculture sector faces a daunting path riddled with challenges. **Irreversible climate change**, the constraints imposed by the **World Trade Organization**, the prevalence of **small landholdings**, global pressure to keep **food prices low** at the expense of farmers' incomes, and depleting aquifers are some of the critical circumstances that limit our ability to ensure dignified livelihoods for farmers.

The key challenge lies not only in improving productivity but also in **ensuring that the gains are sustainable and inclusive**. It is high time that India undertakes much-needed reforms in the agriculture sector.

What is the Significance of the Agriculture Sector in the Indian Economy?

- **Contribution to GDP:** Agriculture accounts for around **15-16%** of India's **Gross Domestic Product (GDP)**. This underscores the sector's pivotal role in the overall economic growth and development of the nation.
 - During the **Covid-19 pandemic**, while many sectors experienced a downturn, the agriculture sector remained resilient contributing **18.8% of Gross Value Added (GVA)** of the country in 2021-22.
- **Employment Generation:** **Periodic Labour Force Survey (PLFS)** report for 2021-22 (July-June) shows the farm sector's share in the country's employed labor force at **45.5%**.
 - This highlights its crucial role in providing employment opportunities, especially in **rural areas**, where a majority of the population is engaged in **agricultural and allied activities**.
- **Food Security:** With a population of over 1.3 billion, ensuring food security is a critical priority for India.
 - The agriculture sector plays a vital role in meeting the country's food demand, producing various staple crops like **rice, wheat, pulses, and vegetables**.

- **Foreign Exchange Earnings:** Agricultural exports remain a significant contributor to foreign exchange earnings with over **USD 56 billion of exports in 2021**.
 - India is currently the world's largest producer of **milk and pulses** and the second-largest producer of **wheat and rice**.
- **Raw Material Provider For Industries:** The agriculture sector not only meets domestic food demand but also provides **raw materials for various industries**, such as cotton for the textile industry, sugarcane for the sugar industry, and oilseeds for the edible oil industry.
 - This creates strong backward and forward linkages with other sectors of the economy.
 - It acts as a backbone for the **Ethanol Economy**.
- **Strategic Significance:** Self-sufficiency in food production is a strategic necessity for any nation.
 - A robust agricultural sector reduces dependence on foreign imports and ensures food security during unforeseen circumstances.
 - This is especially important for a country like India with a large population.
 - India has transformed from being derisively referred to as a begging bowl to becoming a net agricultural exporter.

What are the Current Major Challenges Related to India's Agriculture Sector?

- **Fragmented Landholdings:** Decades of population growth and inheritance laws have resulted in the division of agricultural land into increasingly smaller parcels.
 - As per the **Situation Assessment Survey (SAS) of Agricultural Households by National Sample Survey Office**, the percentage distribution of agricultural households owning less than **two hectares of land is 89.4%**, hindering mechanization, economies of scale, and overall productivity.
- **Menace of Climate Change:** Erratic monsoon patterns, rising temperatures, and unpredictable disruption of crop yields and agricultural planning.
 - In 2022, India experienced an **early series of heat waves that affected its wheat production**, leading the country to impose a ban on exports.
 - Cyclones excreted by climate change significantly impact Indian agriculture by causing widespread crop damage, soil erosion, leading to substantial economic losses and supply chain distortion.
 - Also, in absence of adoption of adaptation measures, rainfed rice yields in India are projected to reduce by **20% in 2050**.
- **Water Scarcity:** India faces a looming water crisis, with several regions experiencing over-exploitation of groundwater resources.
 - This, coupled with inadequate irrigation infrastructure, limits agricultural productivity.
 - Water level drops to **23%** in India's main reservoirs (Central Water Commission).
 - Also, Minimum Support Prices influences water-intensive crops like rice, and as India is the second-largest exporter of rice, it is perceived that **we are not only exporting rice but also water**.
- **Market Inefficiencies and Price Fluctuations:** Farmers often face a lack of access to well-developed markets and fair pricing for their produce.
 - **Middlemen and a complex supply chain** lead to a significant gap between farm-gate prices (what farmers receive) and consumer prices.
- **Inadequate Storage and Transportation Facilities:** Post-harvest losses due to poor storage infrastructure and inadequate transportation networks are a major concern.
 - **Perishable fruits and vegetables** are particularly vulnerable, leading to wasted produce and reduced farmer income.
 - Around **74 million tonnes** of food is lost in India every year, which is **22% of foodgrain output**.
- **Limited Access to Credit and Insurance:** Many farmers, especially small and marginal ones, struggle to access **affordable credit and crop insurance schemes**.
 - This limits their ability to invest in new technologies, improve infrastructure, and cope with agricultural shocks.
- **Soil Degradation and Resource Depletion:** Overuse of chemical fertilizers, **imbalanced cropping patterns**, and **inadequate soil conservation** practices lead to soil degradation and depletion of essential nutrients.
 - This reduces land fertility and long-term productivity.
- **Inefficient Agriculture Policy:** A complex web of **overlapping central and state policies**, coupled with a lack of effective implementation, often hinders progress.
 - The recent controversy surrounding Minimum Support Prices (MSPs) exemplifies this challenge by **exposing the gap between policy and reality**.

- Also, the MSP's influence on wheat and rice production is leading to extensive use of **chemical fertilizers**, resulting in protein-deficient food being transferred to the masses especially children and contributing to the **growing issue of hidden hunger**.
- The **Shanta Kumar Committee**, in its 2015 report, revealed that only **6% of Indian farmers** actually benefit from minimum support prices.
- **Stagnated Growth**: Despite employing around 42% of the labor force, agriculture contributes only 15% to GDP.
 - These inefficiencies not only hinder economic growth but also **exacerbate poverty and income inequality**, particularly in rural areas

What are the Major Indian Government Initiatives Related to Agriculture?

- **National Mission on Sustainable Agriculture**
- **Paramparagat Krishi Vikas Yojana (PKVY)**
- **Sub-mission on AgroForestry (SMAF)**
- **Rashtriya Krishi Vikas Yojana**
- **AgriStack**
- **National e-Governance Plan in Agriculture (NeGP-A)**
- **Pradhan Mantri Kisan Samman Nidhi**
- **Agriculture Infrastructure Fund**

What Measures can be Taken to Revitalize India's Agriculture Sector?

- **Implementing Agroecological Intensification**: Instead of relying on conventional high-input agriculture, explore and promote agroecological intensification approaches that **mimic natural processes, enhance biodiversity, and build resilience**.
 - This can involve practices like **permaculture, agroforestry, and regenerative agriculture**.
 - The **Zero Budget Natural Farming (ZBNF)** can be brought into practise.
- **Establishing Agricultural Innovation Clusters**: Developing agricultural innovation clusters or agri-parks that bring together **research institutions, agri-tech startups, farmer cooperatives, and related industries** in a collaborative ecosystem.
 - The **"Agri-Food Innovation Park" in Singapore** can be a model.
- **Implementing Drone-based Precision Agriculture**: Leveraging drone technology for precision agriculture applications, such as **targeted crop monitoring,**

variable rate input application, and early detection of pest and disease outbreaks, improving efficiency and reducing resource wastage.

- **Genetic Editing Techniques for Crop Improvement**: Exploring the potential of genetic editing techniques like **CRISPR-Cas9** for developing climate-resilient, disease-resistant, and high-yielding crop varieties in a more precise and efficient manner compared to traditional breeding methods.
 - In maize, novel variants of **ARGOS8** were produced using the **CRISPR-Cas9 system**, and this variant was more drought tolerant than the wild type.
- **Fostering Public-Private Partnerships for Agricultural Extension**: Encouraging public-private partnerships for agricultural extension services, leveraging the expertise of private companies, agri-tech startups, and non-governmental organizations to provide farmers with timely and **localized advice, training, and support**.
 - The **2% of India's GDP** currently dedicated to farm subsidies could be reallocated towards enhancing agricultural capacity and infrastructure.
- **Developing Agri-Logistics and Cold Chain Infrastructure**: Prioritize the development of efficient **agri-logistics and cold chain infrastructure** to minimize post-harvest losses and enhance market access for perishable commodities.
 - The **"Kisan Rail" initiative in India** can be complemented by initiatives in other modes of transport.
- **Model Agriculture Policy**: A central **Model Agricultural Policy** can be crafted collaboratively, which can guide states to promote sustainable practices, efficient resource use, and empower farmers through better infrastructure and market access.
 - While state adaptation is crucial, a **unified framework** can pave the way for a more resilient agricultural future for India.
 - There is a high time to place **agriculture marketing in the Concurrent list** as per the **Ashok Dalwai Committee**.
 - It also suggested a permanent **inter-ministerial committee**, including commerce, consumer affairs and agriculture.
 - This would monitor domestic and global prices, recommending needed changes.

India's Economic Growth Outlook

This editorial is based on “[India's economy: From stable to positive](#)” which was published in The Indian Express 31/05/2024. The article highlights S&P Global's upgraded outlook on India from stable to positive, reflecting confidence in policy stability, economic reforms, and infrastructure investment.

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

[India's economic growth](#) trajectory has garnered global attention as the renowned ratings agency [S&P Global](#) has revised its outlook on the country from **stable to positive**. This development reflects the agency's assessment that policy stability, deepening economic reforms, and robust infrastructure investment will sustain **India's long-term growth prospects**.

With public investment and consumer momentum being the key drivers of near-term growth, targeted economic policies are required to shape India's trajectory toward achieving its aspirations of being the [third largest economy by 2027](#) and securing sustainable economic growth.

What are India's Recent Economic Growth Projections?

- **IMF Projection ([World Economic Outlook](#), April 2024):** IMF raised India's GDP growth forecast for FY 2024-25 to **6.8%**, up 0.3 percentage points from its January 2024 projection.
 - For **FY 2025-26**, the IMF forecasts India's GDP growth at **6.5%**.
- **United Nations Projection ([World Economic Situation and Prospects](#), mid-2024):** India's economy is projected to grow by **6.9%** in 2024 and **6.6%** in 2025.
 - The **6.9%** growth forecast for 2024 is an upward revision from the earlier **6.2%** projection made in January 2024.
- **[Reserve Bank of India](#):** The Reserve Bank of India expects India's real GDP to grow by **7%** in **2024-25**.
 - The GDP growth is pegged at **7.2%** in the June 2024 quarter, and is expected to moderate to **6.8%** in the September 2024 quarter

What are the Major Factors Propelling Economic Growth in India?

- **Strong Domestic Demand:** Robust [private consumption growth](#), driven by rising incomes and

an expanding middle class. Private consumption expenditure grew by **3.5% year-over-year in Q3 of FY 2024**, according to Deloitte.

- Also, demand for luxury and premium goods and services is growing faster than demand for basic goods.
- **Robust Investment Activity:** Private investment grew by **10.6% year-over-year** in Q3 of FY 2024, indicating a strong revival in the private capital expenditure cycle.
 - Initiatives like the [National Monetization Pipeline](#) aim to unlock value in Brownfield infrastructure assets and attract private investment.
 - The IMF suggests that reforms to liberalize foreign investment and boost exports could further support growth.
 - Moreover, the Budgeted expenditure classified by the government as capex is projected to increase to about **₹11 trillion in 2024-25**, almost **4.5 times the level in 2014-15**.
- **Moderating Inflation:** Inflation has been on a downward trajectory, with [retail inflation](#) at **4.83% in April 2024**.
 - This provides a stable environment for businesses and consumers, encouraging spending and investment.
- **Manufacturing Resurgence:** The manufacturing sector grew by **11.6% year-over-year** in Q3 of FY 2024, driven by initiatives like the [Make in India program](#) and [PLI schemes](#).
 - The government's push towards **self-reliance (Aatmanirbhar Bharat)** is boosting domestic manufacturing capabilities.
- **Services Sector Resilience:** The [services sector](#), which accounts for a significant share of India's GDP, grew by **7% year-over-year** in Q3 of FY 2024.
 - The IT and IT-enabled services sector continues to drive growth, supported by rising global demand for digital solutions.
 - With the easing of **Covid-19** restrictions, contact-intensive services like tourism, hospitality, and entertainment have witnessed a strong recovery.
 - The travel market in India is projected to reach **USD 125 Billion** by financial year **2027**.
- **Resilience to Global Headwinds:** Despite global economic uncertainties, geopolitical tensions ([Russia-Ukraine War](#)), disruption in supply chains ([Red Sea Crisis](#)) and **tightening financial conditions** in major economies like the US, India's domestic demand has remained relatively resilient.

- In 2023, world food prices dropped significantly from their 2022 highs. However, India's food inflation remained high at **9.5% in December 2023**, contrasting with global deflation of **-10.1%**.
- This insulation from external shocks has helped **sustain growth**, even as major economies face slowdowns or recessions.
- **Supply Chain Diversification:** Amid global supply chain disruptions, India has emerged as an attractive **alternative destination for manufacturing investments**, particularly in sectors like electronics and pharmaceuticals.
 - Trade agreements like **India-UAE Comprehensive Economic Partnership Agreement (CEPA)** have facilitated this supply chain diversification.

What are the Current Major Challenges in India's Economic Growth?

- **Employment Challenges:** Despite steady GDP growth over the past decade, the lack of **substantial employment generation (jobless growth)** has remained a key policy challenge facing the government.
 - Unemployment rate in India was **8.1%** in April 2024, according to CMIE's Consumer Pyramids Household Survey.
- **Export Competitiveness Challenges:** Despite policy incentives, India's exports shrink 3% in FY24.
 - The merchandise trade deficit stood at **USD 19.1 billion** during April 2024, up from **USD 14.44 billion** during April 2023.
- **Potential Fiscal Slippage Risks:** The general government **fiscal deficit**, while declining, is still projected at **6.8% of GDP by FY28** as per S&P Global.
 - Any deviation from the fiscal consolidation path could impact India's credit ratings and borrowing costs.
- **Skill Mismatch and Labor Quality:** India faces a skills mismatch between the available workforce and the requirements of the industry, **hindering productivity and job creation**.
 - A new study suggests that only **45% of Indian graduates** who apply for jobs are employable, with the skills to meet the industry's rapidly-changing demands.
- **Income Inequality:** The gap between rich and poor in India remains wide. The **Gini coefficient**, a measure of income inequality, stood at **0.4197 in 2022-23**.
 - India's wealth inequality is at a six-decade high with the **top 1% owning 40.1% of wealth**.

- This means a large portion of the population has limited disposable income, hindering overall consumption growth.
- **Informal Sector Dominance:** A significant portion of India's workforce is employed in the **informal sector**, characterized by low wages, minimal social security benefits, and limited productivity gains.
 - In terms of employment share the unorganized sector employs **83% of the work force** and 17% in the organized sector (IMF).
 - This informality hinders economic growth as it limits tax revenue and restricts formalization of the economy.
- **Infrastructure Bottlenecks:** Despite recent efforts, India's infrastructure deficit persists in areas like power, transportation, and logistics.
 - The **NITI Aayog** estimates that India needs to spend **USD 4.5 trillion** on infrastructure by **2040** to sustain its growth momentum.

What Measures can India Adopt to Accelerate Economic Growth?

- **Expanding Manufacturing Sector:** India needs to boost the manufacturing sector, creating more job opportunities to absorb the workforce transitioning from agriculture.
 - This can be facilitated by **providing targeted training programs** and incentives for industries to hire and skill agricultural workers, ensuring a **smooth transition and boosting overall productivity**.
 - Additionally, **promoting food processing industries** to expand income opportunities for farmers.
- **Gig Economy Skilling:** Partner with online platforms like **Uber and Meesho** to develop targeted **micro-skilling programs** relevant to the gig economy.
 - This equips youth with **in-demand skills** for immediate job opportunities.
 - Create a **national online marketplace for freelance work**, connecting skilled individuals with businesses across India. This empowers entrepreneurs and facilitates flexible work arrangements.
- **Export Processing Zones (EPZs) 2.0:** Establish new-age EPZs with a focus on **sustainability and technology**. Offering tax breaks and streamlined regulations to attract green technology and high-value manufacturing companies.
 - Providing financial incentives and training programs to equip small and medium enterprises (SMEs) for **e-commerce exports**.

- **Smart Taxation and Revamped PPP:** Leverage technology for “**smart taxation**” to fill the loopholes in existing taxation systems and widening the tax base.
 - Partnering with **fintech companies** for innovative tax collection solutions.
 - Develop a new generation of PPPs with a focus on **risk-sharing and performance-based incentives**.
 - This attracts private capital for infrastructure projects while ensuring value for money.
- **Industry-Academia Collaboration:** Fostering stronger collaboration between universities and industries to develop **curriculum aligned with industry needs**.
 - Introducing a system of **micro-credentials and stackable certifications** that recognize specific skills.
 - This allows individuals to continuously upskill and adapt to changing job demands.
 - India can take inspiration from **Ireland’s market-driven industry-academic partnerships**, which have effectively prepared the country’s workforce for the emerging technologies.
- **Formalization Incentives:** Offering tax breaks and easier access to credit for **informal businesses that transition to the formal sector**. This incentivizes formalization and increases tax revenue.
 - Utilizing digital technologies to expand financial inclusion, providing access to bank accounts, micro-loans, and financial literacy programs for informal workers.
- **Green Infrastructure Bonds:** Issue green infrastructure bonds to attract private capital for sustainable infrastructure projects like **renewable energy and public transportation**.
 - Utilizing **big data analytics and artificial intelligence** to identify critical infrastructure gaps and optimize resource allocation for project development.

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Unraveling the AI Conundrum

*This editorial is based on “**When AI weds molecular biology, miracle treatments are born**” which was published in Livemint on 06/06/2024. The article brings into picture the transformative potential of combining artificial intelligence with molecular biology in the field of medical research and treatment.*

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

Artificial intelligence (AI) has woven itself into the fabric of our lives, from virtual assistants to personalized recommendations. Its potential to revolutionize fields like **medicine, transportation, and manufacturing** seems limitless. However, this very power ushers in a wave of complexities.

However, the increasing influence of AI raises profound questions about the **future of humanity**. Will AI become a powerful tool for progress, or will it lead to unforeseen consequences? Can we ensure that AI development aligns with our values and safeguards human autonomy? By fostering a nuanced understanding of AI’s impact and fostering open dialogue, we can navigate its development for a future that benefits all.

What are the Applications of Artificial Intelligence in Various Sectors?

- **Healthcare:**
 - **Medical Diagnosis:** AI improves diagnostic accuracy by analyzing medical images and data, e.g., detecting **cancerous lesions in mammograms** more precisely than human radiologists.
 - **Drug Discovery:** AI speeds up drug discovery by identifying potential drug candidates and predicting their efficacy, e.g., **DeepMind’s AlphaFold** aids in protein structure prediction.
 - **Personalized Medicine:** AI creates tailored treatment plans by analyzing genetic profiles and medical histories, e.g., optimizing **chemotherapy dosages** for cancer patients.
- **Education:**
 - **Intelligent Tutoring Systems (ITS):** AI-powered tutoring systems can provide personalized learning experiences by adapting to **each student’s pace, learning style, and individual needs**.
 - **Learning Analytics:** AI can analyze student data, such as attendance, engagement, and performance, to identify patterns and **predict potential academic challenges or dropout risks**.
- **Finance and Banking**
 - **Fraud Detection:** AI detects fraudulent activities by analyzing transaction data, e.g., recognizing **unusual credit card spending** patterns in real-time.
 - **Risk Management:** AI evaluates risks in investments, loans, and portfolios, e.g., analyzing market data to **identify investment opportunities**.
 - **Algorithmic Trading:** AI executes trades based on data analysis and predefined algorithms, e.g., high-frequency trading in **hedge funds**.

➤ Retail and E-commerce

- **Retail and E-commerce:** AI can analyze customer data and preferences to provide **personalized product recommendations**, enhancing the shopping experience.
- **Inventory Management:** AI systems can optimize inventory levels by analyzing **sales data, customer demand patterns**, and other factors, reducing overstocking and stockouts.
- **Chatbots and Virtual Assistants:** AI-powered chatbots and virtual assistants can provide **customer support, answer queries**, and assist with online shopping experiences.

➤ Manufacturing and Logistics:

- **Predictive Maintenance:** AI algorithms can analyze sensor data from machines and equipment to predict potential failures and **schedule maintenance proactively**, reducing downtime and increasing efficiency.
- **Supply Chain Optimization:** AI can optimize supply chain operations by analyzing data from various sources, such as **transportation routes, weather conditions**, and **demand patterns**, to minimize costs and improve delivery times.
- **Automated Quality Control:** AI-powered vision systems can inspect products for **defects**, ensuring quality control and reducing human error.

➤ Cybersecurity:

- **Threat Detection and Response:** AI systems can analyze vast amounts of network data, identify **potential cyber threats**, and respond to them in real-time, providing enhanced security against cyber attacks.
- **Malware Analysis:** AI algorithms can analyze and **classify malware samples**, helping security researchers understand new threats and develop effective countermeasures.
- **User and Entity Behavior Analytics (UEBA):** AI can establish baselines for normal behavior patterns and detect anomalies that may indicate potential **security breaches or insider threats**.

➤ Agriculture and Food Production:

- **Crop Monitoring and Yield Prediction:** AI-powered drones and satellite imagery can monitor crop health, detect pests and diseases, and **predict crop yields**, enabling farmers to make informed decisions and optimize resources.
- **Precision Agriculture:** AI systems can analyze **soil conditions, weather patterns**, and other environmental factors to provide recommendations for precise application of water, fertilizers, and pesticides, improving efficiency and reducing waste.

- **Food Safety:** AI-powered vision systems can inspect food products for **contaminants**, ensuring food safety and quality control.

➤ Sports:

- **Player Performance Analysis:** AI can analyze vast amounts of data from wearable devices, video footage, and sensors to evaluate player performance, **identify areas for improvement**, and **prevent injuries**.
- **In-Game Strategy and Tactics:** AI algorithms can analyze real-time game data, player positioning, and historical strategies to **recommend optimal tactics and in-game adjustments**.

What are the Major Challenges with the Rise of Artificial Intelligence?

- **Black Box Conundrum:** Many AI algorithms, particularly deep learning models, function as opaque **"black boxes."**
 - While they can deliver impressive results, their decision-making processes remain shrouded in mystery.
 - This lack of transparency **hinders explainability and accountability**, especially in critical domains like **healthcare and criminal justice**.
- **The Data Dilemma:** AI thrives on data, but the **quality and quantity of data** available significantly impact its performance and fairness.
 - Biases within training datasets can be amplified by AI algorithms, leading to discriminatory outcomes.
 - **For example**, an AI-powered recruitment tool trained on biased hiring data might favor resumes with **certain keywords or educational backgrounds**, unfairly disadvantaging qualified candidates.
- **Job Displacement Tightrope:** AI automation is poised to disrupt the workforce, potentially leading to **widespread job displacement**.
 - While new jobs will undoubtedly be created, the pace of this transition and the **availability of retraining programs for displaced workers** remain major concerns.
 - A study by the McKinsey Global Institute estimates that **up to 800 million jobs** globally could be automated by **2030**.
- **AI Arms Race and Existential Risk:** The rapid development of AI raises the unsettling possibility of an **"AI arms race"** between nations.
 - This could lead to the **creation of autonomous weapons systems** that operate outside human control, posing a significant existential threat.

- **Resource-rich nations and tech giants** are at the forefront of AI research, potentially creating a significant **AI divide between developed and developing countries**
- Furthermore, some experts like **Elon Musk** warn of the **potential for superintelligence** (AI surpassing human intelligence in all aspects).
- **Value Alignment Problem:** As AI systems become more autonomous and capable of making complex decisions, there is a risk that their values and objectives may diverge from those of their human creators, leading to unintended and potentially harmful outcomes.
 - This challenge was highlighted by AI researcher **Stuart Russell's "king midas problem"**.
- **Deepfakes and Misinformation:** AI-powered deepfake technology can create highly **realistic synthetic media**, such as videos, images, and audio, posing a significant threat to the integrity of information and trust in digital content.
 - **Example:** In 2022, **deep fake videos of the Ukrainian President** surfaced online, purportedly **showing him calling for surrender**, highlighting the potential for AI-generated misinformation during times of conflict or crisis.

What Measures can be Adopted to Overcome the Challenges Posed by AI?

- **Standardization and Certification for AI Systems:** Developing **standardized testing procedures** and certification processes for AI systems, similar to those existing for other technologies.
 - This can ensure a baseline level of **safety, security, and fairness** across AI applications.
- **Algorithmic Impact Assessments:** Mandating **Algorithmic Impact Assessments (AIAs)** for all **high-risk AI applications**. These assessments would identify potential societal impacts, ethical considerations, and potential biases within the system.
- **Focus on Explainable AI (XAI) Tools:** Investing in the development of **user-friendly Explainable AI (XAI) tools**. These tools would allow developers and even non-experts to understand the reasoning behind AI models, fostering greater trust and transparency.
- **AI for AI Safety:** Instead of solely relying on human oversight, consider leveraging AI itself to ensure the safety and security of other AI systems.
 - This could involve developing specialized AI **"watchdogs"** that monitor other AI systems for potential biases, security vulnerabilities, or unintended consequences.

- **Upskilling and Reskilling the Workforce:** AI-driven automation necessitates proactive workforce development strategies.
 - Governments, educational institutions, industries should collaborate to **provide reskilling and upskilling programs** to equip workers with the skills needed to thrive in the AI era.
 - Encouraging **lifelong learning** will be critical for navigating the changing job landscape.
- **Establishing Robust AI Governance Frameworks:** To mitigate existential risks and ensure ethical development, **robust AI governance frameworks are needed**.
 - International collaborations can establish guidelines and regulations for responsible AI development, deployment, and use.
 - The **European Parliament's Artificial Intelligence Act** can be a model.
- **Fostering Human-AI Collaboration:** The future lies not in AI replacing humans, but in **humans and AI collaborating effectively**.
 - Focus should be placed on developing AI systems that complement human strengths and weaknesses.

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Revolutionizing India's Healthcare

*This editorial is based on "**Health regulations need a base to top approach**" which was published in The Hindu on 07/06/2024. The article brings into picture the rise of India's gaming sector and challenges associated with it.*

Tag: GS Paper - 2, Health, Government Policies & Interventions, GS Paper - 3, Government Budgeting, Planning

India's healthcare system is a vast and intricate network, juggling public and private facilities to serve its massive population. While the private sector shoulders a substantial burden of delivering care, recent incidents like the **fire at a Delhi Nursing home** highlights a critical issue in India's healthcare system: **the failure of health-care regulations**.

This tragedy is not isolated but symptomatic of systemic flaws in regulatory frameworks. Despite having numerous regulations, the Indian healthcare system struggles with implementation due to **unrealistic standards and bureaucratic inefficiencies**. For instance,

the **Clinical Establishments (Registration and Regulation) Act of 2010** and the **Indian Public Health Standards**, despite their high aspirations, are often impractical and under-adopted. The result is a complex regulatory environment that fails to ensure safety and quality effectively.

To address these issues, India needs a pragmatic approach to healthcare. This involves harmonizing multiple regulations, simplifying approval processes, democratizing healthcare facilities and reforming basic health services.

What is the Framework of Healthcare Regulation in India?

➤ **Historical Context**

- **Colonial Times:** Characterized by fragmented, colonially influenced regulations (e.g **Madras Public Health Act, 1939**).
- **Bhore Committee Report (1946):** Called for integration of preventive, promotive and curative health services and establishment of **Primary Health Centres** in rural areas
- **Economic Liberalization (1991):** Sparked the **growth of private healthcare**, creating a need for updated regulations.

➤ **Key Related Bodies:**

- **Ministry of Health and Family Welfare (MoHFW):** Responsible for overarching healthcare policies.
- **National Medical Commission (NMC):** Regulates medical education and licensing.
 - The NMC Act, 2019, replaced the Medical Council of India to enhance transparency.
- **Others:** Include the **Nursing Council, Pharmacy Council**.

➤ **Major Regulatory Laws and Policies**

- **Pre-Conception and Pre-Natal Diagnostic Techniques Act, 1994:** Aims to prevent female foeticide.
- **Clinical Establishments (Registration and Regulation) Act, 2010:** Mandates registration and standard treatment guidelines.
- **Drugs and Cosmetics Act, 1940:** Regulates pharmaceuticals.
- **Consumer Protection Act, 1986:** Applies to healthcare as a service.
 - Consumer Protection Act, 1986 did not include the word “healthcare” with the definition of the term “service”.
 - However, the Supreme Court in **Indian Medical Association vs. V.P. Santha & Ors 1996** held

that the language used in the Act was wide enough to cover the services rendered by the doctors as well.

- **National Health Policy, 2017:** Outlines a vision for universal health coverage.

What are the Major Challenges Related to India's Healthcare System?

- **Inadequate Public Health Expenditure:** Despite being the world's **fifth-largest economy**, India's healthcare expenditure remains one of the lowest globally at **2.1 % of GDP in FY23**
 - Also, while India supplies 20% of the world's generic drugs, its own citizens face a **47.1% out-of-pocket expenditure**, signaling a critical gap in public health provisioning.
- **Urban-Rural Healthcare Divide:** India's healthcare infrastructure disproportionately favors urban areas, creating a **'two-tier' system**.
 - Despite **65% of Indians living rurally**, these areas have only 25-30% of hospitals within reach.
 - This is not just a resource issue, it is a fundamental challenge to **India's constitutional promise of equality**.
- **Silent Epidemic of Non-Communicable Diseases (NCDs):** While India battles infectious diseases, NCDs silently claim 64% of the disease burden in India (WHO, 2021).
 - India's diabetes burden (**77 million in 2019, projected 134 million by 2045**) exemplifies this crisis.
 - As India's economy grows, so does its **NCD burden, a byproduct of lifestyle changes**. Yet, public health strategies remain disproportionately focused on communicable diseases, creating a growing, unaddressed health burden.
- **Mental Health Blind Spot:** India's **mental health crisis** is a glaring oversight. **With just 0.75 psychiatrists per 100,000 people and only 0.05% of the health budget for mental health**, India grapples with **36.6% of global suicides**.
- **Digital Divide in Telemedicine:** **Telemedicine**, hailed as a panacea during Covid-19, exposed India's digital divide.
 - In India, despite having the **second-largest number of internet users in the world**, rural penetration lags behind the urban.
 - This gap **turns telemedicine from a solution into another layer of inequity**, disproportionately benefiting the urban while leaving rural areas behind.

- **Climate Change- The Overlooked Health Determinant:** Climate change is more than an environmental issue, it is a health crisis.
 - 1.67 million deaths were attributable to **air pollution** in India in 2019, accounting for 17.8% of the total deaths in the country (WHO).
 - The **2022 heat waves'** impact on crop yields directly links climate to nutrition.
- **Governance Conundrum:** India's health challenges are exacerbated by governance disparities. Many states have over **50 approvals under various regulations**, creating a bureaucratic nightmare for facilities.
 - Also, some states often prioritize **large corporate hospitals**, neglecting the needs of **smaller clinics and nursing homes**.
- **Pharmaceutical Paradox:** India, the "**pharmacy of the world**," faces a credibility crisis.
 - The **2022 cough syrup tragedy in Gambia** highlights that the **industry's global reputation and its domestic healthcare efficacy** are at stake.
- **Neglect of Preventive and Primary Care:** India's health system is tilted towards curative, hospital-based care, neglecting the foundation of public health - prevention and primary care.
 - The number of doctors at Primary Health Centres has shrunk to **30,640 in 2022**
 - This inverted focus not only escalates costs but also **burdens the system with preventable diseases**, creating a vicious cycle of illness and expenditure.

What Measures can be Adopted to Revamp India's Health Sector?

- **Regulatory Reform with Risk-Based Approach:** Implementing a tiered regulatory system that classifies healthcare facilities based on complexity and risk.
 - This streamlines approvals for **lower-risk facilities (small clinics, nursing homes)** while ensuring **stringent oversight for high-risk facilities (large hospitals)**.
 - Shifting focus from **process-heavy regulations to outcome-based ones**.
 - Measuring success of the facilities by patient satisfaction, infection rates, and adherence to best practices, allowing flexibility in achieving these outcomes.
 - **Health-Education-Livelihood (HEL) Campuses:** Establishing integrated campuses in rural areas with **community health centers, skill development centers, and health-tech incubators**.
- Offering basic accounting public healthcare jobs to graduates of the village to **boost healthcare human resources and local economies**
 - **"Pharma-to-Plate" Integrity Chain:** Implementing a **blockchain-based tracking system** that follows pharmaceutical products from raw materials to patient consumption.
 - Launching a global **"TrackMeds" app** enabling consumers to verify the authenticity of their medications.
 - This initiative **tackles the issue of counterfeit drugs, enhances the reputation of Indian pharma exports**, and ensures high-quality domestic pharmaceutical products.
 - **Mental Wealth Initiative:** Reframing the concept of **mental health as a valuable economic asset, termed "mental wealth."**
 - Provide corporate tax breaks for companies that implement comprehensive mental health programs.
 - Integrating mental health modules into all professional courses, extending beyond the healthcare sector.
 - Training local public health providers to offer basic counseling services, **dubbing them "Mind Mitras."**
 - **Ayush in Action:** Increasing the numbers of **AYUSH (Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homoeopathy)** practitioners within every allopathic healthcare setting.
 - Introducing **"Wellness Wednesdays"** in schools and workplaces, featuring mid-week yoga and meditation sessions.
 - This approach fosters holistic healthcare, **aids in the prevention of non-communicable diseases (NCDs)**, and enhances mental health across the population.
 - **Climate Clinics:** Deploying mobile clinics in **climate-vulnerable areas** that also function as **weather stations**.
 - Upgrading 30% of PHCs into climate-resilient, self-sufficient units with **solar power, water harvesting and drone-delivery readiness**.
 - Utilizing health data to predict climate-related impacts, such as **disease outbreaks following natural disasters like floods**.
 - Training farmers in cultivating climate-resilient and nutrition-dense crops.
 - This initiative leads to proactive climate-health management, improved nutritional outcomes, and enhanced resilience to climate change.

- **Expansion of ABHA:** There is a need for nationwide expansion and advertisement of **Ayushman Bharat Health Accounts (ABHA)** to rationalize India's healthcare data.
 - Employing artificial intelligence to track hyperlocal public health strategies.
 - The result is **personalized preventive care, data-driven public health initiatives**, and improved overall healthcare outcomes.
- **Women-Led Health Panchayats:** Establishing all-women health councils in every panchayat to audit local health facilities, allocate health funds, and organize health melas.
 - Empowering these councils to improve **local health governance and reward panchayats with the best health indicators** with additional development grants.
 - This initiative promotes women's empowerment, strengthens localized health governance, and improves rural health outcomes.

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Balancing Healthcare Services in India

*This editorial is based on "**The delicate balancing of health-care costs**" which was published in The Hindu on 4/06/2024. The article examines the growing health disparities and unequal access to medical services in India and the way forward.*

Tag: GS Paper -2, Health, Central Sector Schemes, Issues Relating to Development, Welfare Schemes.

India's healthcare system is a diverse and complex network comprising both public and private sectors, delivering a wide range of medical services to the nation's **1.4 billion people**.

As the **Supreme Court** deliberates on standardising medical procedure rates across government and private sectors, **affordability** remains a key consideration. However, imposing **one-size-fits-all price caps** could severely undermine healthcare quality. A study from the Health Care Management Review indicates that hospitals under financial pressure from price caps report a **15% increase** in patient dissatisfaction.

With rising **health disparities** and **uneven access** to medical services, the need for equitable and **sustainable healthcare policies** has never been more urgent. Ongoing discussions about setting rates for medical services are not merely bureaucratic exercises but they fundamentally shape how we perceive, access, and deliver healthcare across India.

What is India's Current Status and Potential in the Healthcare Sector?

➤ Current Status:

- **Public Expenditure:** According to the Economic Survey 2022-23, India's public expenditure on healthcare reached **2.1% of Gross Domestic Product (GDP)** in FY23 and 2.2% in FY22, up from 1.6% in FY21.
- **Generating Employment:** As of 2024, the healthcare sector is one of India's largest employers, with a workforce of **7.5 million people**.
- **Broader Market:** The Indian healthcare market, valued at **USD 110 billion in 2016**, is projected to reach **USD 638 billion by 2025**.
- **Medical Tourism:** India's healthcare sector has emerged as a global destination for medical tourism, attracting patients from around the world due to its skilled medical professionals, advanced healthcare facilities, and cost-effective treatments.
 - The number of medical tourists visiting India is projected to be around **7.3 million** in 2024, up from **6.1 million** estimated in 2023.

➤ Potential:

- **AI-driven Employment:** A recent research report forecasts that the integration of Artificial Intelligence (AI) in the Indian healthcare sector will generate **nearly 3 million new jobs by 2028**.
- **Telemedicine Market:** It has the maximum potential **eHealth segment** in India, which is expected to touch **\$5.4 Bn by 2025**, growing at a **Compound Annual Growth Rate (CAGR)** of 31%.
- **Human Resource:** India possesses a significant number of **doctors, nurses, specialists**, and other healthcare professionals who help make India a critical healthcare provider.
- **Credit Incentive:** The Indian government is planning to introduce a credit incentive programme worth **Rs. 50,000 crore (USD 6.8 billion)** to boost the country's healthcare infrastructure.

What are the Recent Developments in India's Healthcare Sector?

- **Accessibility to Remote Areas:** India's healthcare system aims to provide accessible and affordable healthcare services to those residing in remote and rural areas.
 - Examples include the establishment of **Primary Healthcare Centres (PHCs)**, **Community Health Centres (CHCs)** and the **National Rural Health Mission (NRHM)** to strengthen rural healthcare infrastructure.

- **Addressing Infectious Diseases:** India has made notable progress in combating **polio, smallpox, and measles** through comprehensive immunisation programs.
 - The **Pulse Polio Immunization Program, launched in 1995**, has been instrumental in eradicating polio from India.
- **Tackling Non-Communicable Diseases:** The **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS)** was launched to address the issues of non-communicable diseases (NCDs) such as diabetes, cardiovascular diseases, and cancer.
- **Maternal and Child Health:** Initiatives like the **Janani Suraksha Yojana (JSY)** and the **Integrated Child Development Services (ICDS)** have been implemented to improve maternal and child health outcomes, reduce infant and maternal mortality rates, and promote institutional deliveries.
- **Pharmaceutical Industry:** India is a major producer and **exporter of generic medications**, contributing significantly to the global supply of affordable medicines.
- **Traditional Medicine Systems:** India has a rich heritage of traditional medicine systems like Ayurveda, Yoga, Unani, Siddha, and Homeopathy.
 - The Ministry of AYUSH promotes and regulates these systems, ensuring their integration into the mainstream healthcare system.

What are the Challenges Associated with the Healthcare Sector in India?

- **Inadequate Infrastructure and Urban-Rural Disparities:** Although over **75%** of healthcare professionals are concentrated in metropolitan areas, which comprise **just 27%** of the population, the shortage of medical professionals is particularly severe in rural regions.
 - According to the **National Health Profile of 2021**, India has **0.6 beds per 1000 population**.
 - Urban regions typically have better infrastructure, skilled professionals, and specialised care compared to rural areas.
- **Shortage of Healthcare Professionals:** According to **WHO data**, there are only **0.8 doctors per 1,000 people in India**, falling short of the recommended ratio of **1 doctor per 1000**.
 - The government says there was a **nearly 80%** shortage of surgeons, physicians, gynaecologists and paediatricians at community health centres in rural India as of **March 2022**.

- **Insufficient Public Healthcare Funding:** The lack of financial protection for individuals seeking healthcare services results in **out-of-pocket expenditure** accounting for over **60% of healthcare costs in India**. With limited health insurance coverage, many delay or avoid treatments, leading to further health complications and issues.
 - The latest **NFHS-5** report indicates that the average out-of-pocket expenditure per delivery in a public health facility is Rs. 2,916. In urban areas, this cost is Rs. 3,385, while in rural areas, it stands at Rs. 2,770
 - India's public expenditure on healthcare is only **2.1% of GDP in 2021-22** while Japan, Canada and France spend about 10% of their GDP
- **Growing Burden of Diseases:** NCDs have seen a swift global rise, emerging as a primary cause of disability, morbidity, and mortality and they contributed to **approximately 41 million** deaths worldwide, representing nearly three-quarters of all fatalities.
- **Inadequate Mental Healthcare:** India faces a shortage of mental health professionals per capita, which is among the lowest in the world and the government allocates minimal funding to mental health services.

What are the Initiatives have been taken to Revamp Healthcare Services in India?

- **Jan Aushadhi Yojana:** This scheme aims to provide quality medicines at affordable prices through special stores known as Pradhan Mantri Bhartiya Janaushadhi Kendras.
- **Telemedicine and E-health Services:** The government has promoted telemedicine services, especially during the Covid-19 pandemic, to enhance access to healthcare in remote areas.
- **Mission Indradhanush:** Aimed at increasing **vaccination coverage** across the country, this initiative targets children and pregnant women to protect them against preventable diseases.
- **National Health Mission**
- **Ayushman Bharat**
- **Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**
- **National Medical Commission**
- **PM National Dialysis Programme**
- **Janani Shishu Suraksha Karyakram (JSSK)**
- **Rashtriya Bal Swasthya Karyakram (RBSK)**

What are the Measures Need to be Taken to Strengthen the Healthcare Sector?

- **Dynamic Pricing Models:** Properly implemented rate standardisation can reduce healthcare disparities. Economists recommend dynamic pricing models that adjust **based on medical complexity and patients' financial status, offering a fair solution.**
 - For example, **Thailand's tiered pricing system**, which considers patient income levels and medical necessity, successfully balances cost and care, serving as a potential model for India's diverse economic landscape.
 - States like **Rajasthan and Tamil Nadu** have identified gaps in **rate fixation provisions and advocate for robust legal frameworks** to address these issues effectively.
 - Dynamic pricing in healthcare will be based on factors such as **demand, availability of services, patient needs, and insurance coverage.**
- **Technological Innovations and Infrastructure Investment:** Technology is revolutionising healthcare, making diagnostics faster and more accurate through artificial intelligence and improving care coordination via electronic health records.
 - For example, **telemedicine initiatives in Karnataka** have reduced hospital visits by **40%**, demonstrating how technology can make medical care more accessible and cost-effective, especially in remote areas.
 - Investing in infrastructure for **broader internet access and improving digital literacy** will empower more people to benefit from these advancements, positioning India as a global leader in healthcare innovation.
- **Engaging Stakeholders and Leveraging Data:** Engaging all stakeholders, including **private healthcare providers**, is essential to understanding the nuanced dynamics and crafting effective, sustainable policies.
 - **Pilot Projects:** Implement pilot projects in select districts and primary health centres to assess the impact of rate caps on healthcare quality and innovation and catching the disease burden at the local level.
 - **Government Subsidies:** Allocate subsidies to support research and development in private hospitals.
 - **Public-Private Partnerships:** Establish partnerships to integrate cutting-edge technologies in public hospitals, ensuring widespread access to advanced healthcare solutions.

➤ **Increasing Mental Health Workforce:**

- Increasing the number of educational institutions offering mental health courses, integrating mental health services into primary healthcare settings and providing incentives and better remuneration to attract and retain mental health professionals.

Conclusion

As India aspires to be a global healthcare leader, fostering an environment conducive to innovation while ensuring equitable access to quality healthcare is crucial. Prioritising the well-being of every individual is essential.



Rebooting India's Criminal Justice System

*This editorial is based on "**The Bareilly case and a flawed criminal justice system**" which was published in The Hindu on 10/06/2024. The article brings into picture the flaws in the criminal justice system in India through the lens of a recent case in Bareilly, highlighting the need for improved police investigation protocols, prosecutorial autonomy, and judicial supervision.*

Tag: GS Paper - 2, Constitutional Amendments, Judiciary, Government Policies & Interventions

The recent case of a woman in **Bareilly, Uttar Pradesh**, who was imprisoned and fined for **allegedly filing a false rape accusation**, highlights severe systemic shortcomings within **India's criminal justice system.**

The arbitrary and **prolonged detention of undertrials, inadequate police investigations, and the poor functioning of fast-track courts** highlight systemic inefficiencies that undermine public confidence in judicial processes. It underscores the urgent need for comprehensive reforms in **India's criminal justice system.**

The government's recent extension of the centrally sponsored scheme for **Fast Track Special Courts (FTSC) till 2026**, with significant budget allocation, must be complemented by enhancements in police investigation protocols, prosecutorial autonomy, and judicial supervision to prevent wrongful imprisonments and ensure timely justice.

What is the Structure of the Criminal Justice System in India?

- **About:** The **criminal justice system** is responsible for ensuring that offenders are brought to justice and that victims are provided with justice.

- The system also ensures that those accused of criminal activities are treated fairly and are given their due rights.
- India's criminal justice system is based on the Indian Penal Code (IPC) and Criminal Procedure Code, which will soon be replaced by Bharatiya Nyaya Sanhita and Bharatiya Nagarik Suraksha Sanhita respectively.
- **Main Pillars:**
 - **Police:** Responsible for investigating crimes, apprehending suspects, and enforcing the law. They operate under the control of individual states.
 - **Judiciary:** Upholds the law by interpreting it and delivering judgments in criminal cases.
 - The Supreme Court at the federal level and High Courts in each state form the top tiers, with lower courts handling various caseloads.
 - **Correction System:** Manages prisons and jails, focusing on punishment and, ideally, rehabilitation of offenders.
- **Key Principles:**
 - **Presumption of Innocence:** An accused is considered innocent until proven guilty beyond a reasonable doubt.
 - **Right to Fair Trial:** The accused has the right to a fair and public trial, including the right to defend themselves and present evidence.
 - **Due Process:** Legal procedures must be followed correctly to ensure a fair trial.

What are the Major Challenges Related to India's Criminal Justice System?

- **Pendency and Delays in Justice:** The sheer volume of pending cases, **over 5.02 crore as of July 2023**, creates a judicial logjam that paralyzes the system.
 - Each delayed case represents a failure of the system to deliver timely justice.
 - **William Edward Gladstone** (the former PM of England) rightly said, "Justice delayed is Justice Denied."
 - In the Bareilly case, **even a "fast-track" court took 1,559 days**, nearly quadrupling the one-year timeline.
 - Such delays violate the **right to speedy trial** (as recognised by the Supreme Court as fundamental right under Article 21 in *N.S Sahni v. Union of India*).
- **Inadequate Resources and Infrastructure:** India has only 21 judges per million population (as of **December 2023**).
- The shortage is not just a number; it translates to **overworked judges, rushed hearings, and compromised judgments**.
- **35% of posts** in the lower judiciary and around **400 in High Courts** are vacant (May 2023).
- Inadequate staffing and facilities lead to **shoddy investigations, weak prosecutions, and judicial delays**.
- **Politicization of the Police Force:** The Prakash Singh v. Union of India (2006) judgment mandated separation of investigation from law and order duties, **but this has not materialized**.
 - In the **2021 Lakhimpur Kheri violence case**, where a Union Minister's son was accused, the initial investigation was marred by delays and allegations of political interference.
 - This **politicization undermines impartial investigations**, especially in cases involving powerful personalities.
 - The Second Administrative Reforms Commission also noted that police-public relations is in an unsatisfactory state because people view the police as **corrupt, inefficient, politically partisan and unresponsive**.
- **Bail as the Exception, Not the Rule:** Despite the Supreme Court's directive in *Balchand alias Baliai case V. State of Rajasthan (1978)* to make bail the rule and jail the exception, the reality is reversed.
 - It is evident: over **75% of India's prison population are undertrials**. The prisons are at **130% occupancy**.
 - Also, the burden of proof is shifted to accused under certain acts like **Unlawful Activities (Prevention) Act** exacerbating the issue of bail.
- **Gender Bias in Sexual Violence Cases:** In *Aparna Bhat v. State of Madhya Pradesh (2021)*, the Supreme Court condemned the use of gender stereotypes and victim-blaming language by judges.
 - Yet, a Karnataka High Court judge's comments about a **rape victim's late-night work** suggested persistent **gender biases that undermine justice in sexual violence cases**.
- **Outdated Prison Manual and Mental Health Crisis:** The Model Prison Manual 2016 mandates mental health services.
 - In *Re-Inhuman Conditions in 1382 Prisons case*, the Supreme Court noted high rates of mental illness among prisoners, exacerbated by overcrowding and lack of care.
 - For instance, as of 2022, there were 42,577 prisoners in Maharashtra state, but there was only **one psychiatrist and two psychologists** to attend to them.

- **Non-Implementation of Police Complaints Authority:** The Supreme Court in *Prakash Singh (2006)* mandated **Police Complaints Authorities (PCAs)** to address public grievances against police.
 - However, most states either **have not established PCAs** or have made them toothless, perpetuating police impunity.
- **Human Rights Violations:** India's criminal justice system often faces accusations of **custodial torture, extrajudicial killings, false arrests, and illegal detentions.**
 - **175 cases of deaths** in police custody were reported during 2021- 2022.

What Measures Should be Adopted to Reform Criminal Justice System in India?

- **Victim-Centric Justice System:** There is a need to move from a **perpetrator-centric system to a victim-centric one.**
 - Providing dedicated victim support services throughout the legal process, including counseling, legal aid navigation, and **victim impact statements** with a guaranteed right to be heard in court.
 - This empowers victims and **restores a sense of agency.**
- **Artificial Intelligence for Case Management and Risk Assessment:** Exploring the use of AI for tasks like **case management, scheduling, and pretrial risk assessment.**
 - This can streamline processes, identify low-risk cases for diversion programs, and free up human resources for more complex matters.
 - Also, there is a need to ensure robust safeguards **against bias and algorithmic transparency** to prevent perpetuating existing inequalities in the system.
- **Legal Aid with Performance-Based Funding:** **Increasing funding for legal aid** and establishing a **performance-based system for legal aid providers.**
 - This incentivizes effective representation and ensures defendants from disadvantaged backgrounds receive quality legal assistance.
- **Bail Reform and Reducing Undertrial Detention:** The **Law Commission of India's 268th Report (2017)** called for urgent measures to be taken to **curtail the length of detention**, and concluded that the law relating to bail must be revisited to prevent this.
- **Comprehensive Victim and Witness Protection:** There is a need to fully implement the **Witness Protection Scheme, 2018**, as per the recommendation of **Malimath Committee (2003)** with adequate funding and oversight.

- **Gender Sensitization in the Judiciary:** Mandatory gender sensitization training for all **judicial officers, integration of gender perspectives in judicial education**, and mechanisms to hold judges accountable for gender-biased comments.
 - Recent **SC Handbook on Gender Stereotypes** is a significant step in this direction.
- **Reforming Prison Administration:** There is a need for mandatory segregation of **undertrials, convicts, and first-time offenders within jails**, including during court appearances and hospital visits as per the recommendations of **Justice Amitava Roy Committee.**
 - The committee also emphasized that prison administrations should comprehensively implement national and state health insurance schemes, such as the **Ayushman Bharat scheme.**
- **Revamping Fast-Track Courts:** There is a need to revamp fast-track courts by dedicated judges and improved infrastructure for fast-track courts, **setting binding timelines, and introducing case management systems** to track and expedite cases.
- **Combating Criminalisation of Politics:** There is a need for establishment of an institution dedicated to tackling the criminalisation of politics, as highlighted by the **Vohra Committee (1993).**
 - This institution should be empowered to collect intelligence from various sources, investigate the nexus between politicians, bureaucrats, criminals, and anti-social elements, and take decisive action against those involved.
 - Such an institution would play a pivotal role in **purging the political system of criminal influences** and restoring public trust.
- **Promoting Restorative Justice:** There is a need for promotion of restorative justice, as suggested by the **Madhav Menon Committee (2007).**
 - This approach focuses on healing the harm caused by crime rather than solely inflicting punishment.

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Water Management: From Scarcity to Sustainability

*This editorial is based on “**Drying up: What Urban India needs to fix its water problem**” which was published in The Indian Express on 11/06/2024. The article brings into picture India's escalating water crisis, emphasizing the urgent need for a comprehensive policy to manage dwindling river flows and aquifers.*

S Tag: GS Paper - 2, GS Paper - 3, Water Resources, Conservation of Resources, GS Paper - 1

India is staring at an **impending water catastrophe**, with large swathes of the country reeling under acute water scarcity. The **unrelenting heat waves** and **erratic rainfall** have exacerbated the crisis, depleting rivers and aquifers at an alarming rate.

Reduced water flow in rivers and **falling groundwater levels** have made this summer extremely difficult. In cities like **Bengaluru**, taps have run dry, leading to disputes between states over sharing of river waters. Providing tap water connections alone is not enough to tackle this crisis. India needs a long-term policy **focused on conserving resources, and ensuring fair distribution** and adopting a holistic strategy for **sustainable water management**.

What is the Structure of Water Management in India?

- **Central Level:**
 - **Ministry of Jal Shakti (MoJS):** Established in **May 2019**, it is the apex body responsible for formulating national water policies and overseeing water resource management activities across the country.
 - **Central Water Commission (CWC):** A technical organization under MoJS that provides **technical guidance on water resource development projects** and river basin planning.
 - **Central Groundwater Board (CGWB):** Responsible for assessing, monitoring, and managing groundwater resources in India.
 - **Central Pollution Control Board (CPCB):** The CPCB's principal function, as defined in the **Water Act of 1974** is to promote the cleanliness of streams and wells across states by **preventing, controlling, and reducing water pollution**.
- **State Level:**
 - **State Water Resources Departments:** Responsible for implementing water policies and managing water resources within their respective states.
 - **Irrigation Departments:** Focus on managing irrigation systems and ensuring water distribution for agricultural purposes.
 - **State Pollution Control Boards (SPCBs):** Responsible for monitoring and controlling water pollution.
- **Local Level:**
 - **Panchayats (Village Councils):** Play a crucial role in managing water resources at the village level, including promoting water conservation and ensuring equitable distribution.
 - **Municipalities:** Responsible for managing water supply and sanitation in urban areas.

- **Water User Associations (WUAs):** Groups of farmers formed to manage and maintain irrigation systems at the local level.

What are the Constitutional Provisions Related to Water?

- **Fundamental Right:** Water, essential for human survival, is encompassed within the right to life under **Article 21 of the Indian Constitution**.
- **Entry 56 of Union List:** The central government is authorized to **regulate and develop inter-state rivers** and river valleys as deemed necessary by Parliament for the public interest.
- **Entry 17 of State List:** This entry pertains to **water supply, irrigation, canals, drainage, embankments, water storage, and water power**.
- **Article 262:** In cases of water-related disputes, Parliament can legislate to resolve issues regarding the use, distribution, or control of inter-state rivers or river valleys.
 - Additionally, Parliament may enact laws to **exclude such disputes from the jurisdiction of any court, including the Supreme Court**.

What are the Major Factors Driving Water Crisis in India?

- **Rapidly Depleting Groundwater Resources:** India is the **largest extractor of groundwater globally**, accounting for around 25% of the world's groundwater extraction (**World Bank**).
 - Excessive withdrawal has led to alarming depletion of aquifers.
- **Increasing Water Demand from Agriculture:** Agriculture accounts for around **78% of India's freshwater usage** (virtual water).
 - The **Green Revolution** led to the over-exploitation of groundwater for irrigation, with states like **Punjab and Haryana** experiencing a drastic drop in water tables.
 - **Flood irrigation**, a highly inefficient method, is still widely practiced, leading to significant water losses.
 - About **74% area under wheat cultivation** and **65% area under rice cultivation** faces extreme levels of water scarcity (**NITI Aayog**).
- **Inadequate Water Infrastructure:** India's water infrastructure is plagued by aging systems, poor maintenance, and significant **losses due to leakages** and theft.
 - Mumbai loses around **700 million liters** of water daily due to leakages.

- A report by the **NITI Aayog** stated that around **2 lakh people die in India every year due to inadequate water supply**.
- **Urban Sprawl and Industrial Growth:** Rapid **urbanization** and **industrialization** have increased water demand, while also contributing to water pollution.
 - According to the **NITI Aayog**, **5 of the world's 20 largest cities** under water stress are in India and about **70% of India's surface water** resources are polluted.
- **Sand Mining:** **Unregulated sand mining** from riverbeds disrupts river ecology and reduces their water carrying capacity.
 - This not only impacts downstream water availability but also increases the risk of flash floods and riverbank erosion.
 - The **rampant sand mining in the Yamuna river** is a case in point.
- **Fragmented Governance:** Water management in India is often fragmented across different ministries and departments at the central and state levels.
 - This lack of coordination leads to duplication of efforts, inefficient resource allocation, and conflicting policies.
 - The ongoing **Cauvery water dispute between Karnataka and Tamil Nadu** is a result of such fragmentation.
- **Inadequate Focus on Demand-Side Management:** India's water policies have primarily focused on increasing supply through large infrastructure projects, neglecting demand-side management.
 - Measures like water-efficient technologies and recycling have received limited attention.
 - Only 30% of India's wastewater is recycled, compared to **89-90% in Israel**.
- **Sea Level Rise and Salinization:** Rising sea levels due to climate change threaten coastal aquifers with **saltwater intrusion**.
 - This salinization renders freshwater sources unusable for agriculture and drinking, posing a significant threat to coastal communities.
 - The increasing salinity of groundwater in parts of **Gujarat and Andhra Pradesh** is a worrying trend.

What can be the Major Consequences of the Water Crisis?

- **Hindering Human Capital Development:** The time burden of water collection, **particularly on girls**, often forces them to miss school, hindering their education and long-term opportunities.

- Also, waterborne illnesses and malnutrition caused by water scarcity can lead to **cognitive impairment** among children.
- **Long-Term Economic Risks:** The **World Bank** estimates that water scarcity could cost India up to **6% of its GDP by 2050** if left unaddressed. This can significantly hamper economic growth and development.
 - Water scarcity can **deter businesses from investing in water-intensive industries**, impacting job creation and economic opportunities.
- **Rise of Water Mafias:** In water-stressed cities like Bangalore, informal water markets have emerged, with **"water mafias"** controlling access to water tankers and charging exorbitant prices.
 - This exacerbates **social and economic inequalities** and creates a black market for a basic necessity.
- **Impact on Transboundary Water Disputes:** Water scarcity can exacerbate existing tensions between India and its neighboring countries like **Pakistan and Bangladesh**, which share river basins.
 - This could lead to regional instability and **increased conflict over water resources**.
- **Threat to Biodiversity:** Depleting water levels and pollution threaten the survival of freshwater fish, amphibians, and reptiles.
 - The endangered **Ganges River Dolphin** faces habitat loss due to declining river flows.

What are the Government Initiatives To Tackle the Water Crisis in India?

- **National Water Policy, 2012**
- **Pradhan Mantri Krishi Sinchayee Yojana**
- **Jal Shakti Abhiyan- Catch the Rain Campaign**
- **Atal Bhujal Yojana**
- **Jal Jeevan Mission (JJM)**
- **National Mission for Clean Ganga (NMCG)**

What Measures can be Adopted to Tackle Water Crisis?

- **Transforming Fallow Land into Recharging Units:** Converting underutilized land into strategically designed **"water parks"** dedicated to **groundwater recharge**.
 - These parks can incorporate **bioswales, constructed wetlands, and rainwater harvesting structures**, creating appealing spaces that actively replenish aquifers.

- **Desalination Powered by Renewable Energy and Waste:** Developing large-scale desalination plants fueled by a combination of **renewable energy sources** and waste-to-energy technology.
 - Desalination plants not only generate clean water but also **transform waste into a valuable resource**, creating a sustainable and self-sufficient water production system.
- **Urban Rainwater Harvesting Systems:** Mandating the installation of rainwater harvesting systems in **all new buildings** and **retrofitting existing structures**.
 - This can be coupled with **green roofs** that capture and retain rainwater, replenishing groundwater and reducing stormwater runoff.
 - 900 rainwater harvesting pits to be installed at **Regional Rapid Transit System**, to promote sustainable public transport options in the National Capital Region.
- **Promoting Drip Irrigation and Aquaponics:** Encouraging the widespread adoption of drip irrigation systems that deliver water directly to plant roots, minimizing evaporation losses.
 - Additionally, support the development of **aquaponics farms**, which combine **aquaculture (fish farming) with hydroponics (growing plants in water)** in a closed-loop system, reducing water consumption.
- **Smart Water Grids:** Developing **smart water grids** that integrate sensors and real-time monitoring systems throughout the water distribution network.
 - This allows for early detection of leaks, optimal pressure management, and improved overall efficiency.
- **Fog Harvesting:** Exploring **fog harvesting technologies** in hilly regions. Specialized mesh structures capture moisture droplets from fog, providing a valuable water source in areas with limited rainfall.
 - India can learn from successful fog harvesting projects that have been implemented in countries like **Chile, Morocco, and Peru**.
- **Decentralized Water Management:** There is a need to drive a decentralized, community-driven approach to rural water supply and sanitation like the **Uttarakhand's Swajal project**.
 - Also, promoting decentralized wastewater treatment systems at the community or building level.

- These compact systems **treat wastewater for reuse in non-potable applications**, reducing the burden on centralized treatment plants and saving freshwater.
- **Public-Private Partnerships (PPPs) for Water Infrastructure:** Encouraging public-private partnerships for developing and maintaining water infrastructure projects.
 - This can leverage private sector expertise and financing to **bridge the gap in water infrastructure development**.
- **Zero Liquid Discharge for Industries:** Mandate the adoption of **zero liquid discharge (ZLD) systems** for water-intensive industries, where wastewater is treated and recycled for reuse.
 - Encouraging the **development of eco-industrial parks**, where industries can share and reuse water resources, reducing freshwater demand and pollution.

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Navigating the India-West Diplomatic Nexus

*This editorial is based on "**A chance to reboot relations with the West**" which was published in The Indian Express on 12/06/2024. The article brings into picture the complexities of India's diplomatic engagements, including managing conflicts with China and cooperation with Russia while expanding ties with the West amidst global geopolitical challenges.*

S Tag: GS Paper - 2, Global Groupings, Groupings & Agreements Involving India and/or Affecting India's Interests

India's diplomatic landscape is increasingly becoming complex, with the nation needing to manage its **conflicts with China** and **cooperation with Russia** while simultaneously **expanding ties with the West**. This balancing act is particularly challenging amid the escalating **Russia-Ukraine conflict** and growing military tensions between China and its neighbors in the **Western Pacific**.

As a frequent participant in G7 gatherings, India has a vested interest in deepening collaboration with the **"collective West."** With the West also keen on drawing India into global governance structures, the upcoming **G7 summit (Italy as host)**, presents a prime opportunity for India to reboot its ties with the Western nations.

What is G-7?

- **About:** The G7 is an informal bloc of industrialized democracies, the **United States, Canada, France, Germany, Italy, Japan, and the United Kingdom (UK)**, that meets annually to discuss issues such as global economic governance, international security, and, most recently, artificial intelligence (AI).
- **History:** The United States, France, Italy, Japan, the UK, and West Germany formed the Group of Six in 1975 to provide a venue for noncommunist powers to address pressing economic concerns, which included **inflation and a recession** sparked by the **Organization of the Petroleum Exporting Countries (OPEC)** oil embargo.
 - Canada joined in 1976.
 - The **European Union (EU)** has participated fully in the G7 since 1981 as a “**non enumerated**” member.
 - Russia belonged to the forum from **1998** through 2014, when the bloc was known as the **Group of Eight (G8)**, but the country was suspended following its annexation of **Ukraine’s Crimea region**.
- **Secretariat:** The G7 **does not have a formal charter or a secretariat**.
 - The presidency, which rotates among member countries each year, is in charge of setting the agenda.
 - The **50th G7 Summit** is set to be held from **13th June to 15th June 2024** in the city of Fasano in **Apulia, Italy (India is invited)**.

G20

G8

G7



What Constitutes the West in Geopolitical Context?

- **Geographic Scope:** Traditionally, the West referred to **Western Europe** and the areas it colonized, primarily **North America and Australasia**.
 - Debate exists regarding **Eastern Europe’s inclusion**, with some considering it part of the former Soviet sphere of influence.
 - However, the definition is not so clear-cut anymore. The growing interconnectedness of the world challenges the clear-cut distinction between “West” and “East.”
- **Cultural Features:**
 - **Greco-Roman Legacy:** Western culture draws heavily on the philosophical and political traditions of ancient Greece and Rome, emphasizing **reason, logic, and individual rights**.
 - **Christianity:** While religious practices have become more diverse, Christianity, particularly **Catholicism and Protestantism**, has significantly shaped Western values and institutions.

➤ Political and Economic Systems:

- **Democracy:** The concept of representative government with individual freedoms and liberties is a cornerstone of Western political systems.
- **Capitalism:** Free-market economies with private ownership and competition define most Western economies.
- **Rule of Law:** The West emphasizes a legal system based on established laws and procedures, ensuring fairness and accountability.

Why Does India Need to Reboot Its Relations with the West?

- **Managing the China Challenge:** China's rising assertiveness in the **Indo-Pacific** and its border tensions with India pose a significant challenge.
 - The **West**, particularly the **U.S.**, views **China** as a **strategic competitor**.
 - Improved India-West relations would allow for better coordination in managing the multi-faceted China challenge through economic, diplomatic, and military means.
 - **India and the US** have recently conducted joint military exercise **Tiger Triumph 2024**, demonstrating a willingness to collaborate on security issues.
- **Balancing Relations Alongside Russia:** India's historical ties with Russia, including defense cooperation, have been a point of **friction with the West**, especially in the wake of the **Ukraine conflict** where **India significantly increased its imports of Russian crude oil** despite Western sanctions.
 - Rebooting relations would help India better explain its stance while finding **common ground** on issues like **energy security and regional stability**.
- **Managing the US-China Technological Decoupling:** The intensifying **US-China tech wars** and the bifurcation of technologies like **AI**, and **5G** pose a significant challenge for India.
 - Remaining non-aligned in this realm could hamper India's technological aspirations and economic growth.
 - A reboot would enable India to seek a balanced approach, **accessing US and Western technologies** while leveraging its market size to **negotiate favorable terms** and safeguard its strategic autonomy.

- **Reshaping the Global Trade Architecture:** With the WTO's challenges and the rise of plurilateral arrangements like **Indo-Pacific Economic Framework for Prosperity**, the global trade order is undergoing a seismic shift.
 - As the West aims to create a rules-based framework aligned with its interests, India must proactively engage to ensure its concerns around issues like **data localization**, **e-commerce**, and **digital taxation** are addressed.
 - A reboot could position India as a pivotal player in reshaping trade rules for the digital era.
- **Navigating the Geopolitics of Climate Change and Energy Transition:** Climate change is becoming an arena of strategic competition, with the West pushing for an accelerated transition towards renewable energy, and the **potential weaponization of technologies** like **green hydrogen** and **carbon capture**.
 - India's energy security imperatives and its leadership in initiatives like the **International Solar Alliance (alongside France)** make it a crucial partner.
 - A revamped partnership could facilitate climate finance, technology transfers, and a balanced approach to energy transition.
- **Collaborating on Regional Connectivity:** India's vision for an integrated regional connectivity framework, whether through initiatives like **India-Middle East-Europe Corridor** requires Western cooperation for financing, capacity-building, and aligning with the broader rules-based order.

What are the Friction Points Between India and West?

- **Differences on Global Governance and Reforms:** India has long sought reforms in global governance institutions like the **UN Security Council** and the **World Bank** to reflect the changing power dynamics.
 - However, parts of the **West have been reluctant to support reforms** that would dilute its influence in these bodies, creating friction with India's aspirations for a greater global role.
- **Intellectual Property Rights and Technology Transfers:** India's stance on intellectual property rights (IPR) and its efforts to produce **affordable generic drugs** have often led to tensions with Western pharmaceutical companies and governments.

- The West has also been cautious about **transferring sensitive technologies to India** due to concerns over potential diversion or leakage.
- **Strategic Autonomy vs. Alignment Expectations:** India's pursuit of **strategic autonomy**, rooted in its non-aligned legacy, often clashes with Western expectations of closer alignment on issues like Russia-Ukraine War.
- The West perceives India's **multi-alignment approach** as a reluctance to take sides, while India sees it as a pragmatic foreign policy of **all-alignment** that preserves its leverage and negotiating power.
- **Divergent Approaches to Regional Security:** India's approach to regional security issues, particularly in its neighborhood, has sometimes diverged from Western perspectives.
 - For instance, **India's reluctance to intervene in Myanmar's political crisis** or its **cautious stance on the Taliban's takeover** of Afghanistan has created friction with Western policies and expectations.
- **The Khalistan Issue:** The resurgence of the **Khalistan movement**, fueled by some elements within the Indian diaspora in Western countries like **Canada and the UK** has become a significant source of friction.
 - India has accused these nations of providing a **platform for anti-India activities and harboring pro-Khalistan elements**, straining bilateral relations.
- **Defense Cooperation and Arms Exports:** India's defense cooperation with Russia and its procurement of Russian weapons systems like the **S-400 missile defense system** have been a source of friction with the West, particularly the United States.
 - The West, especially the **United States**, has expressed concerns over this issue. Although India was granted a waiver under **CAATSA (Countering America's Adversaries Through Sanctions Act)**, recently concerns have been resurfaced.

How Can India and the West Reconcile Their Differences?

- **Establish a Plurilateral Tech Alliance:** India and the West could explore establishing a plurilateral technology alliance focused on **developing and**

setting standards for critical and emerging technologies like AI, quantum computing, and cyber security.

- This alliance could facilitate **joint research, knowledge sharing, and the co-development** of niche technologies while ensuring a level playing field and safeguarding the participants' strategic interests.
- **Create a Renewable Energy and Climate Innovation Fund:** To address the friction over climate change and energy transition, India and the West could jointly create a **dedicated fund to finance and accelerate research, development, and deployment of clean energy solutions**.
 - This fund could support projects in areas like **green hydrogen, carbon capture, sustainable aviation fuels**, and climate-resilient infrastructure, fostering collaboration and mitigating concerns over technology transfers and climate finance.
- **Joint Framework for Responsible Space Exploration:** As space exploration and commercialization accelerate, India and the West could develop a **joint framework for responsible space exploration and governance**.
 - This framework could address issues like the sustainable utilization of space resources, the **prevention of space debris**, and the peaceful use of space, fostering cooperation while respecting each partner's strategic interests.
- **Focus on Regional Trade Agreements:** While finalizing a **pan-India-EU FTA** might be challenging, India can explore smaller regional trade agreements with specific countries like the recent **TEPA with European Free Trade Association**.
 - This allows for faster progress and caters to diverse economic interests.
- **Issue-Based Alignment:** India needs to develop an **"issue-based alignment" framework** for certain domains that allows for cooperation on areas of mutual concern while respecting India's independent stance on other matters.
 - Establishing dialogue mechanisms to address misperceptions and concerns about **India's strategic autonomy, ensuring transparency and open communication**.



Dismantling the Roots of Terrorism

*This editorial is based on “**Terror attack in Reasi underscores fragility of a hard-won peace in J&K**” which was published in The Indian Express on 12/06/2024. The article brings into picture the fragile peace in Jammu and Kashmir, highlighting a recent terrorist attack in Reasi that underscores ongoing security challenges*

S Tag: GS Paper - 3, Challenges to Internal Security Through Communication Networks, Government Policies & Interventions, India and its Neighbourhood

The specter of **terrorism** continues to cast a long shadow across the globe. From coordinated attacks targeting civilians to targeted assassinations, terrorist groups employ violence and fear to achieve their political goals. While the international community has made strides in countering terrorism, its **reach and tactics remain fluid**, demanding **constant vigilance and adaptation**.

India, a nation with a long history of grappling with terrorism, faces a unique set of challenges. This is particularly evident in the restive region of Jammu and Kashmir, where incidents like a **recent attack on pilgrims in Reasi**, a district with minimal prior militancy, exposes the fragility of peace.

India's fight against terrorism necessitates a **multi-pronged approach**. Stringent security measures are crucial to deter infiltration attempts and disrupt terror networks. Only through a comprehensive strategy that combines robust security measures with efforts to address underlying grievances can India hope to achieve lasting peace and security for its citizens.

What is the Framework Related To Terrorism in India?

- **About:** Terrorism is the **deliberate and unlawful use of violence and intimidation**, especially against civilians, to instill fear and achieve political, religious, or ideological goals.
 - It seeks to influence governments or societies by creating a **climate of fear, disruption, and uncertainty**.
 - India maintains a strong stance against terrorism with a **“zero tolerance” policy**.
 - However, there are **no universally accepted definitions of terrorism**, making it difficult to classify specific activities as terrorist acts.

- This ambiguity gives terrorists an advantage and enables some countries to remain silent and veto actions in global institutions.

➤ Domestic Laws:

- **Unlawful Activities (Prevention) Act (UAPA) 1967:** Designates terrorist organizations or individuals, criminalizes terrorist activities, and empowers authorities for investigation and prosecution.
- **National Investigation Agency (NIA) Act, 2008:** Establishes a central agency for investigating and prosecuting **terror-related offenses**.

➤ Institutional Framework:

- **National Security Council Secretariat (NSCS):** Oversees and coordinates national security strategy, including counter-terrorism efforts.
- **Ministry of Home Affairs (MHA):** Leads domestic counter-terrorism operations and intelligence gathering.
- **National Investigation Agency (NIA):** Investigates and prosecutes major terror-related cases.

➤ International Agreements: India is a signatory to various UN conventions against terrorism, including:

- Convention on the Prevention and Punishment of Offences against Internationally Protected Persons, including Diplomatic Agents (1973)
- International Convention against the Taking of Hostages (1979)
- **International Convention for the Suppression of the Financing of Terrorism (1999)**

What are the Various Emerging Forms of Terrorism?

- **Lone Wolf Attacks:** The rise of **self-radicalized individuals** carrying out attacks without being part of a larger group poses a significant challenge for intelligence agencies.
 - These “lone wolf” terrorists are harder to detect and can strike with little to no warning.
- **Bioterrorism Risks:** The **Covid-19 pandemic** has sparked the potential consequences of a bioterror attack involving the **weaponization of viruses, bacteria or other biological toxins** as an instrument of mass disruption.
 - The illicit procurement and deployment of such agents by non-state actors with **catastrophic intentions** remains a looming danger that requires constant vigilance.

- **Unmanned/Drone Threats:** The rapid proliferation of advanced yet inexpensive **commercial drone technologies** has opened a new threat vector that terrorists could exploit for purposes like **intelligence gathering, targeted strikes, or as delivery platforms for explosives/chemical dispersion** devices, presenting a formidable new security challenge.
 - For example, India witnessed a significant drone attack at the **Air Force Station** in Jammu in June, 2021.
 - The airbase, which is **14 km away from the India-Pakistan border**, was attacked by low-flying drones that dropped two **improvised explosive devices (IEDs)**.
- **Terrorist Safe Havens:** Prolonged conflicts and fragile regions with limited governance in parts of **Africa and the Middle East** provide fertile territories for terrorist groups to establish **safe havens, training infrastructures, and a foothold** to export violence across borders, making these unstable zones an enabler for transnational terror.
- **Terror-Crime Nexus:** The deepening convergence between terrorist entities and transnational organized criminal syndicates, combining their **illicit financial resources (through cryptocurrency), distribution networks** (like case of Drug supplies in Punjab) and **expertise** in areas like weapons procurement and human trafficking, has emerged as a potent threat multiplier that demands sustained counterterror operations.
- **Terrorism Driven by Emerging Technologies:** Terrorist entities are actively seeking to exploit cutting-edge technologies like **encrypted communications and dark web** to amplify their capabilities across all phases - recruitment, radicalization, operational planning, and attack execution.
 - Staying ahead of this technological curve remains an **ongoing cat-and-mouse battle** for counterterrorism forces.

What are the Major Terrorism Related Challenges that India Faces?

- **Cross-border terrorism:** India has been grappling with cross-border terrorism emanating from neighboring countries, particularly Pakistan.
 - Recent examples include the **2019 Pulwama attack**, where a suicide bomber from the Pakistan-based terrorist group targeted a convoy of Indian security personnel.

- Also, recent attacks like the **one in Reasi** (June 2024) suggest that increased security pressure in traditionally **militant-affected districts like Rajouri and Poonch** might be pushing them towards more peripheral areas.
- **Left-Wing Extremism (LWE):** The LWE movement, also known as the Naxalite insurgency, has been a persistent challenge for India.
 - Maoist rebel groups have been active in several states like **Chhattisgarh and Jharkhand**, engaging in violence, extortion, and disrupting development projects.
 - The number of LWE related violent incidents have come down by 76% in 2022 in comparison to 2010.
 - However, the issue is still persistent, highlighted by a recent incident in **Narayanpur District of Chhattisgarh**.
- **Separatist Movements and Militancy:** India has faced separatist movements and militancy in various regions, including the **Northeast, and Punjab**.
 - The issue of militancy in Jammu and Kashmir has been particularly complex, with Pakistan-based terrorist groups like **Lashkar-e-Taiba (LeT) and Jaish-e-Mohammed (JeM)** fueling the insurgency.
- **Radicalization and Online Propaganda:** The rise of radicalization, particularly among the youth, and the spread of extremist ideologies through **online platforms and social media**, pose a significant challenge.
 - India has witnessed instances of youth being radicalized through methods like **Honey trapping** (like the **recent instance of trapping Former BrahMos engineer**) and recruited by terrorist organizations, both domestically and internationally.
 - In **February 2024**, 4 were arrested by the **National Investigation Agency** in connection with radicalisation of youths to carry out terror attacks.
- **Cyber Terrorism:** The increasing reliance on digital infrastructure and the potential for cyber attacks by terrorist groups or state-sponsored actors is an emerging concern for India.
 - Cyber terrorism could target **critical infrastructure, financial systems, and sensitive data**, causing significant disruption and economic damage.

- A recent report has stated that a Chinese firm breached nearly **100 gigabytes of Indian immigration data**.
- **Pakistan Exiting FATF Grey List:** With Pakistan out of the **grey list**, India's claims about Pakistan's lack of action against terror groups might hold less weight internationally.
- The **Financial Action Task Force (FATF)** listing served as a form of validation of India's concerns.
- Also, in this case China Factor comes into picture that is highlighted by China blocking India's demand to declare **Hafiz Saeed a terrorist**

What Measures can India Adopt to Curb the Menace of Terrorism?

- **Focus on Rehabilitation, Not Just Punishment:** Developing **deradicalization programs** for individuals caught in the early stages of radicalization.
 - These programs should address the root causes of radicalization and provide participants with opportunities for **rehabilitation and reintegration into society**.
- **Establishing a National Counter-Terrorism Database:** Developing a centralized and secure database that **integrates intelligence from various agencies**, including law enforcement, intelligence agencies, and financial institutions.
 - Leveraging **advanced data analytics and machine learning techniques** to identify patterns, connections, and potential threats, enabling proactive action.
- **Enhancing Physical Security Measures:** Improving physical security measures at critical infrastructure, public spaces, and potential high-risk targets, including **surveillance systems, access control, and perimeter security**.
 - Conducting regular **security audits and vulnerability assessments** to identify and address potential weaknesses.
 - Implementing **robust crisis management protocols** and evacuation plans in case of terrorist attacks.
- **Open-Source Intelligence Training for Police:** Training police forces in **open-source intelligence (OSINT) techniques** to analyze publicly available data on social media and online forums to identify potential threats and track terrorist activities.
- **Strengthening Cybersecurity and Online Counterterrorism Capabilities:** Investing in developing advanced cybersecurity measures to protect critical infrastructure and online systems from cyber attacks and **digital espionage** by terrorist organizations.

- **Empowering Communities, Not Just Security Forces:** There is a need to educate communities, particularly in vulnerable regions, **about early signs of radicalization and how to report suspicious activity**.

- Address socio-economic grievances in areas susceptible to extremist influence. Improve education, healthcare, and livelihood opportunities to create a sense of hope and discourage radicalization.
 - The **Himayat and UMEED Scheme** in Jammu and Kashmir is a significant step in this direction.
 - **Khelo India Centres** could be established in areas prone to radicalization as a means of redirecting the youth.
 - **Mainstreaming terrorism** prone areas as highlighted by India during its G20 Presidency meetings in Jammu and Kashmir and thereby **Winning their Hearts and Minds**.
- It's the high time for promoting **national security as a shared responsibility**.
- **Weakening the Financial Lifeline of Terror:** Exploring the use of blockchain technology to **track financial transactions and identify suspicious patterns** associated with terror funding.
 - The transparency and immutability of blockchain can make it harder for terrorists to move funds.

■■■

Forging the Future of Federalism in India

*This editorial is based on “**This is the moment for a new federal compact**” which was published in The Indian Express on 11/06/2024. The article discusses recent debates concerning federal issues in the country, exploring possible solutions stemming from the resurgence of coalition politics at the central level.*

S Tag: GS Paper - 2, Federalism, Co-operative Federalism, Centre-State Relations

The resurgence of coalition politics at the central level has elevated regional parties to key power broker status, countering the trend of centralized policy decision-making.

In recent years, the government has placed increased emphasis on both cooperative and competitive federalism through institutions like the **National Institution for Transforming India (NITI) Aayog**. However, numerous state governments have raised concerns about the Union government's alleged withholding of **Goods and Services Tax (GST) compensation funds**, leading to instances of confrontational federalism.

Furthermore, the ruling vision of "**one nation, one election**" and the idea of "one nation with one flag and one Constitution" to streamline governance and promote national unity, have elicited varied reactions from different states, reflecting the complexities of federalism in India.

Thus, governing within a coalition framework presents an opportunity to reset trust and restore balance in Centre-state relations.

What is Federalism?

➤ About :

- Federalism involves the distribution of powers and responsibilities between the central government and state governments. It aims to maintain unity while allowing for regional self-governance.
- Federalism allows for the accommodation of diversity and regional autonomy within a larger political unit.

➤ Features of Federalism:

- **Division of Powers:** Powers are divided between the central government (Union) and state governments.
- **Written Constitution:** A written constitution delineates the powers of different levels of government.
- **Supremacy of Constitution:** The Constitution is supreme and governs the relationship between the Union and states.
- **Independent Judiciary:** An independent judiciary interprets and enforces the Constitution to resolve disputes between different levels of government.
- **Dual Government:** Both the central and state governments have their own spheres of influence and authority.
- **Rigid Constitution:** The Constitution is not easy to amend and provides for clear procedures for changes.

➤ Types :

- **Holding Together Federation:** In this type, powers are shared between various constituent parts to accommodate the diversity in the whole entity. Here, powers are generally tilted towards the central authority.
 - **Example:** India, Spain, Belgium.
- **Coming Together Federation:** In this type, independent states come together to form a larger unit. Here, states enjoy more autonomy as compared to the holding together kind of federation.
 - **Example:** USA, Australia, Switzerland.
- **Asymmetrical Federation:** In this type, some constituent units have more powers or special status than others due to historical or cultural reasons.
 - **Example:** Canada, Russia, Ethiopia.

➤ Nature of Indian Federalism :

- The Indian Constitution establishes a federal system with a strong Union.
 - Because of it, Indian Federalism is sometimes referred by various terms:
 - KC Wheare called it "Quasi-federal".
 - Granville Austin called it "Cooperative federalism" (need for national integrity and unity).
 - Morris Jones defined it as 'Bargaining Federalism'.
 - Ivor Jennings termed it as 'Federalism with Centralizing tendency'.
- The Constitution specifies the distribution of legislative, administrative and executive powers between the union government and the state government
- Constitutional Provisions:
 - **Seventh Schedule:** Divides powers between the Union and states through three lists – Union List, State List, and Concurrent List.
 - **Article 1:** Defines India as a Union of States.
 - **Article 245:** Grants Parliament and state legislatures the power to make laws within their respective jurisdictions.
 - **Article 246:** Enumerates the subject matters on which Parliament and state legislatures can legislate.
 - **Article 263:** Provides for the establishment of an Inter-State Council to promote cooperative federalism.
 - **Article 279-A :** Empowers the President to constitute a GST Council.

How the Concept of Federalism Evolved in India?

- **Inner-Party Federalism(1950-67):**
 - During the first phase of federalism, major disputes between the federal government and the states were resolved in Congress party forums, or what political scientist Rajni Kothari called the “Congress System”.
 - This helped contain or prevent major federal conflicts and create a consensus-based form of “inner-party federalism”.
- **Expressive Federalism(1967-89) :**
 - In the second phase from 1967 onwards, the Congress party was still in power at the Centre but lost power in many states where many regional party-led and anti-Congress coalition governments were formed.
 - This phase marked the emergence of an era of “expressive” and more direct **conflictual federal dynamics** between the Congress-led Centre and the opposition parties-led state governments.
- **Multi-Party Federalism (1990-2014):**
 - The 1990s saw the coalition period, also known as multi-party federalism, in which national parties were not able to win a majority in parliament. National coalitions maintained influence in the union with the help of regional powers.
 - This period saw a decline in the intensity of Center-state confrontations as well as in the Center’s arbitrary use of **Article 356** to topple state administrations.
 - A 1994 Supreme Court ruling (**SR Bommai v. Union of India case verdict**) that questioned the Center’s arbitrary use of the provision is partly responsible for this.
- **Confrontational Federalism (2014- 2024):**
 - Federalism under the “dominant party” reemerged with the single-party majority in the Lok Sabha elections of 2014. Concurrently, the ruling party solidified its grip on power by taking over several states.
 - This period saw the rise of confrontational federalism, marked by significant disputes between opposition-led states and the center.

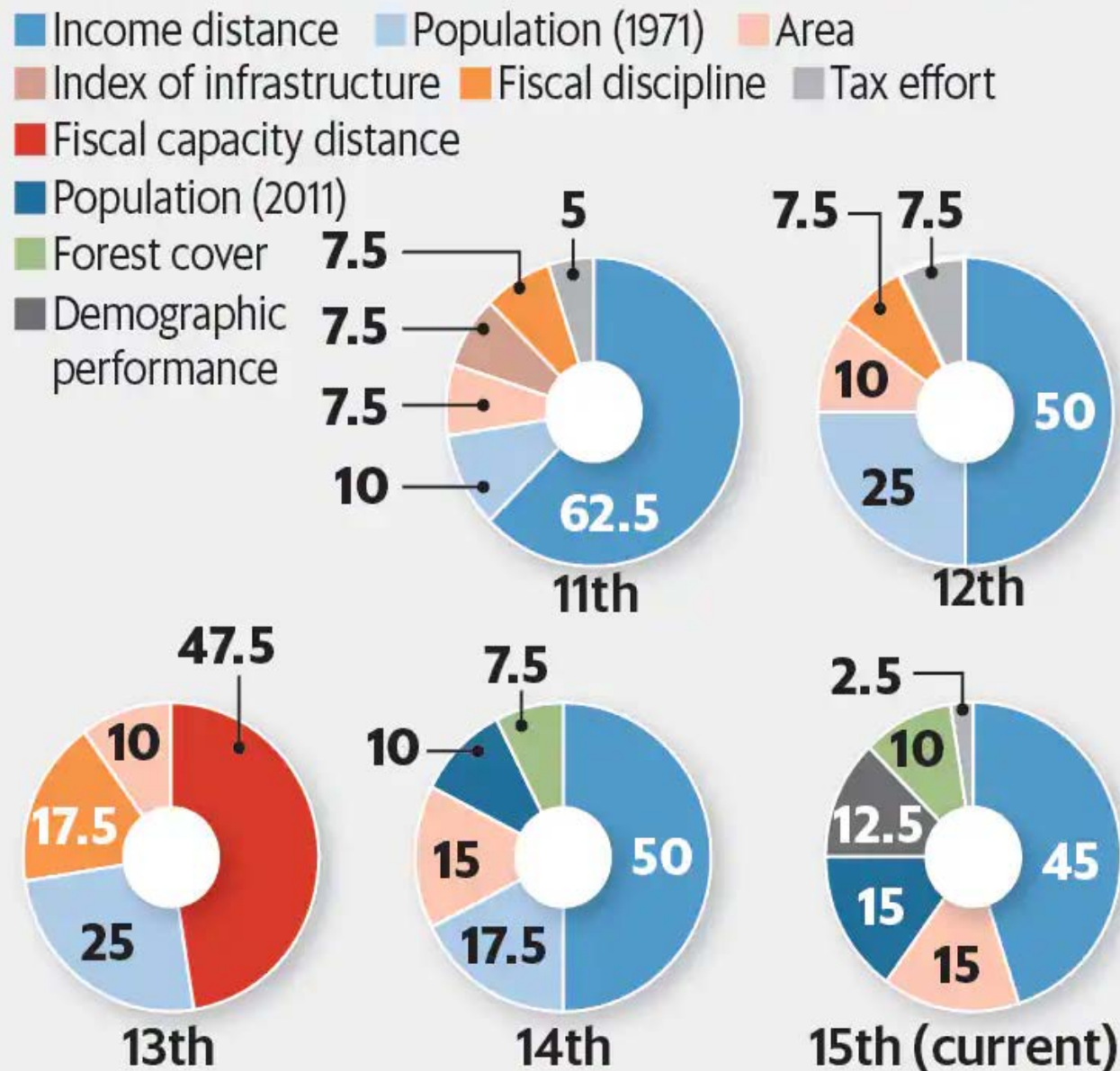
Why is there a Need to Strengthen Federalism in India?

- **Diverse Demographics and Cultures :**
 - **Linguistic Diversity:** India is home to numerous languages and dialects. Strengthening federalism ensures that the linguistic and cultural identities of different regions are preserved and respected.
 - **Cultural Plurality:** Regional autonomy allows for the celebration and preservation of unique cultural practices, festivals, and traditions, fostering a sense of pride and unity within diversity.
- **Avoiding Central Overreach :**
 - **Safeguarding Rights of State:** Federalism is needed to safeguard and enhance the autonomy and rights of the states and other sub-national units in the face of increasing centralization and interference from the Centre or other external forces.
 - **Accommodating Regional Aspirations** A robust federal system can address and accommodate the political aspirations of various regions, reducing the chances of separatist movements and promoting national unity.
- **Empowering Local Bodies:**
 - **Panchayati Raj Institutions:** Strengthening federalism involves empowering local self-governance through **Panchayati Raj institutions**, which play a critical role in grassroots democracy and development.
 - **Women’s Participation:** Enhanced federalism supports initiatives like the reservation of seats for women in local bodies, promoting gender equality and empowering women in rural areas.
- **Fiscal Federalism :**
 - **Fair Revenue Distribution:** Strengthening fiscal federalism ensures a more equitable distribution of financial resources between the Centre and states, enabling better funding for state-specific projects and initiatives.
 - **State Autonomy in Spending:** Allowing states greater control over their finances can lead to more effective and contextually appropriate utilization of funds.

CHART 5

What finance commissions considered to determine what each state receives

Weightage under different finance commissions (in %)



What are the Key Challenges to Federalism in India?

➤ Balancing Centralization and Regionalism:

- India walks a tightrope between central authority for **national unity and state autonomy** for regional needs. Strong central governments can be seen as overstepping, while strong regional movements can threaten national cohesion.
 - South Indian states have distinct Dravidian languages and cultures that are central to their identity. The **imposition of Hindi** as a national language has led to protests, especially in southern states like Tamil Nadu.

- The **abrogation of Article 370** of the Constitution, granting special status to Jammu and Kashmir, in 2019, was done by the central government without consulting the state legislature. This move has been criticized for undermining federal principles.

➤ **Regional Discontent:**

- Regionalism establishes itself through demands for autonomy on the grounds of language and culture. The nation thus faces the challenge of internal security in the form of insurgency and this causes upheavals in the basic notion of Indian federation.

- **The Bodos**, a major tribe in Assam, have a long-standing demand for a separate **Bodoland state**.
- **The Gorkhas**, an ethnic group concentrated in Darjeeling hills of West Bengal, have a long-standing demand for a separate **Gorkhaland state**.

➤ **Disputes in Division of Powers:**

- The Constitution divides powers between the Centre and states (**Union List, State List, Concurrent List**). However, this division can be blurry, leading to conflicts over jurisdiction, especially on issues like agriculture or education in the Concurrent List.
- The **three farm laws** passed by the central government in 2020 were challenged by states like Punjab on the grounds that agriculture is a State List subject. This highlights the ongoing disputes over interpretation of power division.

➤ **Misuse of Governor's Office :**

- The misuse of the **Governor's** office has increasingly become a matter of concern, particularly in matters related to the arbitrary dismissal of state governments, manipulation in government formation, withholding assent to bills, and frequent transfers and appointments, often directed by the central ruling party.
- **In Arunachal Pradesh (2016)**, the Governor's recommendation led to the imposition of President's Rule despite the ruling government having majority support, later quashed by the Supreme Court.

➤ **Misuse of Article 356 :**

- **Article 356**, also known as the President's Rule, is designed to be invoked when a state cannot function constitutionally. It grants the Union

Cabinet power to dismiss democratically elected state governments and dissolve legislative assemblies

- Historically, Article 356 has been used to impose President's Rule over 100 times until 2000, disrupting state autonomy. Although its usage has decreased, its potential misuse remains a concern.

- In 1988 the **Sarkaria Commission** found that at least a third of all Article 356 impositions were politically motivated.

➤ **Fiscal Imbalances:**

- **Unequal Revenue Distribution:** The 15th Finance Commission recommended a higher share of central taxes for states, increasing it from 32% to 41%. However, states often complain that the funds are insufficient and not disbursed timely, leading to fiscal stress.

- Furthermore, the southern states frequently complain about receiving fewer funds despite contributing more in taxes compared to the northern states, attributing this disparity to their lower population.

- **GST Compensation Issues:** States like West Bengal and Kerala have expressed concerns about delayed **GST compensation**, which they argue hampers their financial planning and development activities.

➤ **Asymmetric Representation in Parliament:**

- In **Lok Sabha**, representation is based on population, with larger states having more seats. However, smaller states argue this dilutes their voice in national politics.

- **Example: Uttar Pradesh**, the most populous state, has 80 Lok Sabha seats, while **Sikkim**, the least populous, has only 1.

➤ **Inter-State Disputes:**

- Inter-state disputes in India encompass a range of issues, including water sharing, boundary disagreements, and resource allocation.

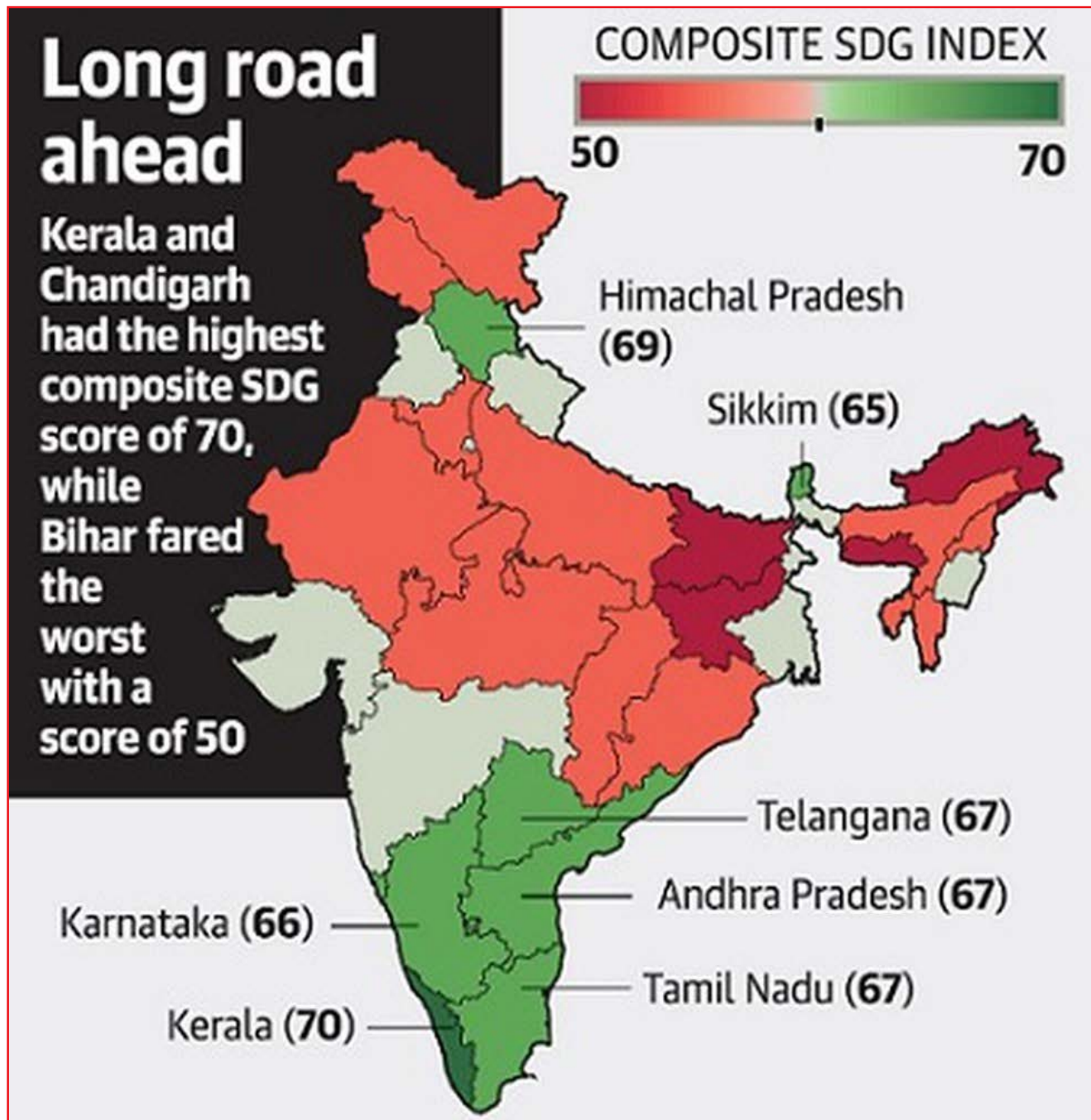
- These disputes, if unresolved, can strain the federal structure by fostering mistrust and hampering cooperative governance.

- Between Tamil Nadu and Karnataka, this longstanding conflict revolves around the sharing of the **Cauvery River waters**. The dispute has seen multiple legal battles, violent protests, and political standoffs.

- Such issues not only hamper governance but also they carry a very high economic cost as well.
 - For example, the States of Maharashtra and Karnataka also have a longstanding Belagavi (Belgaon) border dispute over the administration of Belagavi region.
 - ◆ To fight this case in the Supreme Court, the Karnataka government paid more than 50 lakh rs/day.

➤ **Economic Disparities:**

- **Competition for Investment:** States often compete for foreign direct investment (FDI), which can lead to imbalances.
 - For instance, Maharashtra and Gujarat attract substantial FDI, while northeastern states receive minimal investment, exacerbating regional inequalities.
- **Regional Inequality:** According to the NITI Aayog's SDG India Index 2020-21, states like Kerala and Himachal Pradesh score high on sustainable development goals, whereas Bihar and Jharkhand lag significantly, showcasing stark economic disparities.



What Federal Demands Could Arise with the Return of Coalition Politics in India?

➤ Pending Exercise of Delimitation :

- Several South Indian states, with controlled population growth, are demanding that the pending **delimitation** exercise in India be carried out swiftly.
- Southern states feel that their efforts in implementing effective population control measures should be rewarded through increased or proportionate representation. Delaying the delimitation process seems to penalize these states for their successful initiatives.

➤ Legitimacy of the Redistributive Model :

- Southern states, which generally have more robust economies and contribute significantly to the **national GDP**, feel that the GST model disproportionately benefits less economically developed states.
- They demand a more equitable and balanced approach to GST redistribution that recognizes their higher contributions, addresses revenue shortfalls, and supports their developmental needs.

➤ Demand for Special Category Status :

- Regional parties in the national coalition government from Bihar and Andhra Pradesh see **Special Category Status** as a critical tool to address their unique developmental challenges and to secure additional central support necessary for sustainable growth and development.
- One of the biggest benefits for states classified as a special category earlier was that 90% of funds under centrally sponsored schemes was contributed by the Centre, with only 10% being the state contribution.

➤ Divergence from "**One Nation, One Election**" Vision:

- Some states argue that simultaneous elections undermine the federal structure of India by prioritizing uniformity over the unique political and social contexts of individual states.
- States might lose some of their autonomy in determining their election schedules based on local needs and circumstances.

What Steps Are Necessary to Strengthen India's Federal Framework?

➤ Enhancing Devolution of Powers:

- Federalism can be strengthened by enhancing devolution of powers and resources to states and

local bodies by revising the constitutional lists, increasing the share of states in central taxes, giving more fiscal autonomy and flexibility to states, etc.

- **The Sarkaria Commission (1988)** advocated for greater autonomy for states in areas listed in the State List of the Seventh Schedule of the Constitution.

- Furthermore, A recent World Bank working paper has called for granting **greater authority to Panchayats while strengthening local fiscal capacity** to offset what it identified as "**recentralisation**" resulting from the widespread adoption of online payment systems, MIS-based beneficiary selection, and digital beneficiary tracking.

- "Delegating more authority to Panchayats, rather than stripping them of power, is crucial in ensuring effective local governance.

➤ Ensuring Equitable Development:

- **Resource Sharing Formula:** Develop a transparent and objective formula for distributing central funds to states, considering factors like population, poverty levels, and infrastructure needs.

- **The Raghuram Rajan Committee (2017)** advocated for a formula-based devolution of central funds to states based on objective criteria.

- **Addressing Regional Disparities:** Address regional imbalances and inequalities by providing special assistance and support to backward and disadvantaged regions or groups.

- **The Punchhi Commission** suggested increasing the share of states in central taxes and enhancing their fiscal autonomy.

- **The 15th Finance Commission** recommended allocating more state-specific grants alongside the creation of high-level committees within each state to review and monitor utilisation of state-specific and sector-specific grants.

- The Commission also identified areas like power sector efficiency, adoption of Direct Benefit Transfer (DBT) schemes, and solid waste management for potential performance incentives.

➤ Strengthening Inter-governmental Institutions:

- **Revitalizing the Inter-State Council (ISC):** Make the ISC a more effective forum for resolving inter-state disputes and fostering cooperation on national issues. This could involve giving it more power to evolve common policies.

- On the recommendation of **Sarkaria Commission** the government has established a permanent inter state council but it hasn't fully lived up to the Sarkaria Commission's vision.

- The ISC should meet at least thrice a year as suggested by the TamilNadu CM MK Stalin.
 - ◆ The Council has **met only once in the last 8 years** — and that there has been **no meeting since July 2016**.
 - ◆ Since its inception in 1990, the ISC has met only 11 times.
- **Enhancing Communication and Coordination:** Establish regular channels of communication between the Centre and States to ensure smoother policy implementation and address regional concerns.
 - Punchhi Commission proposed the creation of a superseding structure, the '**National Integration Council**,' for matters related to internal security, enhancing coordination and effectiveness.
- **Fostering Cooperative and Competitive Federalism:**
 - In **cooperative federalism**, the centre and states work together on issues of national importance like national security, disaster management, and economic development. This ensures a unified approach to achieving common goals.
 - For instance, establishing the **GST Council** and approving the **Finance Commission's** suggestion to raise the states' funding share.
 - In **competitive federalism**, states compete for investments and talent by improving infrastructure, public services, and regulatory frameworks. This fosters innovation and better governance practices across the country.
 - **NITI Aayog** acts as a catalyst for a more robust and competitive federal system in India through various indices that rank states on specific parameters such as **School Education Quality Index (SEQI)**, **State Health Index (SHI)**, **Composite Water Management Index (CWMI)**, etc.
- **Respecting Federal Principles and Spirit:**
 - **Minimizing Central Intervention:** The Centre should avoid excessive use of its powers under **Articles 355** and **356** of the Constitution, which allow for imposition of President's rule in states. This ensures greater autonomy for states.
 - **The Sarkaria Commission** suggested **Article 356 (President's Rule)** should be used very sparingly, in extreme cases as a last resort when all the available alternatives fail.
 - **Ensuring Greater Representation and Participation:** Increased participation from state representatives ensures their concerns and priorities are heard at the national level.

- For Example, the appointment of Governor should be more transparent and consultative.
 - **Punchhi Commission** recommends the Chief Minister's involvement in Governor appointments.

Conclusion :

The evolving political landscape, marked by the resurgence of coalition politics and the increasing influence of regional parties, offers a unique opportunity to redefine and strengthen the federal structure. A forward-looking approach to federalism in India will be one that celebrates its diversity, fosters cooperation and builds a harmonious and prosperous future for all its citizens. This is not just a political necessity but a testament to the resilience and unity that defines the Indian Republic.



India's Transition to a Developed Economy

*This editorial is based on "**Developed country ambitions need deep structural reforms**" which was published in Hindustan Times on 13/06/2024. The article brings into picture the ambitious goal of India becoming a developed country by 2047, requiring significant economic growth and structural reforms. It emphasises the need for inclusive growth, focusing on job creation in manufacturing, export expansion, and fiscal discipline*

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

India's impressive **economic growth** has kindled hopes of it attaining **developed country status by 2047**, the centenary year of its independence. However, this aspiration demands an arduous journey of raising the country's per capita income by **more than five times**, from the current **USD 2,600 to USD 10,205**, within the next 25 years. Achieving this ambitious target effectively translates into sustaining a per capita income growth rate of **7.5% annually** and an **aggregate GDP growth rate of 9%** over this period.

Merely accelerating growth is insufficient; inclusivity is equally crucial. The daunting challenges include creating jobs for the **four million individuals entering the workforce annually**. Therefore, India's journey towards becoming a **developed nation** requires a multi-pronged approach. Addressing fiscal and structural challenges, while fostering inclusive growth and a robust export sector, will pave the way for this ambitious goal.

What are the Characteristics of a Developed Country?

- **About:** A developed country refers to a **nation with a mature and advanced economy**, characterized by high levels of industrialization, technological infrastructure, and overall societal well-being.
 - The term “**developed**” is used to distinguish these countries from “**developing**” or “**underdeveloped**” **nations**, which are still in the process of economic and social growth.
 - India, which is the world’s fifth largest economy with a GDP of 3.42 Lakh Crores USD, is currently classified as a **developing nation**.
- **Key Characteristics of Developed Countries:**
 - Economic Factors
 - **High per capita income** (typically above **USD 12,000 to USD 25,000 or more**)
 - Diversified and **advanced industrial and service sectors**
 - Robust infrastructure, including transportation, communication, and utilities
 - Stable and efficient financial markets
 - Social and Human Development Factors
 - High levels of education and **literacy**
 - Access to quality healthcare and social services
 - **Low infant mortality** and high life expectancy rates
 - Robust legal and political institutions, with democratic governance
 - Technological and Innovation
 - Advanced technological infrastructure and capabilities
 - Strong emphasis on research and development (R&D)
 - High levels of innovation and productivity
- **Measurements and Indicators:**
 - **Per Capita Income:** One of the primary indicators used to determine a country’s development status
 - Calculated by dividing the **Gross Domestic Product (GDP)** by the total population
 - **Human Development Index (HDI):** A composite index used by the United Nations to measure a country’s overall well-being
 - Factors include life expectancy, education levels, and standard of living
 - Countries with an **HDI score above 0.8** are generally considered developed
- **Examples of Developed Countries:**
 - According to the **International Monetary Fund (IMF)**, some developed countries include the **United States, Canada, Japan, Australia, New Zealand**.
 - Other examples include **Singapore, South Korea and Hong Kong** in Asia.

What are the Major Growth Drivers Propelling India Towards a Developed Economy?

- **Rise of the Services Sector:** India’s **services sector** is experiencing rapid growth, accounting for over 50% of GDP. This sector offers high-value jobs and attracts foreign investment.
 - **Example:** The **IT and Business Process Outsourcing (BPO)** industries in India have become global leaders, providing services to international clients.
 - This growth in the service sector signifies India’s increasing integration into the global economy.
- **Demographic Dividend:** India has a young and growing population, with a median age of **28.2 years (2023)**. This vast pool of human capital can fuel economic growth if properly skilled and employed.
- **Government Initiatives for Infrastructure Development:** The Indian government is actively investing in infrastructure development projects through initiatives like **The Pradhan Mantri Gati Shakti National Master Plan**.
 - This will enhance efficiency and boost economic activity across sectors.
- **Digital Transformation and Startup Ecosystem:** India is witnessing a digital revolution through **Digital India Initiative** and democratization of **Unified Payment Interface**, with increasing internet penetration (**8% year-on-year basis growth in 2023**).
 - Digital technologies are transforming industries and creating new growth opportunities.
- **Economic Resilience Despite Global Slowdown:** Despite global economic uncertainties, geopolitical tensions such as the **Russia-Ukraine War**, disruptions in supply chains like the **Red Sea and Panama Canal Crisis**, and tightening financial conditions in major economies like the US, India’s domestic demand has shown relative resilience.
 - The **Reserve Bank of India** expects India’s real GDP to grow by **7% in 2024-25**.
- **Innovation and Entrepreneurship:** India is fostering a culture of innovation and entrepreneurship.
 - This is evident in the **growing number of startups** (1,12,718 DPIIT-recognized startups across 763 districts) and research institutions focused on developing new technologies and solutions.
 - This technological prowess can lead to advancements in various sectors and attract global collaborations.

What are the Major Roadblocks to India’s Goal of Developed Economy?

- **Jobless Growth:** While India boasts impressive economic growth of **7.8% in the 2023–24 fiscal year (FY)** it has not translated into sufficient job creation.

- Millions remain trapped in low-productivity agriculture (nearly **15% GDP contribution but employing 44% of the workforce**).
- India needs to create **115 million (11.5 crore) jobs by 2030** to meet its rising workforce.
- **Poverty-Education-Skill Trap:** Poor quality primary and secondary education limits **cognitive development** and reduces the potential benefits of higher education.
 - This creates a workforce less prepared for higher-skilled jobs (**shortage of 150 million skilled workers**).
 - Education system in India despite **National Education Policy** is not adapting quickly enough to changing industry demands.
 - This leads to **graduates lacking the specific skills sought by employers**, further hindering employment opportunities (The **India Skills Report 2021** argues that nearly **half of India's graduates are unemployable**).
- **High Public Debt:** India's public debt stands at **81.9 % of GDP** raising concerns about fiscal sustainability. This high debt burden necessitates **high-interest rates, crowding out private investment** and hindering economic growth.
- **Vast Income Inequality:** India has a high level of income inequality, with a substantial portion of the population living in poverty.
 - In 2022-23, **22.6% of national income went to just the top 1%**. This income disparity hinders inclusive growth and access to basic services for a significant portion of the population.
 - India's HDI score in 2022 was 0.644, placing it at **134th out of 192 countries** ranked by the **United Nations Development Programme (UNDP)**.
- **Rural-Urban Divide and Unbalanced Development:** While India's urban centers have experienced economic growth, **rural areas remain mired in poverty, lack of infrastructure, and limited access to basic services**.
 - Neglecting rural development and failing to bridge this divide could lead to social unrest, **hampering overall progress**.
- **Climate Change Vulnerabilities:** India's rapid industrialization and urbanization have come at the cost of **environmental degradation**, including air and water pollution, deforestation, and biodiversity loss.
 - This not only impacts **public health and quality of life** but also undermines the sustainability of economic growth.
 - The **economic and social costs of climate change could derail India's development trajectory** if adaptation and mitigation measures are not prioritised.

- The **Reserve Bank of India** suggests that up to **4.5% of India's GDP** could be at risk by 2030,
- **Infrastructure Deficit and Financing Challenges:** India's infrastructure gap, particularly in sectors like **transportation, power, and urban infrastructure**, acts as a bottleneck to economic growth and development.
 - India's infrastructure gap is estimated to be around **USD 1.5 trillion (World Bank)**
 - The challenges of land acquisition, environmental clearances, and regulatory hurdles further compound the issue, leading to project delays and cost overruns.

What Measures can India Adopt to Accelerate Progression Towards a Developed Economy?

- **Leveraging Demographic Dividend through Skill Development:** India needs to invest heavily in **vocational education, skill development programs, and apprenticeship** initiatives to create a globally competitive and employable workforce.
 - Collaborating with industry partners to design curricula aligning with market demands and emerging technologies like **AI, robotics, and renewable energy** (India can learn from **Norway Model** in this regard).
- **Balanced Regional Development and Rural Transformation:** Prioritizing investment in rural infrastructure, including **roads, electrification, healthcare facilities, and digital connectivity**, to bridge the rural-urban divide.
 - Incentivizing the **establishment of agro-processing units and manufacturing hubs** in rural areas to create non-farm employment opportunities.
 - Promoting sustainable agriculture practices, **precision farming techniques, and access to institutional credit** and insurance to enhance rural incomes and food security.
- **Preventive and Affordable Healthcare:** Healthy population is the fundamental requirement in the **push towards the country becoming a developed country by 2047**, (Chief Economic Adviser V. Anantha Nageswaran).
 - Increasing public spending on healthcare to at least **2.5% of GDP, as recommended by the National Health Policy 2017**, to strengthen the public healthcare system and **perform better in Human Development Index parameters**.
 - Promoting **preventive healthcare** through awareness campaigns, early detection, and lifestyle interventions to **reduce the burden of non-communicable diseases**.
 - Leverage digital technologies like **telemedicine and e-health initiatives** to improve access to quality healthcare in remote areas and reduce costs.

- **Innovative Infrastructure Financing and Public-Private Partnerships:** Exploring innovative financing models like **asset monetization**, **securitization of infrastructure assets**, and tapping into global capital markets to **bridge the infrastructure deficit**.
 - Promoting **infrastructure investment trusts (InvITs)** and **real estate investment trusts (REITs)** to attract long-term institutional investors and unlock capital for infrastructure projects.
- **Fostering Innovation and Technological Advancement:** Increasing investment in **research and development (R&D)** to at least 2% of GDP, in line with the target set by the **Science, Technology, and Innovation Policy 2020**.
 - Establishing **clean technology parks**, **incubation centres**, and **circular-economy zones** to attract global technology leaders and foster a vibrant innovation ecosystem.
- **Unlocking the Potential of the Blue Economy:** Harnessing India's vast coastline and marine resources through **sustainable maritime activities** like **coastal shipping**, **marine tourism**, **offshore wind energy**, and **deep-sea mining**.
 - Developing world-class **ship repairing infrastructure**, **logistics hubs**, and **coastal economic zones** to boost trade, employment, and economic growth.
 - Promoting marine biotechnology and the **production of value-added marine products** to tap into the growing global demand.
- **Formalising Informals and Startup Hubs Beyond Metros:** Implementing a **portable social security system** that allows informal sector workers to carry their benefits across different jobs, **incentivizing formalisation**.
 - Create a network of well-funded startup hubs in **Tier-2 and Tier-3 cities** to nurture disruptive innovation across diverse sectors beyond major metropolitan areas.
 - **MSMEs**, the **backbone of India's economy** also needs a forward push by better financing and marketing schemes.
- **Green Collar Jobs Revolution:** India can Implement green jobs training programs with industry partnerships to equip the workforce with skills required for **renewable energy sectors**, **waste management**, and **sustainable infrastructure development**.
 - Provide **tax breaks and subsidies to companies** that hire and train workers in green sectors, stimulating green job creation and workforce transition.



Future of India's Gig Work

This editorial is based on "[From Amazon's Haryana warehouse to the delivery boy at your doorstep- tales of oaths and indignity](#)" which was published in The Indian Express on 17/06/2024. The article highlights the harsh conditions gig workers in India face and underscores the broader socio-economic issues that allow such exploitation, calling for better labor rights and protections.

Tag: GS Paper - 3, NITI Aayog, Issues Relating to Development, Government Policies & Interventions

India's booming **gig economy**, powered by the rise of startups like **Zomato** and **Swiggy** has made life more convenient for many. With just a few taps on a smartphone app, essential goods and services can be delivered right to our doorsteps. However, this convenience comes at a significant human cost borne by the **army of "delivery partners"** who form the backbone of this gig workforce. These workers, often earning meager wages of **Rs. 11,000 or less per month**, **face harsh working conditions**, **lack basic rights and protections**, and are **denied the dignity of regular employment**.

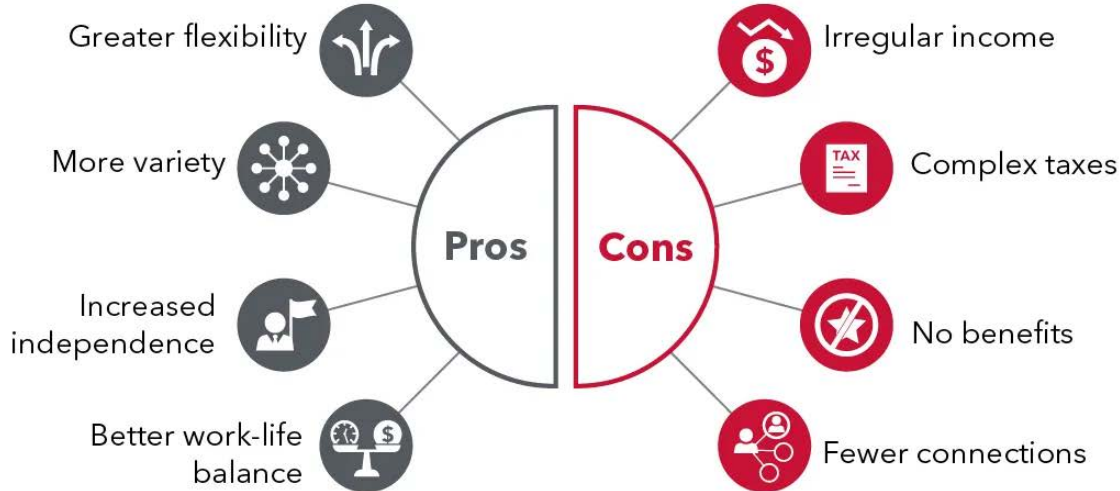
According to the **NITI Aayog report** on India's booming gig and platform economy, the gig workforce is expected to expand to **23.5 million workers by 2029-30**. The gig economy model, celebrated for its **"innovation,"** essentially **undercuts labor costs by classifying workers as "partners"** rather than employees. The wide gap between the purchasing power of these workers and the affluent consumers they serve raises critical questions about the **long-term sustainability of this model**, both **economically and socially**.

What is the Gig Economy?

- **About:** The gig economy is a labor market characterized by **short-term, freelance, or contract-based work arrangements**, often facilitated through online platforms that connect workers with consumers or businesses.
 - It represents a shift away from traditional, permanent employment towards a more **flexible, task-based, and on-demand workforce**.
- **Structure:**
 - **Workers:** Independent contractors, freelancers, or temporary workers who complete specific tasks or projects for a **set fee or hourly rate**.
 - **Businesses/Clients:** Companies or individuals who hire gig workers for specific projects or tasks rather than creating full-time positions.
 - **Platforms:** Often, online platforms act as intermediaries connecting businesses/clients with gig workers.
 - These platforms can handle task distribution, payment processing, and communication. (Examples: Upwork, Uber, Swiggy)

GIG ECONOMY PROS AND CONS

Workers in a gig economy can enjoy a number of advantages, but there also are potential disadvantages. The pros and cons include:



Sources: The Balance, Investopedia, ThoughtCo., TimeCamp

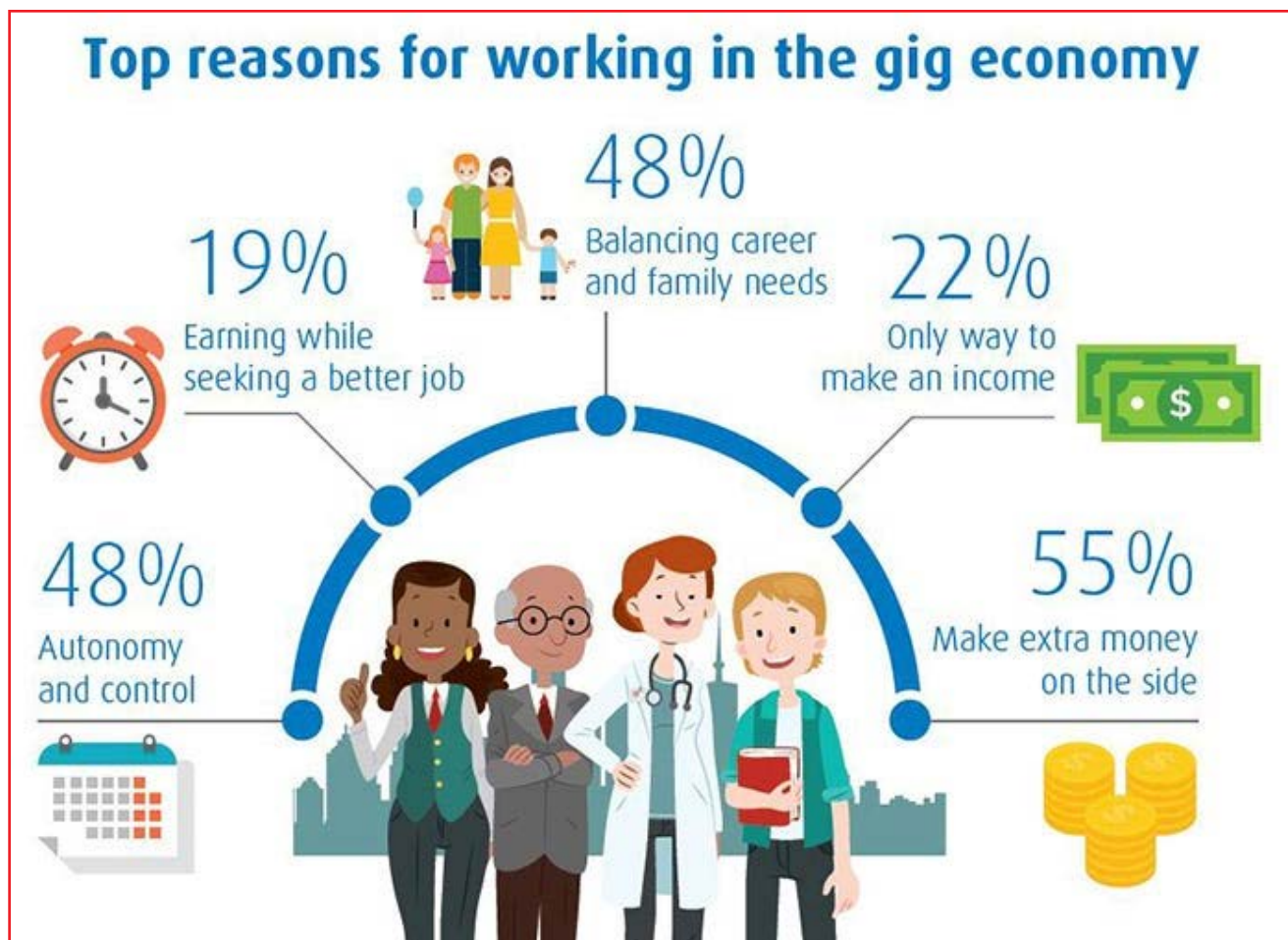
What is the Legislative Framework Related to Gig Workers in India?

- **Legislative Framework:**
 - **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.
 - **Code on Wages, 2019:** This code applies to all sectors, including gig work, and lays the foundation for a national minimum wage. However, the actual minimum wage varies depending on the state and skill level.
- **Policy and Planning**
 - **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.

What are the Factors Driving Growth of the Gig Economy in India?

- **Increased Smartphone and Mobile Penetration:** Smartphone penetration and affordable internet access (with India consuming the highest mobile data per smartphone user in the world) have created a platform for businesses to connect with workers directly.
- **Changing Work Preferences:** Millennials and Gen Z prioritize more work-life balance and flexibility. The gig economy offers them the freedom to choose their projects, set their schedules, and work from anywhere.
 - **Example:** A graphic designer in Delhi can take on freelance projects on Upwork while pursuing her passion for photography. This flexibility would not be possible in a traditional 9-to-5 job.
- **Rise of Startup Culture and E-commerce Growth:** India has experienced a surge in startups and funding, with over 16,000 new tech companies added in 2020.
 - The flourishing startup ecosystem in India relies heavily on contract workers for various tasks like content creation, web development, and marketing.
 - Rising E-commerce companies also require a large, flexible workforce for logistics and delivery.
- **Consumer Demand for Convenience:** Indian consumers, especially in urban areas, are increasingly demanding convenient and quick services like food delivery, e-commerce, etc.
 - This demand has created a market for gig workers to fill roles like delivery executives, cab drivers, etc.

- **Abundance of Low-Cost Labor:** At present, about **47% of the gig work is in medium skilled jobs**, and about **31% in low skilled jobs**.
 - India has a vast pool of **semi-skilled and unskilled labor** willing to take up gig work due to lack of formal employment opportunities.
 - This oversupply of labor allows gig platforms to offer low wages and poor working conditions and in a way drives the platform's growth.



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

- **Lack of Basic Rights and Social Security:** Gig workers are typically classified as independent contractors or “partners” rather than employees. And there is no regulation related to **Gig Work** in India.
 - This **deprives them of basic rights and social security benefits** that regular employees are entitled to, such as **minimum wages, paid leave, healthcare, and pension**.
 - For instance, delivery partners of companies like Zomato and Swiggy **do not receive any benefits or hazard pay**, despite facing harsh working conditions.
- **Precarious Employment and Income Insecurity:** Gig work is inherently precarious and **lacks job security**.
 - 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.
- **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**.
- **Health and Safety Risks:** Gig work often involves physically demanding tasks, such as **delivery or ride-sharing**, **exposing workers to health and safety risks**.

- For instance, in the current scenario, the delivery partners are working during **heat waves** without any hazard pay or support from the companies they serve.
- Additionally, the **10-minute delivery policy** puts the lives of delivery workers at risk.
 - The **lack of insurance coverage** exacerbates the financial burden in case of accidents or injuries.
- **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 Measures can be Adopted to Address Issues Related to Gig Workers in India?

- **Regulatory Reforms and Legal Recognition:** There is a need for comprehensive regulatory reforms that provide legal recognition and a clear definition of gig workers' employment status.
 - This could include amending existing labor codes or introducing new legislation specifically for gig workers, ensuring they are entitled to minimum wages and other labor protections.
 - States can adopt a law similar to **Rajasthan's Platform-Based Gig Workers (Registration and Welfare) Act, 2023** to ensure labour rights, social security, and welfare programmes for platform workers.
 - The Act provides for the constitution of the Rajasthan Platform Based Gig Workers Welfare Board ('Board'), which shall register platform gig workers, aggregators, and primary employers, notify the social security schemes for registered platform-based gig workers, and ensure that workers have access to benefits under the plans.
 - The Act also introduces a social security and welfare fund to benefit registered platform-based gig workers. Employers who violate the provisions of the law may incur heavy penalties.
- **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.

- **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.
- **Social Security Inclusion:** Implementing provisions of the **Code on Social Security, 2020** to provide gig workers with health insurance, accident insurance and pension plans.
 - This could be funded through a combination of platform contributions, government subsidies, and worker deductions.
- **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. Workers should have the right to challenge unfair algorithmic decisions.
- **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.
- **Heat Protection Policies:** Enact specific policies requiring platforms to provide cooling accessories, mandatory breaks, and compensatory pay for delivery workers during extreme heat waves, based on guidelines from labor departments.
 - Considering the heatwave situation, Zomato recently urged its customers to avoid ordering food during peak afternoon unless "absolutely necessary" is a good step in this direction.

■■■

Empowering India's Elderly

This editorial is based on "An ageing India: The magnitude and the multitude" which was published in The Hindu on 18/06/2024. The article discusses the vulnerabilities faced by the ageing population and explores potential solutions for achieving social and financial independence in the later course of life. It highlights the importance of ensuring an active life course and emphasizes the need to focus on preparatory measures for India's ageing population.

Tag: GS Paper - 2, Government Policies & Interventions, Issues Related to Elderly, Human Resource.

The phenomenon of ageing stands out as one of the most significant experiences of this century, marked by remarkable advancements in human longevity alongside historically low levels of reproduction.

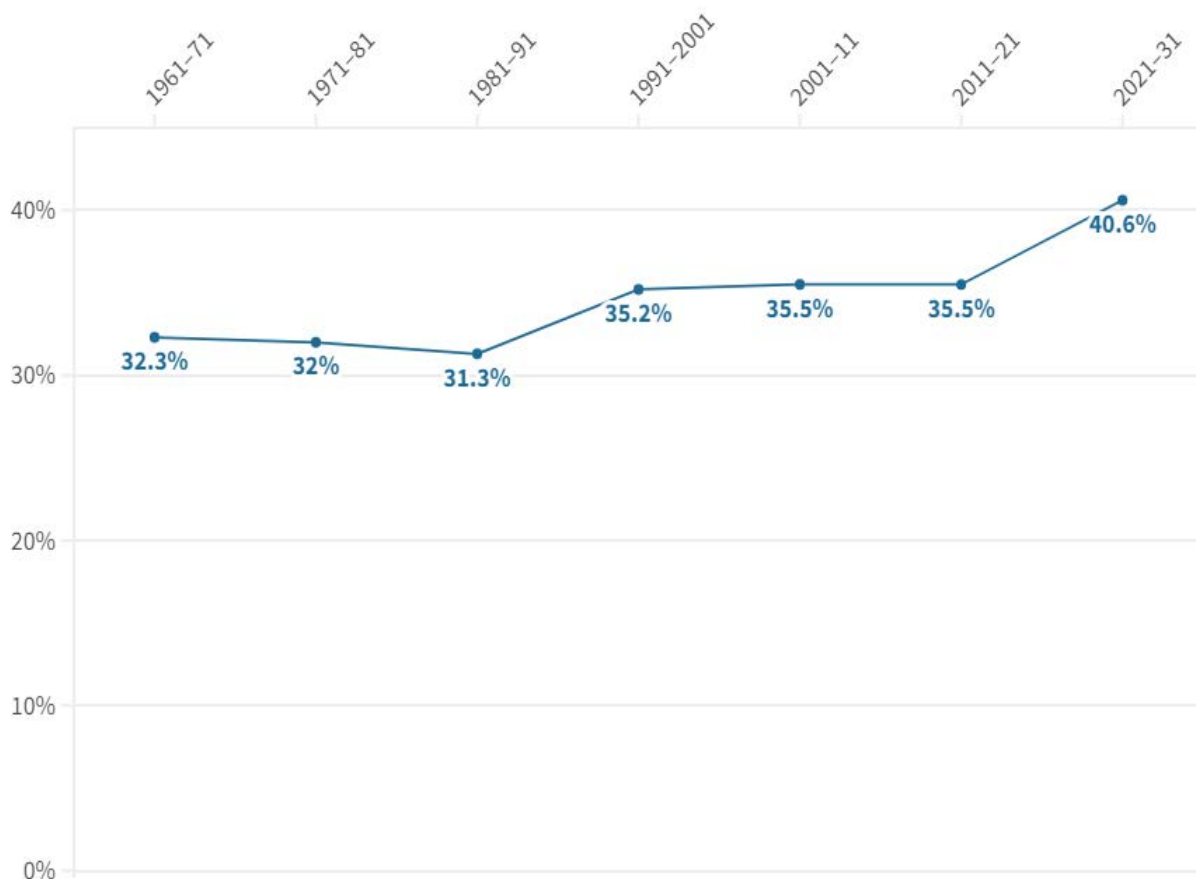
According to Census 2011, India has 104 million older people (60+years), constituting 8.6% of total population. Amongst the elderly (60+), females outnumber males. It is expected that the country will have 193 million elderly persons, constituting about 13% of the total population by 2030. As per UNFPA Report 2023, the percentage of elderly population in the country projected to double to over 20% of total population by 2050.

Although the increasing number of elderly people may seem concerning, it is essential to understand the associated challenges posed by longer lifespans and emerging vulnerabilities for developing effective policies and programs to support an ageing population.

Who Qualifies as Elderly?

- The **WHO** defines those aged 60 -74 years as elderly. In 1980 the UN recommended 60 years as the age of transition for the elderly segment of the population, and has been categorized as follows:
 - **Young Old:** between the ages of 60-75 years.
 - **Old-Old:** between the ages of 75-85 years.
 - **Very Old :** 85 years and above
- **World Population Data Sheet- 2002** considers aged population as population in the age group of 65+ as old.
- In the Indian context, the age of 60 years has been adopted by the census of India for the purpose of classifying a person as old, which coincides with the age of retirement in government sector.

Decadal growth of the elderly population, 1961–2031



Source: India Ageing Report 2023 • The Hindu Graphics

Note: Projections beyond 2011 are based on data drawn from Census of India 2011

What are the Primary Factors Contributing to the Ageing Phenomenon in India?

- **Increased Longevity :**
 - One of the primary drivers of increased longevity in India is the remarkable improvement in healthcare services. Over the past few decades, there have been significant advancements in medical technology, treatments, and preventive care.
 - According to the **World Health Organization**, life expectancy in India has improved by 5.2 years from 62.1 years in 2000 to 67.3 years in 2021.
- **Improved Living Conditions:**
 - Better living conditions, including access to clean water, sanitation, and improved nutrition, have also contributed to longer lifespans.
 - The **Swachh Bharat Abhiyan** has significantly increased sanitation coverage, reducing the prevalence of waterborne diseases.
- **Decreased Fertility Rates :**
 - India has implemented various family planning programs aimed at controlling population growth, which have been successful in reducing fertility rates.
 - As per the fifth round of NFHS conducted during the year 2019-21, the Total Fertility Rate (TFR) has declined to 2.0 children per woman less than the replacement level of fertility, which is 2.1 children per woman
- **Socio-Economic Changes :**
 - Socio-economic changes, such as increased female education and workforce participation, have also played a role in lowering fertility rates and increased
 - Kerala, known for its high literacy rates and advanced healthcare, Kerala has one of the highest life expectancies and lowest fertility rates in India. The state serves as a model for other regions in managing the ageing population.
 - Higher education levels among women correlate with delayed marriages and fewer children. Urbanization leads to smaller family norms, as raising children in urban areas can be more expensive and demanding.

What are the Legal Provisions Related to Elderly Population?

- **Article 41** and **Article 46** are the constitutional provisions for elderly persons. Although **directive principles** are not enforceable under the law, but it creates a positive obligation towards the state while making any law.
- Section 20 of Hindu Marriage and Adoption Act, 1956 makes it obligatory provisions to maintain an aged parents.
- Under Section 125 of **Criminal Procedure Code**, the elder parents can claim maintenance from their children.
- The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, seeks to make it legal for the children or heirs to maintain their parents or senior citizens of the family.

What are the Various Challenges Associated with Elderly Population in India?

- **Restrictions in Activities of Daily Living (ADL) :**
 - About 20% of the elderly experience restrictions in activities of daily living, which include basic self-care activities like bathing, dressing, eating, and mobility.
 - Elderly individuals living alone or without adequate family support often struggle with ADL, leading to a loss of independence and increased need for caregiving services.
- **Multi-Morbidity :**
 - The coexistence of multiple chronic conditions is a common issue among the elderly, impacting their quality of life and increasing healthcare needs.
 - The Longitudinal Ageing Survey of India (LASI) reports that 75% of the elderly population suffer from one or more chronic diseases, such as hypertension, diabetes, arthritis, and cardiovascular diseases.
- **Poverty :**
 - Economic vulnerability is a significant concern for the elderly, particularly those without stable sources of income which affect their quality of life and healthcare utilisation.
 - More than 40% of the elderly in India are in the poorest wealth quintile, with about 18.7% of them living without an income. (India Ageing Report, 2023)

➤ Changing Healthcare Needs:

- In a demographic where the growth rate of elders far exceeds that of the young, the biggest challenge is to provide a range of quality, affordable, and accessible health and care services to the elderly.
- They require an array of specialised medical services at home including tele or home consultations, physiotherapy and rehabilitation services, mental health counselling and treatment, as well as pharmaceutical and diagnostic services.

➤ Social Issues:

- Factors such as familial neglect, low education levels, socio-cultural beliefs and stigma, low trust on institutionalised health-care services etc. exacerbate the situation for the elders.
 - Inequity in access to facilities compounds the problems for the elderly, who are already, physically, financially and at times psychologically restricted in understanding, and availing such facilities. Consequently, most of them live their years in neglect.

➤ 'Inherently gendered':

- One of the emerging issues of population ageing is the "Feminization of Ageing", that is many more women than men reaching older ages.
 - Census of India shows that the sex ratio of the elderly was considerably high (1028) in 1951 and subsequently dropped to about 938 in 1971, but finally increased up to 1033 in 2011.
- "Poverty is inherently gendered in old age when older women are more likely to be widowed, living alone, with no income and with fewer assets of their own, and fully dependent on family for support.

➤ Inadequate Welfare Schemes:

- Despite Ayushman Bharat and public health insurance schemes, a NITI Aayog report indicates that 400 million Indians do not have any financial cover for health expenses.
- Despite the presence of pension schemes at centre and state level, a mere pittance as low as ₹350 to ₹400 a month is provided in some states which too is not universal.

What are the Various Initiatives Taken for the Welfare of Elderly Population?

➤ Initiatives Taken at Global Level:

- Vienna International Plan of Action
- United Nations Principles for Older Persons
- 2021-2030 as the 'Decade of Healthy Ageing'
- The 2030 Agenda for Sustainable Development calls for leaving no one behind and for ensuring that the Sustainable Development Goals (SDGs) are met for all segments of society, at all ages, with a particular focus on the most vulnerable—including older persons.

➤ Initiatives Taken by Indian Government:

- SACRED Portal
- SAGE (Seniorcare Aging Growth Engine)
- Elder Line
- Integrated Programme for Older Persons (IPOP)
- Rashtriya Vayoshri Yojana (RVY)
- Indira Gandhi National Old Age Pension Scheme (IGNOAPS)
- The Pradhan Mantri Vaya Vandana Yojana
- Vayoshreshtha Samman
- Maintenance and Welfare of Parents and Senior Citizens (MWPSC) Act, 2007

What Steps Should be Taken to Empower the Elderly Population in India?

➤ Protection from Destitution:

- The first step towards a dignified life for the elderly is to protect them from destitution and all the deprivations that may come with it. Cash in the form of a pension can help to cope with many health issues and avoid loneliness as well. That is why old-age pensions are a vital part of social security systems around the world.
 - Another critical area would be bringing reforms in the social security pensions. They also need other support and facilities such as health care, disability aids, assistance with daily tasks, recreation opportunities and a good social life.

➤ Emulating the Frontrunners:

- The southern States and India's poorer States such as Odisha and Rajasthan have achieved near-universal social security pensions. Their actions are worth emulating. It would be much easier for all States to do the same if the central government were to revamp the National Social Assistance Programme (NSAP).

➤ Recognising Concerns of Elderly Women:

- The policy should also take cognisance of the fact that women, in India, on average outlive men by three years. The sex ratio of older people is projected to increase to 1060 by 2026. Since women in India are usually younger than their husbands, they often spend their later years as widows.
 - Therefore, the policy should particularly cater to the more vulnerable and dependent older single women so that they can live respectable and independent lives.

➤ Passing Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill, 2019:

- The Ministry of Health and Family Welfare (MoHFW), Ministry of Social Justice and Empowerment (MSJE) and Ministry of Skill Development and Entrepreneurship (MSDE) have a pivotal role to play in the matter. Greater collaboration between them could get the ball rolling on the required reforms.
 - The Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill, 2019, seeks to regulate home-based care for older people. It proposes the registration of institutions providing home care services and prescribing minimum standards for them. However, it has not been passed since being introduced in Parliament in 2019.

➤ Transforming the Perception of the Elderly:

- The perception of the elderly as liabilities can be transformed by innovative institutions and social agencies that empower them and integrate them into productive societal roles.
- By leveraging their experience, skills, and wisdom, society can benefit from the active participation of older adults.
 - The University of the Third Age (U3A) is an international movement that offers lifelong learning opportunities to retired and semi-retired individuals. It encourages continuous education in various subjects, from technology to arts.
 - The Senior Employment Scheme in Singapore helps match elderly job seekers with employers who value their experience and reliability.

➤ Design Senior-Friendly Communities:

- Designing communities that cater to the needs of the elderly can promote independence and social engagement.

- Senior-friendly communities can improve mobility, safety, and social participation for the elderly.
 - Age-friendly cities initiatives, supported by the World Health Organization (WHO), focuses on creating urban environments that are accessible and inclusive for older adults.

Conclusion

Empowering the elderly population in India requires a multi-faceted approach. that includes improving healthcare services, strengthening social security, fostering social inclusion, promoting lifelong learning, enhancing infrastructure, and enacting supportive policies. By addressing these areas, India can ensure that its ageing population leads healthy, active, and fulfilling lives.



Reimagining India's Railway System

This editorial is based on "West Bengal train accident highlights need for a thorough review of misplaced priorities of past two decades in Indian Railways" which was published in The Hindu on 19/06/2024. The article brings into picture the recent rail accident near Siliguri in West Bengal on June 16, where a freight train collided with a passenger train highlighting ongoing safety concerns in the Indian Railways.

Tag: GS Paper - 3, Fiscal Policy, Government Budgeting, Mobilization of Resources, Investment Models, Inclusive Growth

The tragic train accident near Siliguri in West Bengal where a goods train **collided with the Sealdah Kanchanjunga Express** has once again brought the **Indian Railways' (IR) safety issues into sharp focus**. This incident is just the latest in a series of deadly train accidents that have plagued IR over the past decades, with **seven major accidents since 1995** resulting in over 1,600 fatalities.

Despite being a critical mode of transport for a densely populated country like India, Indian Railway has been marred by **frequent policy changes, unrealized plans for network expansion, and a concerning trend of asset failures** leading to accidents.

Addressing this crisis requires a thorough review of **Indian Railways' priorities**, a renewed focus on modernizing its aging infrastructure, and a strategic roadmap to regain its **position as a reliable, efficient, and safe mode of transportation** for both passengers and freight.

What is the Current Organizational Structure of Indian Railways?

- **About:** Indian Railways was established in **1853** and is one of the world's largest railway networks.
 - The first railway on the Indian sub-continent ran over a stretch of **21 miles from Bombay to Thane**.
 - India is projected to account for **40% of the total global share of rail activity** by 2050.
 - Indian Railways crafted the **National Rail Plan (NRP) for India - 2030** to develop a modern railway system.
- **Revenue:** In 2022-23, Railways Indian railways earned **69% of its internal revenue from freight and 24% from passenger traffic**.
 - The remaining 7% was earned from other miscellaneous sources such as parcel service, coaching receipts, and sale of platform tickets.
- **Structure:**
 - **Ministry of Railways:**
 - **Responsibilities:**
 - Formulates overall railway policy and sets strategic direction.
 - Oversees budgetary allocations for the Indian Railways.
 - Approves major railway projects and expansion plans.
 - Provides policy guidance to the Railway Board.
 - In **Budget 2024-25**, capital outlay of **Rs. 2.52 lakh crore (USD 30.3 billion)** has been allocated to the **Ministry of Railways** to make advancements in railways.
 - Government has allowed **100% FDI** in the railway sector.
 - **Railway Board:**
 - **Responsibilities:**
 - Implements policies set by the Ministry of Railways.
 - Oversees day-to-day operations of the Indian Railways.
 - Formulates long-term plans for network development, modernization, and safety improvement.
 - Issues directives and guidelines to zonal railways.
 - **Zonal Railways:**
 - **Number:** 17 (as of June 2024) with a proposed 18th zone (South Coast Railway)

• Structure:

- Zonal Railways further divided into divisions managed by Divisional Railway Managers (DRMs).
- Each division further subdivided into smaller units for specific functions (e.g., workshops, traffic management).

• Responsibilities:

- Each zone is responsible for the efficient and safe operation of its geographical territory.
- Oversees maintenance of tracks, rolling stock, and railway infrastructure within the zone.
- Implements safety regulations and procedures.
- Generates revenue through ticket sales and freight charges.

What are the Major Issues Related to Indian Railways?

- **Accidents and Derailments:** Poor infrastructure maintenance and aging assets have led to **recurring accidents, derailments, and collisions**.
 - The recent **Comptroller and Auditor General (CAG) report** raises serious concerns about a worrying trend of signal failures and rail fractures, major contributors to accidents.
 - The **Balasore Train collision in 2023** serves as a stark reminder.
- **Challenges in Financial Performance:** Indian Railways faces significant challenges with its financial performance, particularly the **stark contrast between its profitable freight segment and its loss-making passenger segment**.
 - A 2023 report from the **CAG** highlighted a **massive loss of Rs. 68,269 crore in passenger services**, which had to be offset by profits from freight traffic.
- **Cripplingly Slow Journeys:** Average speeds of mail and express trains remain at a dismal **50-51 kmph**, falling short of the promised improvements under **"Mission Raftar."**
 - This glacial pace renders rail travel unattractive for **time-sensitive journeys**, especially **when compared to faster road and air options**.
 - The **introduction of "semi-high-speed" Vande Bharat trains** prioritizes plush interiors over substantial speed improvements, **failing to address the core issue of sluggish travel times**.

- **Slow Integration of Emerging Technologies:** The Indian Railways has been relatively slow in adopting and leveraging emerging technologies, **hindering its ability to enhance efficiency, safety, and customer experience.**

- **Example:** Despite its potential to prevent train collisions, the deployment of the **Kavach System** has been slow in India.

- As of now, it has been installed on **only 1,465 km of tracks and 139 locomotives on the South Central Railway.**
- Contracts for an additional 3,000 km have been awarded, but deployment remains pending.

- **Challenges in Public-Private Partnership (PPP) Models:** The Indian Railways has **struggled to effectively leverage PPP models** for infrastructure development, operations, and service delivery, hindering the mobilization of private capital and expertise.

- The introduction of private train operations through the **Bharat Gaurav** has faced **challenges in attracting sufficient private participation** due to concerns over revenue-sharing models, operational autonomy, and regulatory uncertainties.
- Factors such as **complex contractual frameworks, limited risk-sharing mechanisms, and bureaucratic hurdles** have discouraged adequate private sector participation.

- **Ineffective Asset Utilization and Maintenance Strategies:** The Indian Railways has faced challenges in **optimizing the utilization of its vast asset base**, including rolling stock, infrastructure, and land resources, leading to inefficiencies and underutilization.

- **Example:** In April 2023, an **abandoned railway bridge weighing 500 tonne** was stolen from Amiyawar village in Nasriganj in Rohtas district of Bihar.

- In February 2023, **two kilometers of railway track worth crores of rupees** was stolen by scrap dealers in Madhubani district of Bihar allegedly in connivance with **Railway Protection Force (RPF)** personnel.

What Recommendations have various Committees made to Enhance Railway Safety?

- **Kakodkar Committee (2012):**
 - Establishing a statutory **Railway Safety Authority.**
 - Forming a **non-lapsable Rashtriya Rail Sanraksha Kosh (RRSK)** of Rs. 1 lakh crores over 5 years for safety projects.
 - Adopting advanced technologies for track maintenance and inspection.

- Enhancing human resource development and management.
- Ensuring independent accident investigations.

- **Bibek Debroy Committee (2014):**

- Separating the railway budget from the general budget.
- Outsourcing non-core activities.
- Establishing a **Railway Infrastructure Authority of India.**

- **Vinod Rai Committee (2015):**

- Setting up an independent **Railway Safety Authority** with statutory powers.
- Forming a **Railway Accident Investigation Board** for impartial inquiries.
- Establishing a separate **Railway Infrastructure Company** for owning and maintaining railway assets.
- Implementing a performance-linked incentive scheme for railway employees.

- **Rakesh Mohan Committee (2010)**

- Revamp the accounting system to align with Indian GAAP (Generally Accepted Accounting Principles).
- Expand railway presence in FMCG, Consumer Durables, IT, containerized cargo, and automobile segments.
- Focus on long-distance and inter-city transport, speed upgrades, and High-Speed Rail corridors for passenger services.
- Improve connectivity to industry clusters and major ports.
- Develop logistics parks at key network hubs.

What Measures Can Be Taken to Improve the Railway Sector in India?

- **Integrated Multimodal Logistics Solutions:** Developing integrated logistics solutions that **seamlessly combine rail, road, and air transportation modes** for efficient door-to-door movement of goods and passengers.
 - **Establishing logistics parks and multimodal hubs** near major industrial clusters and urban centers to facilitate intermodal connectivity and reduce last-mile inefficiencies.
- **Renewable Energy Integration:** Developing a comprehensive **renewable energy** strategy to transition the Indian Railways towards clean energy sources, such as **solar, wind, and biomass.**
 - Undertaking **large-scale installation of solar panels on station rooftops, vacant land parcels, and along railway tracks** to generate renewable energy for traction and non-traction purposes.

- Exploring the **deployment of battery-electric and hydrogen fuel cell technologies** for rolling stock and auxiliary power units, reducing the Railways' carbon footprint and environmental impact.
- **Intelligent Transportation Systems (ITS):** Implementing advanced ITS solutions, such as **real-time traffic management systems, automated train control systems, and intelligent signaling systems through Kavach**, to optimize network capacity and improve safety.
- India can also learn from **Germany's Deutsche Bahn** renowned for its punctuality and operational efficiency.
- **Value Capture from Land Development:** Leveraging land assets near railway stations for commercial development projects like **malls or office spaces, generating revenue streams beyond ticketing.**
- **Leverage Digital Twins and Predictive Analytics:** Developing **digital twins** of the entire railway network, including infrastructure, rolling stock, and operational systems, to **create virtual replicas for simulation, testing, and optimization.**
- Implementing predictive analytics and machine learning algorithms to **analyze real-time data from sensors, cameras, and other sources** to enable proactive maintenance, optimize asset utilization, and enhance safety.
 - India can learn from **the Netherlands Nederlandse Spoorwegen** in this regard.
- Integrate digital twins and predictive analytics with **decision support systems to enable data-driven decision-making** and proactive risk management.



Towards a Vibrant Rural India

*This editorial is based on "**Rural revival- Rise of discretionary spend, a positive for growth**" which was published in The Hindu Business Line on 19/06/2024. The article highlights the rise in rural demand, as indicated by the Household Consumption Expenditure Survey (HCES) for 2022-23. Key findings show a significant shift in spending patterns, with a decrease in the share of food expenditure and an increase in discretionary spending like conveyance and medical expenses.*

Tag: GS Paper - 2, Government Policies & Interventions, GS Paper - 3, Inclusive Growth, Growth & Development

India's rural economy is showing promising signs of progress and rising incomes according to the latest **Household Consumption Expenditure Survey (HCES) for 2022-23**. One of the most notable findings is that the share of food expenditure in rural households has dipped below 50% of monthly per capita consumption expenditure for the first time. This significant **shift away from just fulfilling basic food needs points to improved financial capacity among rural Indians** to direct spending toward areas like **conveyance, medical expenses, and consumer services**. The narrowing gap between rural and urban consumption patterns further indicates convergence and an enhanced quality of life in the rural hinterlands.

However, despite the encouraging signs, persistent challenges related to **poverty, infrastructure deficiencies, and access to quality healthcare and education** continue to impede rural India's progress, underscoring the need for focused interventions to address these deep-rooted issues.

"The soul of India resides in its villages. When Bharat becomes strong, India becomes strong."

What are the Provisions Related to Rural Development in India?

- **Constitutional Provisions:** **Article 40 of the Directive Principles of State Policy** It mandates the State to organize village panchayats and equip them with the necessary powers to function as self-governing units.
 - The **73rd Constitutional Amendment Act of 1992** established Panchayati Raj Institutions (PRIs) to foster grassroots democracy and drive rural development.
 - The **Eleventh Schedule of the Constitution** assigns 29 functions to PRIs, including **agricultural extension, land improvement, and land reforms.**
- **Governance:**
 - **Central Government:** The **Ministry of Panchayati Raj** at the central level is responsible for formulating policies and overseeing the implementation of Panchayati Raj institutions (PRIs) in India.
 - **State Government:** Each state government has a **Department of Rural Development** that is responsible for planning and implementing rural development programs in the state.
 - **Local Government:** **Panchayati Raj Institutions (PRIs)** are responsible for planning and implementing development programs at the local level.

What have been the Major Drivers of Rural India's Growth Recently?

- **Rising Disposable Income:** The HCES reveals a historic low for the share of food expenditure in rural households (**46%**). This indicates that with basic needs met, there's more money available for discretionary spending.
 - It highlights a **rise in spending on categories like conveyance (7.55%)**, which suggests increased vehicle ownership and potentially **higher rural employment opportunities**.
- **Agricultural Reforms and Technological Advancements:** The implementation of agricultural reforms and the adoption of modern technologies have played a crucial role in boosting rural productivity.
 - For instance, the **promotion of high-yielding seed varieties** and improved irrigation techniques have significantly increased crop yields.
 - The government's initiatives, such as the **Soil Health Card Scheme** and the **Pradhan Mantri Krishi Sinchayee Yojana**, have also contributed to this growth.
- **Rural Infrastructure Development:** Significant investments have been made in developing rural infrastructure, which has facilitated better connectivity, access to markets, and overall economic activities.
 - The **Pradhan Mantri Gram Sadak Yojana (PMGSY)** has played a pivotal role in constructing all-weather rural roads, connecting remote villages to nearby towns and cities.
 - Additionally, the **Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)** has focused on developing rural infrastructure, such as community resource centers and production centers.
- **Promotion of Rural Entrepreneurship and Skill Development:** Initiatives aimed at promoting rural entrepreneurship and skill development have empowered rural communities and provided them with opportunities for income generation.
 - The **Startup Village Entrepreneurship Programme (SVEP)** has also facilitated the establishment of rural startups and enterprises.
- **Financial Inclusion and Access to Credit:** The Indian government has made concerted efforts to promote financial inclusion in rural areas, ensuring access to credit and banking services.
 - The **Pradhan Mantri Jan Dhan Yojana (PMJDY)** has facilitated the opening of millions of bank accounts for the unbanked population, while the

Mudra Yojana has provided affordable credit to small and micro-enterprises, including those in rural areas.

- **Rural Digital Connectivity and E-governance:** The Indian government has made significant strides in bridging the digital divide between urban and rural areas.
 - Initiatives like **BharatNet (previously known as the National Optic Fibre Network)** have aimed to provide high-speed broadband connectivity to gram panchayats, facilitating access to e-governance services, online education, and digital marketplaces for rural communities.
 - The **Common Service Centers (CSCs)** have also played a crucial role in delivering various **government-to-citizen (G2C) services** in rural areas.
- **Promotion of Rural Handicrafts and Artisanal Products:** The Indian government has focused on **promoting and preserving traditional rural handicrafts** and artisanal products through various initiatives.
 - The **Hunar Haat scheme**, for instance, has provided a platform for artisans and craftsmen from rural areas to showcase and sell their products, while the **Geographical Indications (GI) tagging** has helped in protecting and promoting unique regional products.
- **Rural Healthcare and Sanitation Initiatives:** Improvements in rural healthcare and sanitation have contributed to the overall growth and well-being of rural communities.
 - The **Ayushman Bharat Yojana** has provided affordable healthcare access to millions of rural households, while the **Swachh Bharat Mission (Gramin)** has focused on improving sanitation facilities and **promoting open defecation-free (ODF) villages**, leading to better health outcomes and productivity.

What are the Current Major Challenges Related to Rural India?

- **Agricultural Distress and Farmer Indebtedness:** A significant portion of the rural population in India still relies heavily on agriculture for their livelihood.
 - However, factors such as **irregular monsoons, lack of irrigation facilities, inadequate access to credit**, and fluctuating market prices have led to agricultural distress and farmer indebtedness.

- More than **half of India's agricultural households were in debt**, with an average outstanding of Rs 74,121, according to the latest '**Situation Assessment of Agricultural Households and Land Holdings of Households in Rural India, 2019**'.
- **Lack of FFF Issue with Panchayati Raj Insitutions:** The lack of "**Funds, Functions, and Functionaries (FFF)**" has been a longstanding challenge for PRIs, hindering their ability to function effectively and deliver on their mandates.
 - **Insufficient devolution of funds**, lack of clear functional responsibilities, and shortages of trained personnel at the grassroots level have often led to inefficiencies and implementation gaps in rural development programs
- **Inadequate Rural Infrastructure:** Despite efforts to improve rural infrastructure, many villages still lack access to basic amenities like **all-weather roads, reliable electricity supply, and clean drinking water**.
 - In 2023, a parliamentary panel highlighted the "**poor quality**" of numerous roads constructed under the Pradhan Mantri Gram Sadak Yojana.
- **Inadequate Access to Quality Healthcare:** Rural areas often **lack access to quality healthcare facilities**, leading to poor health outcomes and increased vulnerability to diseases.
 - Despite 65% of Indians living rurally, these areas have only 25-30% of hospitals within reach.
 - **National Family Health Survey (NFHS-5) 2019-21** revealed that **only 65% of rural households** had access to an improved sanitation facility
 - The shortage of medical personnel, lack of infrastructure, and limited access to affordable medication are major challenges.
- **Educational Challenges:** Rural areas continue to face challenges in providing quality education, with issues such as **inadequate infrastructure, teacher shortages, high dropout rates, and limited access to digital resources**.
 - According to **ASER Report 2022**, **only 38.5% of class 5 children in government schools** can at least read at Grade II level in rural areas, highlighting the learning gaps.
- **Gender Gap in Land Ownership:** In many rural areas, cultural norms and legal hurdles prevent women from inheriting or owning land.
 - This **disenfranchises them economically** and limits their participation in agricultural decision-making, hindering the overall productivity of farms.

- **Feminization of Agriculture:** With increasing **male migration from rural areas to urban centers** in search of employment opportunities, there has been a growing trend of the "feminization of agriculture."
 - Women are taking on a larger role in **agricultural activities, often managing farms and agricultural operations** single-handedly.

What Measures can be Adopted to Accelerate the Growth of Rural India?

- **Promoting Rural Industrialization and Non-Farm Employment:** Establishing **rural industrial parks and clusters** focused on **agro-processing, handicrafts, and cottage industries**, leveraging local resources and skills.
 - Incentivize the establishment of **micro, small, and medium enterprises (MSMEs)** in rural areas through tax benefits, subsidies, and access to credit.
 - Developing **skill development programs tailored to rural youth**, equipping them with vocational and entrepreneurial skills aligned with local market demands.
- **Leveraging Emerging Technologies and Digital Transformation:** Expand rural broadband connectivity through innovative solutions like **low-earth orbit (LEO) satellite networks** and community-driven initiatives.
 - Promoting digital literacy through **Tech Mitras in Panchayats** to enable rural communities to leverage digital technologies for education, healthcare, and entrepreneurship.
- **Enhancing Rural Healthcare and Preventive Care:** Implementing a **hub-and-spoke model for rural healthcare**, with primary healthcare centers connected to larger district hospitals through telemedicine and e-healthcare systems.
 - Promoting the **use of mobile medical units and community health workers** to provide preventive care, health education, and early detection of diseases in remote areas.
 - Encouraging the **establishment of rural healthcare startups** and social enterprises focused on affordable and innovative healthcare solutions.
- **Promoting Sustainable Agriculture and Climate-Smart Practices:** Incentivizing the adoption of precision agriculture technologies, such as **remote sensing, soil mapping, and data-driven decision support systems**.

- Promoting **agroforestry**, integrated farming systems, and the use of renewable energy sources in agriculture to enhance sustainability and resilience.
- **Women-led Farmer Producer Organizations (FPOs):** Encouraging the formation of FPOs led by women farmers.
 - These organizations can **provide women with greater access to credit, inputs, and market linkages**, empowering them to participate more actively in agricultural decision-making and benefit from higher profits.
- **Developing Rural Tourism and Cultural Heritage Preservation:** Identifying and **developing rural tourism circuits** highlighting local cultural heritage, traditions, and natural attractions.
 - Promoting **Pluck-Cook-Eat Restaurant Facilities** in rural areas, where local communities are empowered and benefited from tourism activities.
- **Strengthening Rural Governance and Decentralization:** Empowering **panchayati raj institutions** by providing adequate financial resources, capacity-building, and decision-making authority.
 - Encouraging **participatory rural governance** through the involvement of local communities, self-help groups, and non-governmental organizations in planning and implementation processes.
 - Leveraging technology for transparent and accountable rural governance, such as **e-panchayats**.
- **Promoting Rural-Urban Synergies and Regional Development:** Developing regional development plans that **integrate rural and urban areas**, fostering economic linkages and **symbiotic growth**.
 - Promoting the **development of smart villages and urban clusters**, combining urban amenities with rural settings.
 - Encourage public-private partnerships and **corporate social responsibility initiatives** focused on rural development and infrastructure projects.
- **Promotion of Rural Bioeconomy:** Encouraging the establishment of **decentralized biorefineries** and **waste-to-value chains in rural areas**, utilizing agricultural residues and waste for the **production of biofuels, biochemicals, and bioproducts**.



India's Electric Vehicle Journey

*This editorial is based on “**Should not EVs and Hybrids be treated equally for government subsidies?**” which was published in The Hindu on 21/06/2024. The article brings into picture the importance of focusing on technologies like strong hybrids and electric vehicles that offer greater emissions reductions. It highlights the need for evolving policies that balance lifecycle emissions, total cost of ownership complying with India's broader climate and energy security goals*

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

The debate over **electric vehicles (EVs)** in India is complex, involving considerations of **emissions, cost, and policy**. While EVs are often touted as zero-emission vehicles, experts point out that in India, where 75% of electricity comes from coal, the **lifecycle emissions of EVs may actually be higher than those of internal combustion engine (ICE) vehicles** or hybrids in some cases.

Some argue that **hybrid vehicles**, with their smaller battery packs and improved fuel efficiency, may currently offer a better balance of emissions reduction and cost-effectiveness in the Indian context. The debate also touches on the role of **government subsidies and policies** in shaping the automotive market.

Looking ahead, the future of EVs in India appears promising, with **increasing adoption in two-wheeler and three-wheeler segments**, ongoing improvements in battery technology, and the government's push for cleaner transportation.

What are Electric Vehicles?

- **About:** Electric vehicles are a type of vehicle that use one or more electric motors for propulsion, instead of a **traditional internal combustion engine (ICE)** that burns gasoline or diesel.
 - Though the concept of electric vehicles has been around for a long time, it has drawn a considerable amount of interest in the past decade amid a **rising carbon footprint and other environmental impacts of fuel-based vehicles**.
- **Types of Electric Vehicles:**
 - **Battery Electric Vehicles (BEVs):** Solely rely on battery power for propulsion and produce zero tailpipe emissions.

- **Plug-in Hybrid Electric Vehicles (PHEVs):** Combine an electric motor with a gasoline engine. They can be charged externally and run on battery power for a limited range, then switch to the gasoline engine for longer journeys.
- **Hybrid Electric Vehicles (HEVs):** Use both an electric motor and a gasoline engine, but the battery cannot be charged directly by plugging in.
 - The battery is charged by the gasoline engine or through regenerative braking.
- **Benefits of EVs:**
 - **Reduced Emissions:** Produce zero tailpipe emissions, contributing to cleaner air and improved public health.
 - **Lower Operating Costs:** Electricity can be cheaper than gasoline, leading to lower fuel costs per kilometer.
 - **Quieter Operation:** Electric motors generate significantly less noise compared to gasoline engines.
 - **Improved Efficiency:** Electric motors convert a higher percentage of energy into usable power compared to gasoline engines.
- **EV Policies in India:**
 - **2010:** India incentivizes EVs through a Rs 95-crore scheme by the Ministry of New and Renewable Energy (MNRE), offering up to **20% incentives on ex-factory prices**. Withdrawn in March 2012.
 - **2013:** Launch of '**National Electric Mobility Mission Plan (NEMMP) 2020**' to boost EV adoption, address energy security, and reduce vehicular pollution. Largely remained unimplemented.
 - **2015:** Union Budget announces **FAME scheme** with a Rs 75 crore outlay to incentivize clean-fuel technology cars, **targeting 7 million EVs by 2020**.
 - **2017:** Indian Transport Ministry aims for **100% electric cars by 2030**. Plan scaled down to **30% after industry concerns**.
 - **2019:** Union Cabinet approves **Rs 10,000-crore FAME-II scheme** to accelerate EV adoption with upfront purchase incentives and charging infrastructure.
 - **2023:** The 36th GST Council Meeting decided to **reduce the GST rate on electric vehicles from 12% to 5%** and chargers or charge stations from **18% to 5%** to boost the electric vehicle market.
 - **2024:** Centre has recently proposed a **New Electric Vehicle Policy** that is currently under consultation.

What are the Environmental Benefits of EV Adoption?

- **Reducing Air Pollution:** In India, vehicular traffic is responsible for 27% of total air pollution and causes 1.2 million deaths annually. The adoption of electric vehicles (EVs) in India will thus significantly mitigate the negative environmental impacts associated with Internal Combustion Engine (ICE) vehicles.
- **Reducing Noise Pollution:** Noise pollution is a significant issue in India, exacerbated by rapid urbanization and increased vehicle use. According to a 2022 UNEP report, five Indian cities are among the world's noisiest. While the report cites various sources, EVs can help lower noise levels since they lack the mechanical valves, gears, and fans found in ICE vehicles.
- **Improving Operational Efficiency:** In terms of fuel efficiency, petrol or diesel cars convert only 17 to 21% of stored energy, whereas EVs can convert 60% of electrical energy from the grid. This transition to electric vehicles in India will enhance the efficiency of fuel usage and optimization, reducing operational costs for end-users and increasing the demand for EVs.

What are the Major Challenges Related to Electric Vehicle Adoption in India?

- **High Cost of EVs:** Compared to an internal combustion engine (ICE) car, a similar electric car can be significantly more expensive.
 - For instance, a **Tata Nexon starts at around Rs 8.10 lakh**, while the Nexon EV starts at **Rs 14.74 lakh**.
 - This high upfront cost is a major deterrent for many potential EV buyers, particularly in a price-sensitive market like India. Government subsidies can help bridge the gap, but their effectiveness can be limited.
- **Limited Charging Infrastructure:** India's charging infrastructure for EVs is still in its early stages of development.
 - While the number of charging stations is increasing, **they are concentrated mainly in major cities**.
 - This lack of widespread charging facilities creates **"range anxiety" for potential EV owners**, who fear running out of power before finding a charging station.

- **Lack of Robust Local Battery Manufacturing Ecosystem:** India heavily relies on imported **Lithium-ion batteries**, a crucial and expensive EV component
 - India imports them from **China, Japan, and South Korea**. In 2022, it imported 617 million units of lithium-ion batteries for **USD 1.8 billion**.
- **Grid Dependence and Emissions:** India's electricity grid **heavily relies on coal-fired power plants**.
 - While EVs produce **zero tailpipe emissions**, charging them with electricity generated from fossil fuels contributes to overall emissions.
 - The environmental benefit of EVs depends on the **cleanliness of the electricity** grid. Until India significantly increases its renewable energy capacity, **the true environmental benefit of EVs might be limited**.
- **Skill Gap in EV Maintenance:** EVs require a different skill set for maintenance and repair compared to traditional ICE vehicles.
 - The **current Indian automotive workforce** is not adequately equipped to handle the complexities of EV technology.
- **Apprehensions on Adaptation for Indian conditions:** India's extreme temperatures, in summers often exceeding 40°C in many regions, can significantly **impact the performance of electric vehicles**.
 - Studies have shown that **EV range can decrease by up to 17%** in temperatures above 35°C.
- **Recycling and Sustainability Concerns:** Lithium-ion batteries used in EVs require proper disposal or recycling due to the presence of rare earth elements and other potentially hazardous materials.
 - India currently **lacks a robust system for EV battery recycling**. Improper battery disposal can pose environmental risks.
- **Range Anxiety:** It refers to the fear or uncertainty of running out of battery charge while driving. Many consumers worry about the limited range of EVs and the potential inconvenience of finding charging stations for long journeys.
 - Although the range of EVs has been improving, it remains a concern for consumers, especially in a country with vast distances like India and continuously improved Highway Infrastructure.
- As battery technology improves, **lessees can upgrade to newer models at reduced costs**.
- At the end of the lease term, users can buy out the battery or **return it for recycling**.
- This could reduce initial EV costs by up to 40%, making them more competitive with ICE vehicles.
- **Invest in Battery Technology:** Current batteries are small and have low voltage capacities, limiting their ability to enhance EV propulsion and extend travel distances.
 - To tackle this issue, private companies need to innovate by developing batteries made of lightweight materials with higher energy density, and capable of being charged using renewable sources.
 - The Government is also promoting the manufacturing of batteries in India with the National Mission for Transformative Mobility and Battery Storage, 2019.
 - Such schemes should be leveraged to promote technological enhancement in the battery segment.
- **Increase Charger Density:** According to the Confederation of Indian Industry (CII), India needs over 1.3 million chargers by 2030. To encourage EV adoption, we must significantly increase the number of charging stations.
 - **Charge as You Park:** Transforming parking meters in urban areas **into EV charging points**. This leverages existing infrastructure and creates a vast network of charging options without significant additional investment.
 - **Standardization:** The government, in collaboration with EV ecosystem players and auto OEMs, should prioritize establishing standardization protocols, ensuring interoperability, and promoting the development of fast-charging technologies.
- **EV Rural Entrepreneurs" Program:** Enabling rural individuals to set up and operate small-scale EV charging stations from their village or small businesses.
 - Provide micro-loans and technical support for setting up standardized charging points.
 - Implementing a **mobile app for users to locate and book these charging points**.
 - Operators can earn income from charging fees, creating new economic opportunities.
- **Highway Battery Swap Corridors:** Establishing a network of standardized battery swap stations along major highway routes.
 - **Partnering with dhaba owners to host these stations**, providing them additional income.
 - Creating an **online reservation system for swap slots** to minimize wait times during peak travel.

What Measures can be Adopted to Accelerate EV Adoption in India?

- **"Battery Lease-to-Own" Program:** Implementing a government-backed scheme where EV buyers only purchase the **vehicle chassis**, **leasing the battery long-term**.

- **Equal Subsidies to EVs and Hybrids:** The government should consider treating **EVs and hybrids equally for subsidies**, as both technologies offer significant environmental benefits.
 - Policies should be dynamic and adapt to the evolving landscape, focusing on **lifecycle emissions and total cost of ownership**.
 - This approach ensures efficient use of resources and supports India's transition to a **greener transport system** while meeting climate and energy security goals.
- **Second-Life Battery Bazaar:** Creating a vibrant "Second-Life Battery Bazaar." This online or physical marketplace connects individuals and businesses with used batteries suitable for **repurposing in low-powered applications like rickshaws, solar storage, or even powering village microgrids**.
 - Investing in research and development of **innovative "urban mining" techniques**. These techniques can extract valuable **lithium, cobalt, and nickel from electronic waste**, including old batteries, phones, and laptops.
 - It will reduce electronic waste, create new economic opportunities, and promote a **circular EV ecosystem**.

What Can India Learn from Other Countries' Success?

- **Europe (EU, EFTA, UK):**
 - **Financial Incentives:** These countries successfully increased EV adoption through tax reductions and exemptions. India's similar policies hold promise, potentially accelerating EV penetration within the next few years.
 - **Key Takeaway for India:** Continued support through financial incentives can significantly boost EV adoption.
- **China:**
 - **Government Support & Domestic Competition:** China's dominance in the EV market stems from a potent combination. Generous government support fueled innovation, while intense domestic competition drove down prices, making EVs more accessible.
 - **Lessons for India:** While India offers government support, its domestic EV market lacks the same level of competition. Encouraging competition and continued government support can lead to a thriving Indian EV industry.

➤ The US:

- **Government Investments & Private Innovation:** The US EV market is substantial, thanks to government investments, supportive policies, and leading players like Tesla and GM driving innovation. However, recent sales declines highlight the need for careful policy design.
- Lessons for India:
 - **Innovation & Technical Expertise:** India needs to accelerate innovation by fostering educational centers of excellence. Learning from the US experience, government funding for EVs should be strategically phased out over time, considering economic factors.

■■■

India's Path to Protecting Refugees

This editorial is based on "[Blueprints Beyond Borders, for Solace and Shelter](#)" which was published in The Hindu on 20/06/2024. The article emphasises that the problems faced by refugees require international cooperation and that India needs to uphold its image of serving "the still larger cause of humanity".

Tag: GS Paper- 2, Effect of Policies and Politics of Countries on India's Interest, International Treaties & Agreements.

World Refugee Day, observed on **June 20**, is a poignant reminder of the humanity behind these numbers. The world is home to **over 43.4 million refugees**, a number that continues to climb as conflicts persist globally.

In this scenario, India's approach to refugees has been shaped by its **historical experiences**, **humanitarian considerations**, and **diplomatic relations** with neighbouring countries. Since gaining independence in 1947, India has witnessed several waves of **forced migration** from its neighbouring nations, prompting the country to adopt a complex and evolving refugee policy.

India's refugee policy has been largely shaped by **ad hoc responses to specific crises**, rather than a comprehensive national legislation or framework. The country has relied on a combination of **administrative policies, judicial pronouncements, and constitutional provisions** to address the needs of various refugee groups.

Addressing this crisis requires a comprehensive review of **India's refugee policy** and a renewed focus on a **strategic roadmap** to become an efficient country in managing the refugee crisis.

What is Considered a Refugee Crisis In India?

➤ **About:**

- Refugees are individuals who have **fled their home countries** due to severe threats to their life, **physical safety, or freedom, requiring international protection**.
- These threats can stem from **persecution, armed conflict, violence**, or significant public unrest in their country of origin.

➤ **Causes of India's Refugee Crisis:**

- **Not A Signatory to 1951 Refugee Convention:** In India, the term **refugees is not legally defined**, as the country is not a signatory to the **1951 Refugee Convention** or its **1967 Protocol**.
 - Since India has not adopted the international definitions and standards outlined in the Refugee Convention, there is **no specific legal framework or definition** of refugees under Indian law.
 - This absence makes it difficult to distinguish between **economic migrants and genuine refugees** seeking asylum.
- **Political Instability and Conflicts in Neighboring Countries:** India shares borders with several countries that have experienced **political turmoil, civil wars**, and ethnic conflicts, leading to mass displacement of people.
 - For example, **the partition of India in 1947, the Bangladesh liberation war in 1971, the Sri Lankan civil war from 1983 to 2009, and the ongoing Rohingya crisis in Myanmar** have resulted in a significant influx of refugees into India.
- **Ethnic, Religious Persecution and Humanitarian Considerations:** India's commitment to humanitarian principles and its tradition of providing asylum to those fleeing persecution and conflict have also been a factor in accommodating refugees.
 - For instance, **Tibetan Buddhists sought refuge in India after the Chinese occupation of Tibet in 1959**.
- **Natural Disasters and Environmental Factors:** Natural calamities like floods, earthquakes, and cyclones have also contributed to the displacement of people, leading them to seek refuge in India.

- **In 2015, Nepal** was struck by a devastating earthquake, forcing thousands of Nepalese to flee across the open border into India for safety and assistance. Many sought refuge in Indian states like Bihar and Uttar Pradesh.

- **Porous Borders and Lack of Comprehensive Refugee Policy:** India's long and porous borders with neighbouring countries, coupled with the lack of a comprehensive refugee policy, have made it challenging to effectively manage and regulate the influx of refugees.
- Over the years, economic migrants and refugees fleeing persecution in Bangladesh have crossed into India's northeastern states like **Assam and West Bengal**.

What is India's History of Granting Asylum to Refugees?

- **Jews Refugees:** From ancient times **when Jews found refuge in India** after the destruction of their Herod's Temple (Jerusalem).
 - This temple was destroyed by the **Romans in 70 CE** during the First Jewish-Roman War marking a significant dispersion of Jews from their homeland, leading many to seek refuge in various parts of the world, including India.
- **Tibetan Refugees:** In **1959**, India opened its doors to **Tibetan refugees** fleeing the **Chinese occupation** of Tibet, granting them asylum and establishing settlements for their rehabilitation.
- **Partition Refugees:** Having witnessed one of the **largest refugee crises during the partition in 1947**, India accommodated millions of refugees from the newly formed state of Pakistan.
- **Chakma and Hajong Refugees:** In the **early 1960s**, India accepted the **Chakma and Hajong communities**, who had been displaced from their ancestral homes in the **Chittagong Hill Tracts** region of **present-day Bangladesh**.
- **Refugees from East Pakistan (now Bangladesh):** In the wake of the **Bangladesh Liberation War in 1971**, India hosted a significant influx of Bangladeshi refugees, providing them with shelter and aid during their time of crisis.
- **Sri Lankan Tamil Refugees:** Since the 1980s, India has served as a refuge for **Sri Lankan Tamils**, escaping the civil war and ethnic violence in Sri Lanka.
- **Rohingya Refugees:** In recent years, India has faced the challenge of accommodating **Rohingya refugees**, a persecuted Muslim minority group who have fled widespread violence and human rights abuses in Myanmar's Rakhine State, seeking safety within its borders.

Statistical Data of Refugees



108.4 M (Approx.)

Forcibly displaced people worldwide



Syria

Originates maximum **6.8 M** refugees



Türkiye (Turkey)

Hosts maximum **3.6 M** refugees

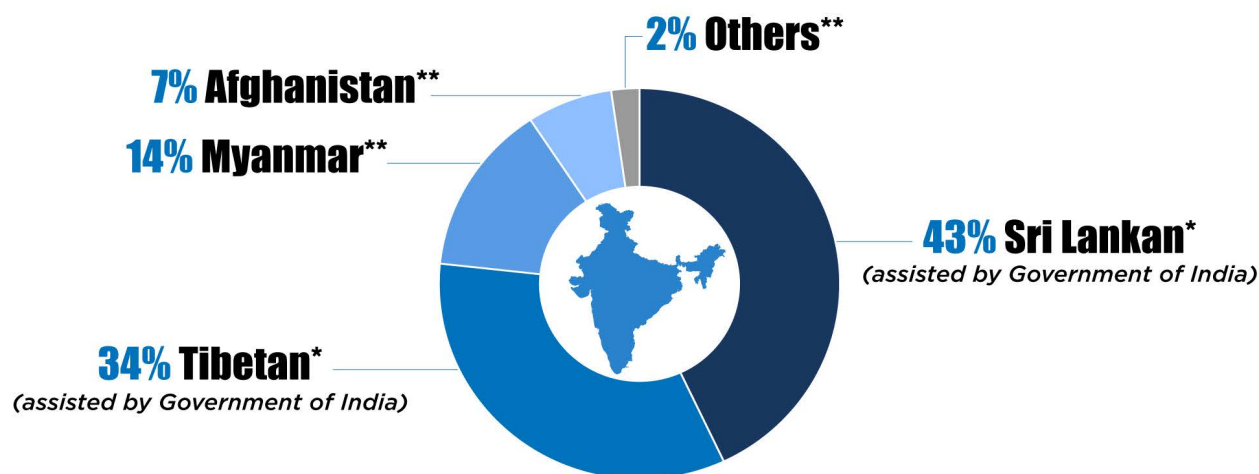


40% (Approx.)

Children below **18** years of age



India hosts approx. 2.5 Lakh Refugees and Asylum-Seekers



*Refugees registered by the Government of India | Source- <https://www.unhcr.org/in/>

** Refugees and Asylum-Seekers registered with UNHCR India (as of 31 March 2023)

Why has India not Signed the 1951 Refugee Convention?

- **Definition of Refugee is Discriminatory:**
 - **The 1951 Convention** defines refugees as individuals who have been deprived of their civil and political rights, but not their economic rights.
 - India believes that this definition is **too narrow**, as it excludes those who have fled their countries due to **economic deprivation** or lack of livelihood opportunities.
 - Including violation of economic rights in the definition of a refugee could potentially place a significant burden on developed nations, which India may not be prepared to undertake.
- **Eurocentrism:**
 - India perceives the **1951 Refugee Convention** as being largely **Eurocentric** focusing primarily on the concerns and situations prevalent in Europe at the time of its drafting.
 - The convention does not adequately address the specific challenges and contexts faced by south asian countries like India when it comes to refugee influxes and cross-border movements.
- **Sovereignty and National Security Concerns:**
 - By signing the convention, India fears that it **may compromise its sovereignty and ability to regulate the entry and stay** of foreign nationals within its territory.

- Some concerns acceding to the convention could potentially affect India's **domestic laws and policies** related to national security and border control.
- **Lack of Resources and Infrastructure:**
 - India has cited its **limited resources and inadequate infrastructure** as reasons for not signing the convention, as it may struggle to provide the required level of assistance and protection to a large influx of refugees.
- **Concerns Over Potential Misuse:**
 - There are apprehensions that the provisions of the convention could be misused by economic migrants or **individuals with ulterior motives**, posing potential security risks.
 - There have been allegations of some **Rohingya individuals** having links to extremist organisations, during the Sri Lankan civil war, there were concerns that **some LTTE (Liberation Tigers of Tamil Eelam)** members might have entered India posing as refugees.

What is the Legal Framework Related to Refugees In India?

- **Citizenship Act, 1955:** This act provides provisions for **renunciation, termination, and deprivation** of Indian citizenship. And **Citizenship Amendment Act, 2019 (CAA)** is considered a controversial amendment to the Citizenship Act.
 - The **CAA** seeks to provide a pathway to citizenship for persecuted Hindu, Christian, Jain, Parsi, Sikh, and Buddhist immigrants from Bangladesh, Pakistan, and Afghanistan. However, Muslim immigrants from these two countries have been excluded.
- **Registration of Foreigners Act of 1939:** This act mandates that **all foreign nationals** (excluding Overseas Citizens of India) visiting India on a **long-term visa** (more than 180 days) must register themselves with a Registration Officer within **14 days** of arriving in the country.
- **Foreigners Act of 1946:** This act empowers the Central government, under **Section 3, to detect, detain, and deport** illegal foreign nationals present in the country.
- **Passport (Entry into India) Act, 1920: Section 5** of this act allows authorities to forcibly remove illegal foreigners from India, in accordance with **Article 258(1)** of the Constitution of India.
 - **Article 258(1)** states that notwithstanding anything in this Constitution, the president may, with the consent of the Governor of a State, entrust either conditionally or unconditionally to that Government or its officers function in relation to any matter to which the executive power of the Union extends.

What Should be the Future Strategy to Tackle the Refugee Crisis In India?

- **Upholding Non-refoulement:**
 - Non-refoulement is a **fundamental principle** of international refugee law that **prohibits states from returning asylum seekers** to a country where they would face persecution and torture.
 - While India is not a signatory to the UN Refugee Convention, it has historically **respected the principle of non-refoulement**. This principle needs to be upheld beyond borders.
 - **Enhanced Diplomatic Engagement and International Cooperation:**
 - **India's Operation Insaniyat**, providing aid to improve conditions for Rohingya in Bangladesh's **Cox's Bazar**, exemplifies this approach.
 - India has announced a development **assistance of \$25 million for Myanmar's Rakhine State**, from where thousands of Rohingya Muslims fled following incidents of violence against the community.
 - For example, India could expand its cooperation with the **UN High Commissioner for Refugees (UNHCR)**, similar to how it worked with them during the **Tibetan refugee crisis in the 1960s**.
 - **Balancing Security and Humanitarian Concerns:**
 - In line with **Supreme Court guidance**, India must strike a delicate balance between national security interests and humanitarian obligations.
 - For example, considering the cultural ties between **India and Myanmar**, India could implement a temporary identification system for refugees.
 - This involves providing essential services like **healthcare, food, and temporary shelter** to Rohingya refugees while addressing security concerns.
 - **Women and Child Protection:**
 - Implement specific programs for vulnerable groups. The UNHCR's **"Safe from the Start" program in Ethiopia**, focusing on preventing sexual and gender-based violence in refugee camps, is an example India could consider.
 - **Long-term Regional Strategy:**
 - Work towards a regional strategy. The **Comprehensive Plan of Action for Indochinese Refugees in the 1980s**, involving multiple Southeast Asian countries, could serve as a template for a permanent solution to the refugee crisis.
- The aforementioned strategies have reshaped the legal and social landscape for refugees in India, highlighting the complex **interplay between humanitarian concerns, national security, and demographic considerations**. Balancing its **traditions of hospitality with evolving geopolitical realities** remains a critical task for policymakers and society at large.

Transforming Indian Agriculture

This editorial is based on “[How Shivraj Singh Chouhan can transform Indian agriculture](#)” which was published in Indian Express on 24/06/2024. The article discusses the challenges in agriculture and rural development and suggests possible solutions for the newly formed government in India.

Tag: GS Paper - 3, Direct & Indirect Farm Subsidies, Public Distribution System (PDS), Buffer Stocks & Food Security, Agricultural Marketing.

Recently, Shivraj Singh Chouhan is appointed to head the [Ministry of Agriculture and Farmers Welfare \(MoA&FW\)](#) and the [Ministry of Rural Development](#) in the newly formed government.

His appointment is strategic due to his proven track record and deep understanding of agricultural and rural development. He has served as the Chief Minister of Madhya Pradesh for an extended period. Under his leadership, the state achieved a GDP growth of 7% per annum and an agri-GDP growth of 6.8% per annum from 2005-06 to 2023-24, surpassing the national averages.

The MoA&FW needs urgent attention to address the pressing issues and challenges confronting the Indian agriculture sector, which profoundly affect rural and overall economic development. Its foremost priority should be to achieve an annual agri-GDP growth of more than 5% and to promptly enhance farmers' incomes.

What is the Significance of Agriculture in India?

➤ Contribution to GDP:

- The contribution of agriculture to India's [GDP](#) has been declining over the past few decades, but it still remains a significant sector
- The share of agriculture in the total [Gross Value Added \(GVA\)](#) of economy has declined from 35% in 1990-91 to 15% in 2022-23. The decline is brought out not by the decline in agricultural GVA but a rapid expansion in industrial and service sector GVA.

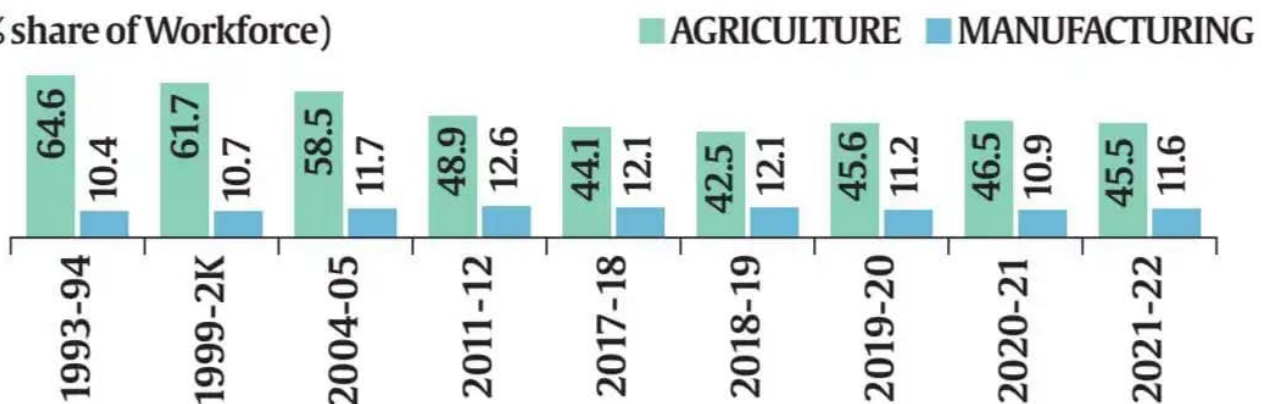
➤ Employment:

- Agriculture is the largest employer in the country.
- According to the [Periodic Labour Force Survey \(PLFS\)](#) conducted by the [National Sample Survey Office \(NSSO\)](#), Ministry of Statistics and Programme Implementation (MoSPI), about 45.76% of the total workforce is engaged in agriculture and allied sector during 2022-23

CHART 1

AGRICULTURE VERSUS MANUFACTURING

(% share of Workforce)



Source: NSSO Employment & Unemployment Surveys (till 2011-12) and Periodic Labour Force Surveys (from 2017-18)

➤ **Food Security:**

- India is largely self-sufficient in staple food production, particularly rice and wheat. This ensures the nation can feed its large and growing population.
 - India is the **world's largest producer** of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton.
 - India is the **second largest producer** of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea.
- Government initiatives like the **Public Distribution System (PDS)** and food subsidy programs rely on agricultural production to ensure affordable food access to all citizens.
 - Under the PDS, presently the commodities namely wheat, rice, sugar and kerosene are being allocated to the States/UTs for distribution.
 - Some States/UTs also distribute additional items of mass consumption through the PDS outlets such as pulses, edible oils, iodized salt, spices, etc.

➤ **Land Use:**

- The agricultural land in India is little more than 50 % of the total geographical area in the country. This is the highest share of land in any country in the world
- The country has some 195 m ha under cultivation of which some 63 percent are rainfed (roughly 125m ha) while 37 percent are irrigated (70m ha).

➤ **Foreign Exchange:**

- Agricultural exports contribute significantly to India's foreign exchange earnings. Commodities like rice, spices, cotton, fruits, and vegetables are exported globally, generating revenue and balancing trade deficits.
- In April-January 2024, the overall value of export of agricultural products stood at USD 38.65 billion. In 2022-23, the agricultural exports from India stood at US\$ 52.50 billion.

India's agriculture exports trend (US\$ billion)



Note: *Until January 2024

Source: The Ministry of Commerce & Industry

➤ **Socio -Cultural and Environmental Sustainability :**

- Agriculture is deeply intertwined with India's cultural heritage and social fabric. It shapes rural traditions, festivals, and community life, playing a vital role in preserving cultural identity and rural cohesion.
- Sustainable agriculture practices are crucial for preserving natural resources such as soil fertility, water, and biodiversity. Traditional farming methods and modern techniques aim to minimize environmental impact and promote long-term sustainability.

What are the Key Challenges Related to the Farm Sector in India ?

➤ **Small Land Holdings:**

- A significant portion of arable land is divided into small holdings, which restricts farmers' ability to achieve economies of scale and earn a dignified livelihood.
- As per the latest information available from Agriculture Census, the average size of operational holdings has decreased from 2.28 hectares in 1970-71 to 1.84 hectares in 1980-81, to 1.41 hectares in 1995-96 and to 1.08 hectares in 2015-16.
- As per India's Agriculture Census 2015-16, 86.1 percent of Indian farmers are **small and marginal (SMF)** i.e., have a landholding size smaller than 2 hectares.

➤ **Economic Hardships:**

- The average monthly income for a farmer in India remains relatively low, highlighting the economic challenges faced by those in the agricultural sector.
 - According to the National Statistical Office (NSO) report from 2019, the average monthly income of a farmer's household from all sources, including wages, crop production, and livestock, was approximately ₹10,218.
- Small and marginal farmers frequently encounter challenges in accessing credit and financial services. The limited availability of affordable credit restricts their ability to invest in modern farming equipment, quality seeds, and fertilizers, thereby hampering their productivity.
 - Based on the NSS survey conducted in 2019, over half of agricultural households were in debt across India.

➤ **Soil Degradation & Water Scarcity:**

- Over-extraction of water for agriculture is depleting aquifers, making irrigation increasingly unviable in key food-producing regions.
 - Around 90 percent of India's groundwater is used for agriculture
- Improper land use practices, excessive use of chemical fertilizers and pesticides, and inadequate soil conservation measures contribute to soil degradation and erosion.
 - These factors lead to reduced soil fertility, increased vulnerability to pests and diseases, and ultimately, a decline in agricultural productivity.

➤ **Inadequate agricultural infrastructure:**

- Insufficient storage and cold chain facilities, inadequate rural roads and limited access to markets contribute to post-harvest losses.
- These infrastructure gaps add to the cost of production and limit farmers' ability to fetch fair prices for their produce

➤ **Underinvestment in Agricultural Research:**

- Investments in agricultural research and extension services have not kept pace with inflation, leading to a decline in real funding.
- This underinvestment hampers the adoption of innovative and efficient farming practices.

➤ **Outdated Farming Practices:**

- A significant portion of Indian farmers still rely on traditional and outdated farming methods.
- Limited access to information, lack of awareness about modern techniques and resistance to change hinder the adoption of advanced farming practices.
- This underinvestment in agriculture research hampers the adoption of innovative and efficient farming practices.

➤ **Market Volatility & Price Fluctuations:**

- Farmers in India often face price volatility due to lack of effective market linkages, intermediaries and price information. This leaves them vulnerable to price exploitation and uncertain returns on their investments.
- Indian policymakers often struggle to navigate and mitigate the impacts of unfavorable **WTO** rulings.
- Global priorities to keep food prices low for consumers result in artificially depressed farm-gate prices, making farming economically unviable and environmentally unsustainable.

➤ Skewed Policy Challenges :

- Policy challenges emerge because the government provides cereals at very low prices through the public distribution system. This drives down the prices farmers get for their crops, making it hard for them to make enough money.
- Additionally, skewed fertiliser subsidies promote indiscriminate usage, adversely affecting both human health and environmental sustainability.

➤ Climate Change & Natural Disasters:

- Increasingly erratic weather patterns have affected agricultural productivity.
- Unpredictable weather patterns, climate change, and natural disasters such as floods, cyclones, and droughts pose significant challenges to India's agriculture industry. These events can result in crop losses, livestock mortality, and increased vulnerability for farmers.
 - According to climate change impact assessments, without the adoption of adaptation measures, rainfed rice yields in India are projected to decrease by 20% by 2050 and 47% by 2080.

What are the Key Initiatives Related to Agriculture?

- [Pradhan Mantri Kisan Samman Nidhi \(PM-KISAN\)](#)
- [Pradhan Mantri Fasal Bima Yojana \(PMFBY\)](#)
- [Soil Health Card Scheme](#)
- [Pradhan Mantri Krishi Sinchai Yojana \(PMKSY\):](#)
- [e-National Agriculture Market \(e-NAM\)](#)
- [National Mission on Sustainable Agriculture](#)
- [Paramparagat Krishi Vikas Yojana \(PKVY\)](#)
- [Digital Agriculture Mission](#)
- [Unified Farmer Service Platform \(UFSP\)](#)
- [National e-Governance Plan in Agriculture \(NeGP-A\)](#)
- [Mission Organic Value Chain Development for North Eastern Region \(MOVCDNER\)](#)

What Should be the Steps Ahead to Reform the Farm Sector in India?

➤ Holistic Agricultural Approach:

- Take agriculture as a comprehensive food system encompassing production, marketing, and consumption.

- Improve access to credit, inputs, and farmer-centric advisory through institutional reforms.
- Promote [organic farming](#), integrated pest management, and soil health management.
- Strengthen [farmer-producer organizations \(FPOs\)](#) and cooperatives for collective bargaining.

➤ Value Chain Development:

- Build robust value chains for high-value crops, dairy products, fisheries, and poultry. Collaborate with the private sector, cooperatives, and farmer-producer companies to achieve this.
- Implement [public-private partnerships](#) and schemes similar to the [Production Linked Incentive \(PLI\) scheme](#) in industry to enhance value chain development.

➤ Access to Technologies and Markets:

- Ensure farmers have access to the best technologies and global markets to improve productivity and incomes.
- Address policy biases that favor consumers over farmers by reducing export bans, stock limits on traders, and market price suppression tactics.
- Increase expenditure on agricultural research and development (R&D) and extension services to at least 1% of agri-GDP, up from the current level of less than 0.5%

➤ Reform Fertiliser Subsidy:

- Transfer the [fertiliser subsidy](#) to the Ministry of Agriculture and Farmers Welfare. Currently, the subsidy is managed by the Ministry of Chemicals and Fertilisers, which has limited direct interaction with farmers.
- Rationalize fertiliser subsidy distribution to correct the imbalance in nitrogen, phosphorus, and potassium usage.
- Transition to direct benefit transfers for fertiliser subsidies, allowing farmers to choose between chemical and bio-fertilisers or natural farming methods.

➤ Inclusive Growth and Social Security

- Implement comprehensive [crop insurance schemes](#) and income support programs.
- Assure procurement of crops at minimum support prices (MSP) to stabilize farm incomes.

➤ Creating Climate Resilient Agriculture:

- There is an urgent need to increase investing resources to create [climate-resilient \(smart\) agriculture](#).

- This would mean more investments in seeds that are heat and flood-resistant, and more investment in water resources not just in augmenting their supplies but also ensuring water is being used more wisely.
- **“More crop per drop”** should not be just a slogan but a reality. Drips, sprinklers, and protected cultivation as part of precision agriculture will have to be adopted at a much larger scale than today.

Conclusion

Embracing policy reforms that create a favorable environment for agricultural growth will enable India to unlock the full potential of its agricultural sector, making it a cornerstone of national development. This transformation will secure sustainable livelihoods for millions of farmers, enhance food security, foster inclusive growth, and establish India as a global leader in agricultural innovation and sustainability.



Sustainable Development in the Indian Himalayan Region

This editorial is based on **“The Supreme Court of India spells the way in Himalaya’s development”** which was published in *The Hindu* on 25/06/2024. The article examines the environmental issues in the Indian Himalayan Region (IHR) and suggests sustainable development methods in light of a recent Supreme Court order recognizing the right to be free from the adverse effects of climate change.

Tag: GS Paper - 3, Environmental Pollution & Degradation, Environmental Impact Assessment (EIA).

The **Indian Himalayan Region (IHR)** is widely recognized as India’s **“water tower”** and a vital provider of essential ecosystem goods and services. Despite this critical understanding, there remains a significant disconnect between the region’s unique development needs and the development models currently being pursued.

The IHR’s economy is intrinsically linked to the health and well-being of its natural resources. Exploiting these resources under the guise of development poses a serious threat, potentially leading the IHR towards inevitable economic decline. Properly aligning development practices with the sustainable management of natural resources is crucial to avoid such a disastrous outcome.

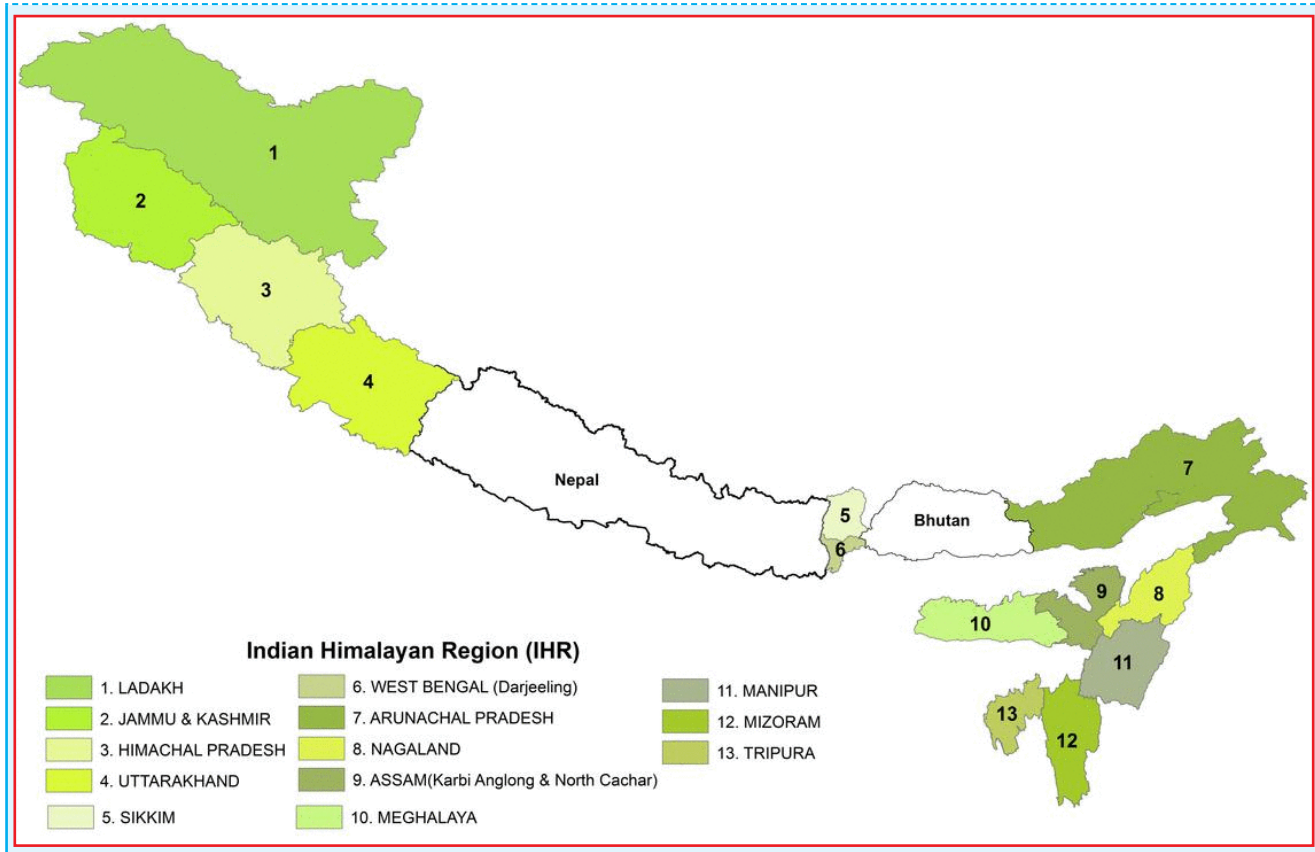
What is The Indian Himalayan Region (IHR)?

➤ About:

- It refers to the mountainous area in India that encompasses the entire Himalayan range within the country.
- The **Indian Himalayan Region** is spread across **13 Indian States/Union Territories** (namely Jammu and Kashmir, Ladakh, Uttarakhand, Himachal Pradesh, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Assam and West Bengal), stretching across **2500 km**.

➤ Significance:

- The IHR encompasses some of the world’s highest peaks, such as **Kanchenjunga**.
- Known as India’s “water tower,” the IHR is the source of many major rivers, including the Ganges, Yamuna, Brahmaputra, and their tributaries.
- The region plays a crucial role in regulating the ecological balance and maintaining biodiversity.
- The region is home to a rich variety of flora and fauna, with many endemic and endangered species.
- It includes several national parks, wildlife sanctuaries, and biosphere reserves, such as the **Valley of Flowers National Park** and **Nanda Devi National Park**.
- The IHR influences the climate and weather patterns of the Indian subcontinent, acting as a barrier to cold winds from Central Asia and affecting monsoon patterns.
- The region is inhabited by diverse ethnic communities with unique cultures, languages, and traditions.
- It includes important religious and pilgrimage sites for various faiths, such as **Amarnath**, **Badrinath** etc..
- The IHR holds strategic importance due to its location along India’s northern borders with China, Nepal, and Bhutan.



What are the Key Environmental Concerns in the Indian Himalayan Region?

➤ Climate Change and Glacial Melting:

- The Himalayan glaciers are melting rapidly due to global warming, affecting the availability of water resources downstream.
- Changes in temperature and precipitation patterns disrupt local climates, impacting agriculture and livelihoods.
- The IHR is increasingly experiencing natural disasters such as flash floods, **glacial lake outburst floods (GLOFs)**, and extreme weather events.
 - The glaciers in the IHR are retreating at an average rate of 10 to 60 meters per year. The **Gangotri Glacier** has retreated by more than 1,500 meters in the last 70 years.
 - The **2013 Kedarnath disaster** was exacerbated by rapid glacial melting, leading to a catastrophic flood that caused massive destruction.

➤ Soil Erosion and Landslides:

- Deforestation, unplanned construction, and overgrazing contribute to soil erosion.
- The region is highly prone to landslides, especially during the monsoon season, causing damage to property, infrastructure, and loss of life.
 - In 2021, the **Chamoli district in Uttarakhand** witnessed a massive landslide triggered by glacial outburst floods, resulting in unprecedented damage to life and infrastructure.

➤ Water Scarcity and Pollution:

- Many areas within the IHR face water scarcity due to the drying up of springs and streams.
- Pollution from agricultural runoff, untreated sewage, and industrial effluents contaminates water sources, impacting human health and ecosystems.
 - A study by the **Central Ground Water Board (CGWB)** indicates that more than 50% of the springs in the Indian Himalayas are drying up, affecting water availability for millions

➤ **Developmental Projects:**

- The construction of numerous hydroelectric power stations disrupts river ecosystems, affects fish populations, and displaces local communities.
- Infrastructure projects often ignore environmental norms, leading to ecological damage and heightened disaster risks.
 - The **National Disaster Management Authority's** post-disaster assessment of the 2023 floods in Himachal Pradesh attributed the disaster to widespread illegal construction on river beds, flood plains.

➤ **Air Pollution:**

- Increased vehicular emissions, industrial activities, and biomass burning contribute to deteriorating air quality.
- The mountainous terrain can trap pollutants, leading to health issues for residents and reduced visibility.
 - The town of Leh in Ladakh has seen rising air pollution levels due to increased vehicular traffic and construction activities, impacting the health of residents and tourists alike.

➤ **Deforestation and Habitat Loss:**

- The IHR is home to over 10,000 plant species, 300 mammal species, and 1,000 bird species, with many listed as endangered.
- Large-scale deforestation for agriculture, urban development, and infrastructure projects leads to habitat destruction and loss of biodiversity.
 - A decline of 902 square kilometers in forest cover was recorded in hill districts of the country as compared to 2019, found the **State of Forest Report, 2021**. The loss is much more pronounced in the Himalayan states that reported an overall loss of 1,072 sq km of forest cover.

How do recent Supreme Court Judgments Support Environmental Conservation Efforts in the IHR?

➤ **Recognition of the Right against Climate Change:**

- The Supreme Court in **M K Ranjitsinh & Ors. v. Union of India** & ruled that people have a **right to be free from the adverse climate change** which should be recognised by **Article 14** and **Art 21** the Constitution.

- The Supreme Court's recognition of the right to be protected from climate change is a crucial step towards safeguarding environmental and human rights, creating an obligation for the government to implement effective measures.

➤ **To Adopt an Ecocentric View of the Environment :**

- In **State of Telangana and Others vs Mohd. Abdul Qasim case**, the Supreme Court had said that the need of the hour is **to adopt an ecocentric view of the environment**, where nature is at the core.
- The Court said, "Man being an enlightened species, is expected to act as a trustee of the Earth...The time has come for mankind to live sustainably and respect the rights of rivers, lakes, beaches, estuaries, ridges, trees, mountains, seas and air.... Man is bound by nature's law."

➤ **Directions on the Carrying Capacity of the Himalayan States :**

- In a matter of **public interest litigation (PIL)** titled **Ashok Kumar Raghav vs Union of India and Ors.**, the Supreme Court asked the central government and the petitioner to suggest a way forward so as to enable the Court to pass directions on the carrying capacity of the Himalayan States and towns.

What are the Government Initiatives to Protect IHR?

- **National Mission for Sustaining the Himalayan Ecosystem (NMSHE)**
- **Indian Himalayas Climate Adaptation Programme (IHCAP)**
- **SECURE Himalaya Project**
- **Integrated Himalayan Development Program (IHDP)**
- **National Action Plan on Climate Change (NAPCC)**

What Measures can be taken to Promote Sustainable Development in the IHR?

➤ **Climate-Resilient Infrastructure:**

- Adopt building codes and construction practices that are resilient to earthquakes, landslides, and floods.
- Invest in green infrastructure such as permeable pavements, green roofs, and bioswales to manage stormwater and reduce urban heat islands.
 - Complete ban on construction activities in disaster-prone areas as suggested by **Mishra Committee, 1976**.

➤ **Integrated Land Use Planning:**

- Develop land use plans that clearly demarcate zones for conservation, agriculture, residential, and industrial activities.
- Use GIS and remote sensing for effective land use planning and monitoring environmental changes.
 - For instance, **Western Ghats Ecology Expert Panel (WGEEP)**, also known as the Gadgil Committee, recommended a zoning system for the Western Ghats to balance conservation and development needs.

➤ **Water Resource Management:**

- Promote the installation of rainwater harvesting systems in both urban and rural areas.
- Restore and manage springsheds to ensure the sustainability of water sources for local communities.
 - **National Ganga River Basin Authority (NGRBA)** recommended a comprehensive approach to clean and rejuvenate the Ganga River, addressing pollution sources and promoting sustainable practices.

➤ **Forest and Biodiversity Conservation:**

- Initiate large-scale reforestation projects to restore degraded lands and enhance biodiversity.
- Empower local communities to manage and protect forest resources through joint forest management programs.
 - **Chipko Movement** was a grassroot forest conservation effort where local women hugged trees to prevent their felling, demonstrating the power of community action.
- Develop and implement programs for the conservation of endangered species and their habitats.
 - **National Mission for Sustaining the Himalayan Ecosystem (NMSHE)** focuses on addressing climate change impacts, promoting sustainable livelihoods, and conserving biodiversity in the Indian Himalayan Region.

➤ **Sustainable Agriculture:**

- Encourage organic farming practices to reduce chemical inputs and maintain soil health.
- Develop micro-hydropower projects that have minimal environmental impact compared to large dams

- Integrate trees and shrubs into agricultural systems to enhance biodiversity, reduce erosion, and improve crop yields.

- **Sikkim** became the **first fully organic state in India**, reducing chemical pesticide and fertilizer use, thereby promoting sustainable agriculture.

➤ **Eco-Friendly Tourism:**

- Conduct carrying capacity assessments to regulate the number of tourists and minimize environmental impact.
- Develop eco-tourism initiatives that promote sustainable practices and provide economic benefits to local communities.
- Promote the use of biodegradable materials and reduce plastic waste.
 - The **National Disaster Management Authority (NDMA)** recommended a series of regulations that would create a buffer zone and restrict tourism in **Glacial Lake Outburst Floods (GLOFs)**-prone areas and nearby regions in order to reduce the scale of pollution in those areas.

➤ **Monitoring and Research:**

- Establish robust environmental monitoring systems to track changes and assess the impact of development activities.
- Support research initiatives focused on sustainable development practices, climate change adaptation, and biodiversity conservation.
 - **Report of the High-Level Expert Group (HLEG) on Himalayan Glaciology** emphasized the need for monitoring Himalayan glaciers, assessing their health, and understanding their role in regional water resources.

➤ **Education and Awareness:**

- India and other affected countries should include in their school curricula basic knowledge of the geology and ecology of the Himalayas. If students are taught about their environment, they will feel more connected to the land and be more aware of its pulse.
- If the people of the Himalayas were more aware of the geological vulnerability and ecological fragility of their mountain home, they would surely force more compliance of laws and regulations to protect it.

Conclusion:

In light of recent Supreme Court rulings and the recognition of the fundamental right to be protected from the adverse effects of climate change, it is imperative that people, especially those in the Indian Himalayan Region (IHR), are entitled to a sustainable development model that aligns with the region's ecological carrying capacity.

The path forward should not only safeguard the environment but also ensure the long-term prosperity and well-being of communities in the IHR, emphasizing a balance between development and environmental sustainability.



Reimagining Andaman and Nicobar Islands

This editorial is based on "[Making Andaman and Nicobar a maritime bastion is long overdue. Environmental concerns must be addressed](#)" which was published in The Indian Express on 26/06/2024. The article brings into picture the strategic importance of the Andaman & Nicobar Islands for India's maritime security and economic development while highlighting the urgent need to address environmental and anthropological concerns surrounding the proposed infrastructure projects.

Tag: GS Paper - 2, Government Policies & Interventions, Issues Related to SCs & STs, GS Paper - 3, Growth & Development, Environmental Pollution & Degradation

The [Andaman and Nicobar Islands](#) are strategically important for India's security in the [Indian Ocean region](#). The archipelago needs to be developed for defense purposes and to improve its economic potential. This development should prioritize the **islands' unique ecology and the well-being of the indigenous tribes**.

A proposed mega-project, the "[Holistic Development of Great Nicobar Island](#)", has sparked debate. Environmentalists fear it **could devastate the island's unique ecology and harm the Shompen tribe**. Doubts also exist regarding the project's economic viability due to the island's remoteness. Therefore, holistic development plans are needed that prioritize both progress and environmental and social well-being of Andaman and Nicobar Islands.

What is the Significance of Andaman and Nicobar Islands for India?

- **Guardian of the East:** The islands are situated about **1,300 km southeast of the Indian mainland**, providing India with a crucial forward presence in the Bay of Bengal and the Andaman Sea.
 - This location allows India to monitor and potentially **control key maritime chokepoints, particularly the [Malacca Strait](#)**.
 - Their location enables India to monitor naval activities, shipping traffic, and potential security threats in the region, enhancing its maritime domain awareness.
- **Projection of Naval Power:** The islands act as **India's first line of defense against potential threats from the east**.
 - They provide a base for projecting naval power into the eastern Indian Ocean and the western Pacific, crucial in the context of **China's growing naval presence in the region** (like in [Hambantota Port, Sri Lanka](#)).
- **Economic Zone Extension:** The islands significantly extend India's **Exclusive Economic Zone (EEZ)** and continental shelf under **UNCLOS**, providing access to vast marine resources and undersea minerals.
- **Home to Indigenous Tribes:** The A&N Islands are home to indigenous tribes like the **Shompen**, who have inhabited these islands for millennia.
 - Their unique culture and way of life are integral to the islands' identity and must be safeguarded.
- **Tri-Service Command:** The **[Andaman and Nicobar Command \(ANC\)](#)**, established in 2001, is currently India's only tri-service theater command.
 - It serves as a model for integrated operations and could be crucial in any future conflicts in the region.
- **Tourism Paradise:** The **pristine beaches, [coral reefs](#), and unique wildlife of the islands** offer immense potential for eco-tourism. This can generate revenue, create jobs, and boost the overall Indian economy.
- **Potential Hub for Maritime Trade:** The ongoing development of **Galathea Bay in Great Nicobar Island** as a transshipment port could transform the islands into a significant hub for international maritime trade, **rivaling ports like Singapore**.



What are the Major Challenges Related to Andaman and Nicobar Islands?

- **Environmental Conservation vs. Development:** The islands are home to unique ecosystems and biodiversity.
 - Balancing the need for strategic and economic development with environmental protection is a significant challenge.
 - For instance, the development of the **Galathea Bay transshipment port** has raised concerns about its impact on **leatherback turtle** nesting sites.
- **Threat to Indigenous Tribes:** Preserving the culture and rights of indigenous tribes like the **Jarawas, Onges, and Sentinelese** while pursuing development is complex.

- Critics argue that the islands' development often conflicts with laws protecting these tribes, such as the **Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Regulation of 1956**.
- **Infrastructure Development Hurdles:** The islands' remote location, difficult terrain, and **frequent seismic activity** pose significant challenges to infrastructure development.
 - This includes issues like sourcing materials, finding skilled labor, and ensuring infrastructure resilience against natural disasters.
- **Climate Change and Rising Sea Levels:** As **low-lying islands**, they are particularly **vulnerable to climate change impacts**.
 - Rising sea levels threaten both infrastructure and indigenous communities, necessitating long-term adaptive strategies.
- **Surveillance Network Gaps:** Despite the islands' strategic location, there are significant gaps in the surveillance network.
 - The vast maritime expanse (**spanning 780 km north to south**) requires a sophisticated network of **radar stations, UAVs, and maritime patrol aircraft**, which is currently inadequate.
 - This leaves vulnerabilities in monitoring critical chokepoints like the **Six Degree Channel**.

What are the Major Indian Government's Initiatives Related to Andaman and Nicobar Islands?

- **Holistic Development of Great Nicobar Island**
- **Submarine cable connectivity to Andaman & Nicobar Islands (CANI)**
- **Port Blair Smart City Project**

What Strategies Can Ensure Balanced Development in the Andaman and Nicobar Islands?

- **Indigenous Knowledge Integration Center:** Establish a center that combines traditional knowledge of indigenous tribes with modern science.
 - This could lead to breakthroughs in fields like **herbal medicine, sustainable forestry, and climate-resilient agriculture**, while also preserving and celebrating indigenous cultures.
- **Maritime Startup Incubator:** Create a specialized incubator for startups focusing on maritime technologies, ocean conservation, and **sustainable island development**.
 - This could attract talent and investment, fostering innovation in areas like marine robotics, ocean cleanup technologies, and sustainable fishing methods.
- **Diplomatic and Cultural Exchange Archipelago:** Designate certain islands as international zones for diplomatic and cultural exchanges.
 - Creating a **unique "island-hopping" summit format** for regional cooperation, combining high-level meetings with immersive cultural experiences.
- **Blockchain-Based Resource Management:** Implement a blockchain-based system for managing the islands' resources, from fishing quotas to land use.
 - This could ensure **transparent, efficient, and sustainable resource allocation** while providing a model for other island nations.
- **Autonomous Maritime Defense Network:** Developing a network of autonomous underwater and surface vehicles for defense and surveillance. This could enhance security without a large human footprint and serve as a **model for AI-driven maritime defense systems**.
- **Tribal Heritage Guardians:** Launching a **"Cultural Sanctuary Zones"** where tribes can live undisturbed
 - Developing **"Buffer Zones"** with strictly regulated eco-tourism to generate income while minimizing contact
 - Creating a **"Tribal Heritage Fund"** from development revenues to support indigenous welfare
 - Implementing a **"Tribal Consent Protocol"** for any projects near indigenous territories.
- **Circular Economy for Waste Management:** Implementing a circular economy approach to waste management in Andaman and Nicobar Islands, where waste becomes a resource for new products.
 - This could involve establishing composting facilities to **convert organic waste into fertilizer, upcycling plastic waste into building materials**, and exploring innovative bioconversion technologies to turn waste into biofuels.
- **Sustainable Gastronomy Initiative:** Promoting **"ocean-to-table"** in the lines of **"farm to table"** approach to food in the islands.

- This initiative can not only enhance the tourism experience but also **promote sustainable food practices and support local livelihoods.**
- **Underwater Research and Innovation Hub:** Transform the islands into a world-class marine science and technology center.
 - Establishing **underwater research stations and laboratories to study deep-sea ecosystems**, develop **blue biotechnology**, and pioneer sustainable aquaculture techniques.
 - This could attract international collaboration and position India as a leader in ocean sciences.
- **Renewable Energy Testbed:** Leverage the islands' unique geography to create a testbed for cutting-edge renewable energy technologies.
 - Experiment with **tidal energy, offshore wind farms, and marine solar panels**. could not only make the islands energy self-sufficient but also **export clean energy to mainland India** and neighboring countries.
- **Eco-Tourism Space Launch Site:** Develop a commercial space launch facility that doubles as an ecotourism destination.
 - The **equatorial location is ideal for satellite launches**, while the facility could offer tourists a chance to witness launches, participate in space science workshops, and enjoy the islands' natural beauty.

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Future of Fiscal Federalism in India

This editorial is based on "[State Debt and the Constitution](#)" which was published in Economic and Political Weekly on 22/06/2024. The article brings into picture the recent legal dispute between the Kerala government and the union over finances, highlighting a potential constitutional crisis regarding the union's control of subnational debt, which necessitates appropriate constitutional amendments.

Tag: GS Paper - 3, Fiscal Policy, Government Policies & Interventions, Monetary Policy, Mobilization of Resources, Inclusive Growth

The recent suit filed by **Kerala against the Union government** in the **Supreme Court** under **Article 131 of the Constitution** asking the Court to direct the union government to remove the ceiling on the amount of money that the state could borrow has brought the interpretation of **Article 293 of the Indian Constitution** into focus. This article governs the power of states to borrow money and the Union's authority to regulate such borrowing. While Kerala argues for **greater autonomy in borrowing**, the Union government emphasizes the **need for macroeconomic stability through debt regulation**.

Since this was the first time that Article 293 had to be interpreted, the matter was referred to the constitution bench under **Article 145** to be decided by a bench of five judges. The Supreme Court's upcoming decision on this matter will have significant implications for **fiscal federalism in India**.

What are the Provisions and Limitations of Article 293 of the Indian Constitution?

➤ Provisions:

- **State Borrowing Power:** States can borrow within India upon the **security of their Consolidated Fund of State**, within limits set by the state legislature.
 - The Union government may give **guarantees for state loans** within limits set by Parliament.
- **Consent Requirement:** If a state owes any outstanding loan to the Union or guaranteed by the Union, it must obtain the **Union government's consent before raising any loan**.
 - The Union can impose conditions on such consent.
 - Consent is not required for temporary overdrafts or other such arrangements with the **Reserve Bank of India**.
- **Continuation of Previous Loans:** Loans raised by a state which were outstanding at the commencement of the Constitution remain in force under the same terms and conditions.

➤ Limitations:

- Article 293's authority to regulate state borrowing is linked to states owing money to the Union government.

- This creates a potential **constitutional gap** if **states clear their Union debts**, as the article lacks provisions for regulating state borrowing without outstanding loans.
- This could enable economically stronger states clearing Union debts and then borrowing without Union oversight.
- Also, states are increasingly using **Public Sector Undertakings (PSUs)** to bypass Article 293 restrictions.
 - For instance, Kerala in the recent case argues that PSU debts should not count in state debt calculations.
 - As states increasingly borrow from other sources, there's a possibility that some may soon owe nothing to the Centre, potentially rendering Article 293 irrelevant.
 - This trend was first identified by the **14th Finance Commission**.
 - This loophole allows states to exceed borrowing limits, **obscures true state indebtedness**, and complicates fiscal transparency and accountability, **posing hidden financial risks**.

➤ **Key Questions for the Constitution Bench:**

- **State's Right to Borrow:** Whether a state has a "right" under Article 293 to borrow and if the union can regulate this right.
- **Public Sector Undertaking (PSUs) Debts:** Whether the debts raised by state government PSUs fall within the scope of Article 293.

What are the Latest Trends in State Borrowing from the Union?

- Recent RBI data shows a **dramatic decrease in the Union's share of state loans**, from 57% in 1991 to just 3% by FY 2020.
 - This shift reflects states' increasing reliance on market borrowings and other sources of finance.
 - Also, this reduction in Union loans to states directly impacts the applicability of Article 293, as its regulatory power is tied to states owing money to the Union.
- The Covid-19 pandemic temporarily reversed the trend of declining state borrowing from the Union, increasing it from **3% in FY 2020 to 8.6% in FY 2024** due to economic pressures and revenue shortfalls.

- However, this is likely a short-term trend. As the economy recovers, **states may revert to pre-pandemic borrowing patterns**.

What are the Arguments in Favour and Against State's Uninterrupted Right to Borrow?

➤ **Arguments in Favor:**

- **Fiscal Autonomy:** Borrowing empowers states to manage their finances independently, aligning with the **principles of federalism**.
 - It enables states to fund development projects and meet local needs without solely relying on Union grants, **fostering a sense of self-reliance**.
 - It also provides states with the **flexibility to respond quickly to economic challenges or opportunities specific to their region**, enhancing overall governance efficacy.
- **Economic Development:** State borrowing facilitates financing of large-scale infrastructure projects that can significantly stimulate economic growth.
 - By bridging temporary revenue shortfalls, borrowing helps maintain continuity in essential services and development programs.
 - Moreover, it **enables states to leverage their borrowing capacity to attract private investments** and forge public-private partnerships, potentially accelerating economic progress.
 - **Example:** Maharashtra's **₹46,000 crore Mumbai-Nagpur Expressway** project, largely financed through borrowing, showcases how states can use debt to fund large-scale infrastructure that stimulates economic growth and connectivity.
- **Flexibility in Financial Management:** Borrowing provides states with a crucial buffer against economic shocks and revenue fluctuations, enhancing their financial resilience.
 - This flexibility also provides an **alternative to increasing taxes, which may be politically challenging or economically undesirable**, especially during periods of economic stress.
- **Accountability to Local Electorate:** The power to borrow makes state governments **more directly accountable to their constituents**, as they must justify their borrowing decisions and demonstrate effective use of funds.

- Voters can assess the government's performance based on how borrowed funds are utilized, **leading to more informed electoral choices**.
- This dynamic can contribute to a **more engaged and fiscally aware citizenry**, potentially improving the quality of democratic governance at the state level.
- **Competitive Federalism:** The ability to borrow allows states to compete in attracting investments and businesses, potentially leading to innovative development strategies.
 - Such competitive federalism can lead to the **identification and spread of best practices across states**, contributing to overall national development.
- **Arguments Against:**
 - **Risk of Fiscal Indiscipline:** Unrestricted borrowing power may lead states to **accumulate unsustainable levels of debt**, jeopardizing their long-term fiscal health.
 - Political considerations, such as **short-term electoral gains**, might override economic prudence in borrowing decisions, leading to **misallocation of resources**.
 - Excessive state debts could have spillover effects, potentially **destabilizing the national economy and affecting other states**.
 - **Example:** Punjab's **high debt-to-GSDP ratio**, reaching 53.3% in 2021-22, partly due to borrowing for populist schemes.
 - **Macroeconomic Stability Concerns:** Uncoordinated and excessive state borrowing can **interfere with national monetary and fiscal policies**, complicating economic management at the Union level.
 - Furthermore, it might **negatively impact the country's overall credit rating and borrowing costs** in international markets, affecting the entire nation's financial standing.
 - **Example:** In 2020-21, when states' gross market borrowings increased by **55%**, it led to higher yields on state development loans, potentially affecting overall interest rates and Union government borrowing costs.
- **Inter-State Disparities:** The **varying economic strengths of states** can lead to significant differences in their borrowing capacities, potentially exacerbating existing regional inequalities.
 - Economically stronger states may secure loans at more favorable terms, while **poorer states might face higher borrowing costs**, further straining their finances.
 - Consequently, it may necessitate increased Union intervention to maintain balanced regional development, **potentially complicating federal relations**.
- **Complexity in Debt Management:** Multiple states borrowing independently can significantly complicate overall public debt management at the national level.
 - Monitoring and regulating diverse state borrowings can be administratively challenging, **requiring sophisticated oversight mechanisms**.
 - There's also a risk of **overlapping or conflicting debt obligations between states and the Union**, which could create legal and financial complexities.
 - **Example:** The introduction of the **Ujwal DISCOM Assurance Yojana (UDAY)** in 2015, where states took over power distribution companies' debts, complicated overall debt management and blurred lines between state and PSU borrowings.
- **Potential for Default and Bailouts:** States facing severe financial distress might default on their loans, which could have far-reaching consequences for creditors and the broader financial system.
 - There often exists an implicit expectation that the Union government would bail out states in case of defaults, creating a **moral hazard that could encourage irresponsible borrowing**.
 - The possibility of state defaults or bailouts could also undermine investor confidence in the Indian market as a whole, affecting overall economic stability.

What are the Other Federal Systems of Managing Subnational Debts?

- **Brazil:** The Fiscal Responsibility Law imposes **strict borrowing limits** on all levels of government, ensuring fiscal discipline.

- **United States:** States have **high autonomy in borrowing** but are subject to market discipline, balancing independence with financial accountability.
- **Germany:** A cooperative federalism model with **shared fiscal responsibility between federal and state governments** ensures coordinated and balanced financial management.

Studying these international examples could help India create a more robust and adaptable system for managing state debts within its federal structure.

What Measures Can be Adopted to Improve Fiscal Health of States?

- **Incentive-Based Fiscal Responsibility Framework:**
This approach would implement a tiered system of borrowing limits based on comprehensive fiscal performance metrics.
 - The framework would go beyond traditional indicators like debt-to-GSDP ratio, incorporating measures such as **revenue generation efficiency, development outcomes, and fiscal transparency.**
 - For instance, a state improving its own tax revenue by 10% year-on-year could be allowed to **borrow** an additional 0.5% of GSDP.
 - This system would create a positive feedback loop, encouraging states to improve their fiscal management continuously.
- **Technology-Driven Fiscal Monitoring System:**
Developing a real-time, AI-powered fiscal monitoring system for all states would revolutionize fiscal management.
 - This system would track **revenue, expenditure, and borrowing patterns, providing early warnings of fiscal stress.**
 - Implementing **blockchain technology** would ensure the transparency and immutability of fiscal data, preventing manipulation and building trust.
- **Fiscal Insurance Pools:** States could contribute to a **collective insurance fund** based on their fiscal health. This fund would provide temporary relief during economic shocks, reducing the need for excessive borrowing.
 - The system would **incentivize fiscal prudence**, as contributions and payouts would be linked to a state's long-term fiscal performance.

- **Cross-State Fiscal Mentorship Programs:** Pairing fiscally stronger states with weaker ones in a mentorship program. The mentor state would provide expertise and guidance on fiscal management, potentially earning additional borrowing rights as a reward.
 - This peer-to-peer learning could **foster inter-state cooperation and spread best practices organically.**
- **Independent Fiscal Councils:** Establishing independent fiscal councils at the state level.
 - These non-partisan bodies can **analyze state budgets, provide objective assessments of fiscal health**, and offer recommendations for sustainable debt management practices.

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Adapting to the Monsoon's New Normal

This editorial is based on "[Learning to live with shifts in monsoon](#)" which was published in Hindustan Times on 25/06/2024. The article brings into picture the erratic monsoon patterns affecting agricultural cycles, exacerbated by climate crisis-induced delays and variable rainfall, necessitating urgent adaptation in water management and agricultural practices.

Tag: GS Paper - 1, Physical Geography, Water Resources, GS Paper - 3, Irrigation

India's monsoon pattern is undergoing a significant shift, characterized by **delayed onset, below-normal rainfall in June, proper commencement only in July, and extended heavy rainfall into September.** This year's monsoon exemplifies this trend, arriving late in most regions and progressing slowly. While the exact causes are not fully understood, climate change factors such as **delayed western disturbances** and **Arctic Sea ice melting** are believed to play a role. The new pattern brings **erratic rainfall distribution, more dry days, and unusually high night temperatures**, posing substantial challenges for agriculture and water management across the country.

This evolving scenario necessitates both **immediate mitigation measures to protect farmers from economic losses and long-term adaptation strategies for water management**, especially for reservoirs that supply drinking water to the plains during summer months. The climate crisis underscores the urgent need for policies at national and local levels to address these emerging threats effectively.

MONSOON

Monsoons are seasonal winds that reverse their direction with the change of season.

Origin of Monsoon

- Thermal Concept
- Dynamic Concept

Thermal Concept by Halley

Monsoon result of:

- Heterogenous character of globe (Unequal distribution of land and water)
- Differential seasonal heating and cooling of continents and oceans

South-West (Summer) Monsoon

- Sun shines over Tropic of Cancer
- Brings low-pressure centres (Near Baykal Lake and Peshawar) due to High temperature

- Low temperature in Southern hemisphere brings High pressure centre over Australia and Indian Ocean
- Winds Blow from high (ocean) to low pressure in Asia (land)
- Ferrel's law and Coriolis force turn these wind in south-westerly (SW) direction
- They bring moisture from Indian oceans to Indian subcontinent yielding heavy rainfall

North-East (Winter) Monsoon

- Sun shines over Tropic of Capricorn
- Brings High Pressure centers (near Baykal Lake and Peshawar) due to low temperatures
- High temperature in Southern hemisphere brings Low pressure centre over Australia and Indian Ocean
- Winds Blow from high (land) to low pressure (ocean) in north-easterly (NE) direction called Retreating Monsoon

Dynamic Concept by Flohn

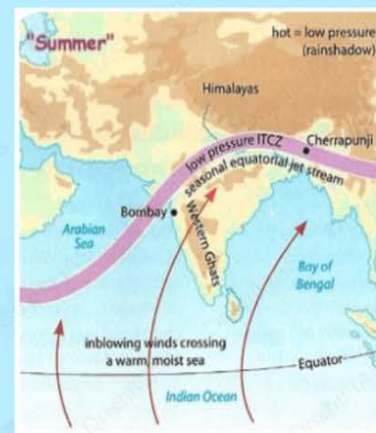
- Monsoon originated due to shifting of pressure and wind belts
- Intertropical Convergence (ITC) formed due to convergence of NE and SE trade winds near equator
- Northern and Southern branches of the ITC, known as NITC and SITC respectively, create a belt of doldrums marked by equatorial westerlies

South-West (Summer) Monsoon

- Sun shines over Tropic of Cancer
- NITC extended up to 30° N latitude covering south and SE-Asia and establishes Equatorial westerlies
- It brings atmospheric depressions (cyclones) with heavy rainfall

North-East (Winter) Monsoon

- Sun shines over Tropic of Capricorn
- Due to Southward shifting of Sun, pressure and wind belts also shifts
- Western cyclonic disturbances (from Mediterranean Sea) enter India from west in winter due to Westerly Jet stream
- Northeast trade winds reestablished over south and SE Asia
- These NE trades become winter monsoons called Retreating Monsoon and rains in Andhra and Tamil Region



What is the Significance of Monsoon for India?

- **Agricultural Backbone:** The monsoon is the lifeblood of Indian agriculture. With **61% of Indian farmers dependent on rainfall for agriculture**, the monsoon directly impacts food security and rural livelihoods.
 - A well-distributed monsoon is crucial for the **55% of India's net sown area (139.42 million hectares) that is rain-fed**, supporting 34 of the country's 40 major crops.
 - This heavy reliance on monsoon rains makes it a key determinant of agricultural productivity and, by extension, the nation's economic health.
- **Water Resource Management:** India receives **70-90% of its annual rainfall** during the four monsoon months (June to September).
 - This concentrated period of precipitation is critical for replenishing water bodies, including rivers, lakes, and groundwater aquifers.
 - The monsoon plays a vital role in **water resource management, influencing irrigation capabilities, drinking water availability, and hydroelectric power generation** throughout the year.
- **Economic Ripple Effects:** The monsoon's impact extends far beyond agriculture. A good monsoon year typically **boosts rural incomes, leading to increased demand for consumer goods, automobiles, and services**.
 - Conversely, a poor monsoon can lead to inflation, particularly in food prices, affecting the entire economy.
 - The monsoon's performance often influences monetary policy decisions and government spending priorities.
 - **Monsoon is the real Finance Minister of India**
- Pranab Mukherjee
- **Ecological Balance:** The monsoon is crucial for maintaining India's diverse ecosystems. It supports the country's biodiversity by **nurturing forests, wetlands, and other natural habitats**.
 - The timing and intensity of the monsoon **influence wildlife migration patterns, breeding cycles, and overall ecosystem health**.
 - Any significant alteration in monsoon patterns can have far-reaching consequences on India's flora and fauna.
- **Climate Regulation:** The Indian monsoon system is a key component of global climate regulation. It affects atmospheric circulation patterns far beyond the Indian subcontinent.

- The monsoon's interaction with phenomena like **El Niño and La Niña** has implications for weather patterns across Asia and even globally.
- **Cultural and Social Significance:** Beyond its environmental and economic importance, the monsoon holds deep cultural significance in India.
 - It influences festivals (like **Pongal, Baisakhi**), traditions, and even **folk music (like Purvaia)** and literature.
 - The arrival of monsoon has been celebrated in Indian culture for millennia, shaping social practices and community rituals.

What are the Implications of Changing Monsoon Patterns for India?

- **Agricultural Disruption:** Changing monsoon patterns disrupt traditional cropping cycles, potentially decreasing yields and increasing crop failures.
 - For instance, in 2018, **Kharif sowing was 9.7% lower** as monsoon delay over Central and North India.
 - These changes could significantly **impact food security and the livelihoods** of millions of farmers across India.
- **Water Scarcity and Management Challenges:** Irregular monsoons intensify water scarcity issues, straining both surface and groundwater resources.
 - In 2019, Chennai faced a severe water crisis when its **four main reservoirs dried up** due to monsoon failure.
 - The **2023 monsoon** ended with live water storage at **74%** of the capacity of India's 150 major reservoirs.
- **Economic Impact:** Climate change due to rising temperature and changing patterns of monsoon rainfall in India could cost the Indian economy **2.8 % of its GDP**.
 - Increased costs for farmers (**irrigation, crop insurance**) could lead to higher rural debt and potential shifts in rural-urban migration patterns.
- **Public Health Concerns:** Altered monsoon patterns can **change the distribution of vector-borne diseases** like malaria and dengue. Increased flooding risk may lead to more water-borne diseases, while food insecurity could affect nutrition levels.
 - Mental health impacts due to climate-related stress and economic uncertainties are likely to increase.

- **Biodiversity and Ecosystem Changes:** Shifting monsoon patterns can alter habitats, affecting flora and fauna distribution.
 - The **Western Ghats**, a biodiversity hotspot, has seen a decline in rainfall over the last century, affecting its unique ecosystem.
 - In the **Sundarbans**, changing rainfall patterns and rising sea levels have led to increased salinity, threatening **mangrove forests and the endangered Bengal tiger population**.
 - **Impact on Monsoon-Dependent Energy Production:** India's hydroelectric power generation, which contributes about 12% of the total electricity production, faces unpredictability due to changing monsoon patterns.
 - Fluctuations in reservoir levels **impact not just power generation but also the grid stability**, challenging India's renewable energy goals and necessitating a re-evaluation of the energy mix.
 - For instance, in the southern region of India, which contributes approximately **22% of the total hydro energy generated**, low rainfall has indeed played a role in decreased hydropower capacity in 2023-24.
 - **Impact on Traditional Knowledge Systems:** Indigenous and local knowledge systems, which have long guided agricultural and water management practices based on predictable monsoon patterns, are **becoming less reliable**.
 - This erosion of traditional ecological knowledge presents a challenge of **cultural erosion** and reduced sustainable resource management practices.
- How India can Adapt to Changing Monsoon Patterns?**
- **Decentralised Climate Adaptation:** There is a need to decentralize India's vast climate adaptation requiring each state and union territory to assess climate risks and develop mitigation and adaptation strategies.
 - All **766 districts should create plans based on microclimatic changes** and socio-economic data, addressing crop insurance, power supplies, and groundwater quality.
 - The **CEEW's support for Thane, Maharashtra**, in developing a risk-informed heat action plan this year can serve as a model for others.
 - **Adaptive Crop Genetics and Bioengineering:** Developing climate-resilient crop varieties through advanced **genetic engineering and CRISPR technology**.
 - Create crops with improved **water-use efficiency, heat tolerance, and ability to thrive in shorter or longer growing seasons**.
 - Establish a **national seed bank** of adaptive varieties and promote decentralized, community-led seed preservation efforts to maintain agricultural biodiversity.
 - **Precision Agriculture and AI-Driven Farming:** Implementing large-scale use of **IoT sensors, drones, and satellite imaging** for real-time crop and soil monitoring.
 - Utilize artificial intelligence to analyze this data alongside weather predictions to provide **hyper-local, crop-specific recommendations to farmers**.
 - Develop AI models that can **predict optimal planting times** and crop choices based on evolving monsoon patterns.
 - **Leveraging Indian Monsoon Data Assimilation and Analysis Reanalysis:** While the IMD provides data at various administrative levels, the current network lacks the density for granular mapping.
 - Using **Indian Monsoon Data Assimilation and Analysis reanalysis data**, we can mapped monsoon variability for all tehsils in India for.
 - Local decision-makers can utilize these metrics to enhance disaster preparedness and response.
 - These plans should integrate tehsil-level climate data with socio-economic and sector-specific information for **detailed risk assessments in agriculture, water, and energy sectors**.
 - **Urban Rainfall Harvesting and Water Banking:** Transform cities into massive water catchment areas by mandating rain-harvesting systems for all buildings.
 - Implement a **"water credit" system where excess harvested water can be "banked" or traded**, incentivizing conservation.
 - Developing Sponge cities and underground water storage facilities in urban areas to capture monsoon rains for year-round use.
 - **Floating Agriculture and Aquaponics:** Promote floating farms and gardens in flood-prone areas, **adapting techniques from places like Bangladesh**.
 - Integrate these with advanced aquaponics systems to **create resilient food production units** that can thrive in both excess water and drought conditions.
 - This can **turn flood-prone areas from liabilities into productive assets**.

- **Bioengineered Coastal Defense Systems:** Develop “living shorelines” using genetically modified mangroves and other coastal plants that can **rapidly adapt to changing salinity and water levels**.
 - Combine these with artificial reef structures to create **dynamic, self-repairing coastal defense systems** that can evolve with changing monsoon and sea-level patterns.
- **Decentralized Energy Micro-grids:** Develop a network of localized, renewable energy microgrids that can adapt to changing monsoon patterns.
 - These could combine **solar, wind, and micro-hydro power sources**, automatically adjusting to seasonal variations and ensuring energy security in the face of changing rainfall patterns.



NEET Controversy: Ensure India's Examination Integrity

This editorial is based on “Preventing another NEET fiasco” which was published in The Hindu on 26/06/2024. The article examines the allegations of misconduct and paper leaks during the National Eligibility cum Entrance Test (NEET-UG) and advocates for the implementation and compliance of comprehensive Standard Operating Procedures (SOPs) to ensure a transparent examination system in the country.

Tag: GS Paper-2, Education, Human Resource, Issues Related to Children, Issues Relating to Development. Transparency & Accountability

The **NEET-UG** controversy has spotlighted the widespread issue of paper leaks, a malpractice that has plagued India for years. In the past seven years, there have been 70 confirmed exam leaks across 15 states, casting serious doubts on the integrity of the nation's examinations.

These leaks have disrupted the schedules of 1.7 crore applicants. The recent NEET-UG 2024 paper leak, affecting an all-India exam with over 24 lakh aspirants, underscores the considerable influence of the paper leak mafia over India's examination system.

What is the National Eligibility Entrance Test (NEET-UG)?

- **NEET (UG)** is one of the toughest medical entrance examinations conducted in India. National Eligibility

cum Entrance Test (NEET) is conducted by the **National Testing Agency (NTA)** for admission to undergraduate (**MBBS/BDS/Ayush Courses**) every year.

- The single national level undergraduate medical entrance exam, NEET, is held every year for admission to medical, dental, **AYUSH**, and BVSc (Bachelor of Veterinary Science) and AH (Animal Husbandry) colleges in India.
- The NEET exam is conducted online and in 11 languages — English, Hindi, Marathi, Odia, Tamil, Marathi, Urdu Bengali, Telugu, Kannada, and Assamese.
- Before the NTA, the test was conducted by the **Central Board of Secondary Education (CBSE)**.

What is the National Testing Agency (NTA)?

➤ About:

- The National Testing Agency (NTA) was established in 2017 as a Society registered under the **Indian Societies Registration Act, of 1860**.
- It is an autonomous and self-sustained testing organisation to conduct entrance examinations for admission in higher educational institutions.
- NTA conducts three top undergraduate admissions entrance exams- JEE-Main for engineering, NEET-UG for medicine and CUET-UG for admissions to several other undergraduate courses.
- Besides these, the testing agency conducts CUET-PG for postgraduate admissions, UGC-NET and CSIR UGC-NET.
 - UGC-NET is a test to determine the eligibility for the award of junior research fellowship, for appointment as assistant professor and admission to PhD in Indian universities and colleges.
 - CSIR UGC-NET is accepted for PhD admissions in Chemical Sciences, Earth, Atmospheric, Ocean and Planetary Sciences, Life Sciences, Mathematical Sciences, and Physical Sciences.
- Common Management Admission Test (CMAT), Hotel Management Joint Entrance Examination, Graduate Pharmacy Aptitude Test and entrance tests for Delhi University, Jawaharlal Nehru University, Indian Institute of Foreign Trade (IIFT) and Indian Council of Agricultural Research (ICAR), are among other tests conducted by NTA.

➤ Governance:

- NTA is chaired by an eminent educationist appointed by the Ministry of Education.
- The Director General of NTA, in the rank and pay equivalent to the Joint Secretary to Government of India is its Chief Executive Officer.
- The Government of India give directions to the NTA and the General Body in respect of its policies and the NTA is bound to comply with such directions.
- The administration of the NTA has been entrusted to the Governing Body comprising members from user institutions

➤ Functions:

- To identify partner institutions with adequate infrastructure from the existing schools and higher education institutions that would facilitate the conduct of online examinations without adversely impacting their academic routine.
- To create a question bank for all subjects using modern techniques.
- To establish a strong R&D culture as well as a pool of experts in different aspects of testing.
- To collaborate with international organisations like ETS (Educational Testing Services).
- To undertake any other examination that is entrusted to it by the Ministries/Departments of Government of India/State Governments.

Why is the NEET-UG Result 2024 Controversy?

➤ Allegations of Misconduct :

- This year, on May 5, over 24 lakh students appeared for the NEET-UG exam at 4,750 centres across 571 cities, including 14 international locations.
- The result was declared on June 4, which immediately caused a hue and cry with aspirants raising multiple issues, such as the **awarding of grace marks to over 1,500 students**, an unusually high number of students achieving perfect scores, and allegations of a leaked question paper.
- The results showed that **67 students achieved a total score of 720**, which is a higher percentage compared to the previous years' results. In 2023,

only two students scored full marks, while three in 2022, two in 2021, and one in 2020.

- It is alleged that **six of the toppers had appeared for the exam at the same centre** in Haryana.

➤ NTA's Stance :

- NTA said that the number of candidates who appeared in the 2024 exam was almost 3 lakh more than the 2023 number, and "the increase in candidates naturally led to an increase in high scorers due to a larger pool of candidates.
- Also, according to the NTA official, the 2024 NEET was "comparatively easier" than previous years.
- It was argued that after the maximum marks of 720, the next highest score possible was 716, and that marks of 718 and 719 did not make sense. The NTA explained that some candidates, including six of the toppers, had got "compensatory marks for loss of time.

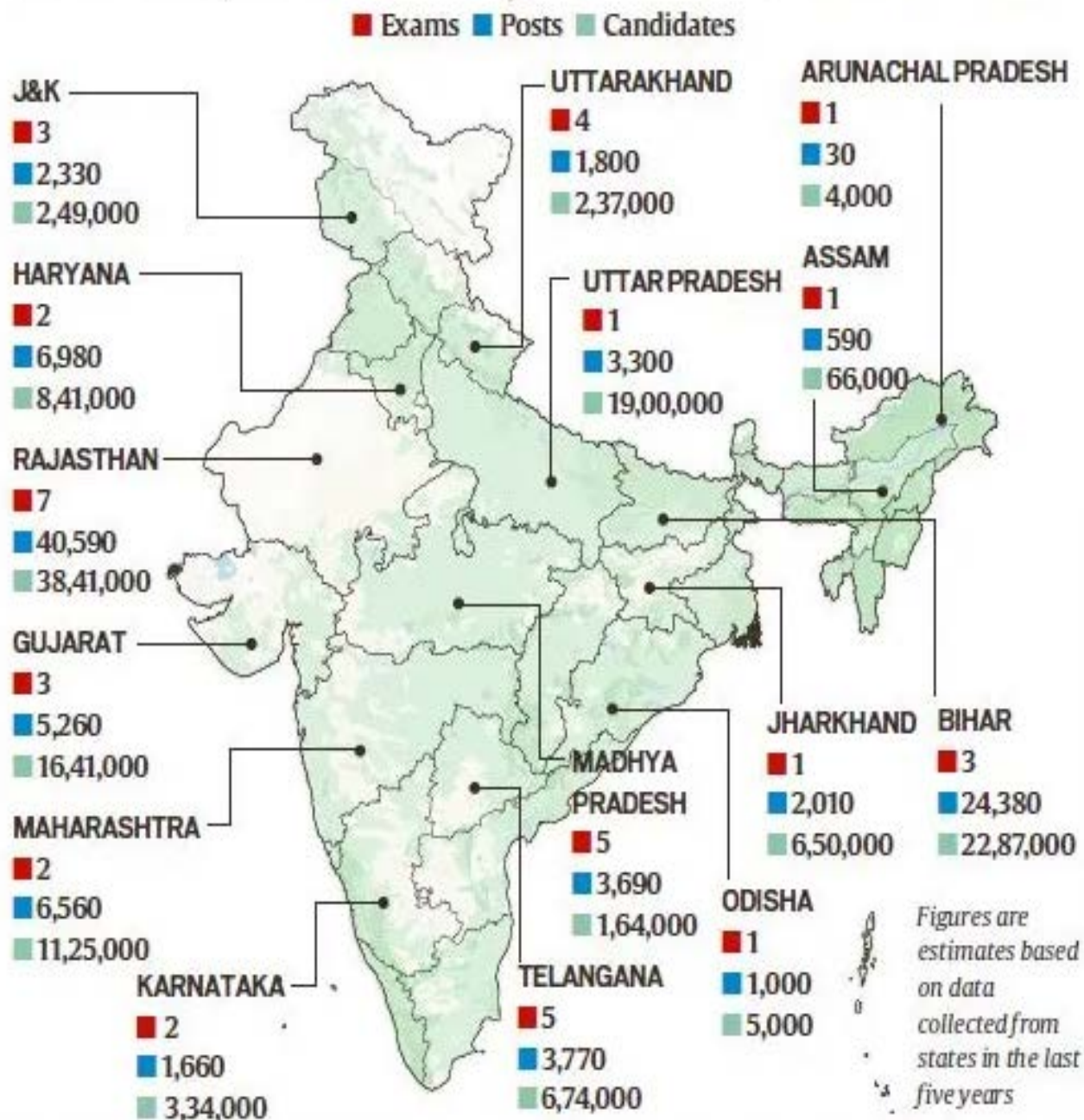
➤ Supreme Court's Ruling :

- The Centre has told the Supreme Court that it will conduct a retest for 1,563 students, who were given grace marks in the NEET-UG 2024. The re-exam was conducted on June 23.
- The Supreme Court has decided not to stop the admissions counseling process. If any of the 1,563 candidates opt out of the retest, their previous marks without the grace marks will be used for the results.

➤ Government Stance :

- The **Union Education Minister** said the alleged irregularities in the recently held National Eligibility Cum Entrance Test (NEET) was "**an institutional failure of the National Testing Agency**".
- The Central Government announced a high-level committee, headed by former ISRO chairman Dr K Radhakrishnan, to look into the functioning and fair conduct examinations by the National Testing Agency (NTA).
 - The seven-member committee will submit its report in two months.
- The Union government removed the NTA chief and put him on "compulsory wait" in the Department of Personnel and Training..
- The CBI has taken over the investigation of NEET UG following the discovery of evidence of a paper leak by investigators in Bihar.
- Rules under **The Public Examinations (Prevention of Unfair Means) Act, 2024** have been notified.

15 states, leaks in 41 job-recruitment exams



What are the Various Provisions Regarding Education and Examination in India?

➤ Constitutional Mandate:

- **Right to Education (Article 21A):** This article mandates free and compulsory education for all children aged 6 to 14 years. This was inserted by the 86th Constitutional Amendment Act, 2002.
- **Right to Equality (Article 14):** This ensures equality before the law and equal protection of the laws within the territory of India. This principle underlies the need for fair and non-discriminatory educational opportunities.
- **Prohibition of Discrimination (Article 15):** This prohibits discrimination on grounds of religion, race, caste, sex, or place of birth. It allows for special provisions for the advancement of any socially and educationally backward classes of citizens or for Scheduled Castes and Scheduled Tribes.

- **Promotion of Educational and Economic Interests (Article 46):** The State shall promote with special care the educational and economic interests of the weaker sections of the people, particularly the Scheduled Castes and Scheduled Tribes, and protect them from social injustice and all forms of exploitation.
- **Early Childhood Care and Education (Article 45):** The State shall endeavor to provide early childhood care and education for all children until they complete the age of six years.
- **Duty to Provide Opportunities for Education (Article 51A):** It is the duty of every citizen to provide opportunities for education to his child or ward between the ages of 6 and 14 years.
- **Government Initiatives :**
 - New Education Policy 2020.
 - Sarva Shiksha Abhiyan (SSA).
 - Rashtriya Madhyamik Shiksha Abhiyan.
 - Rashtriya Uchhatar Shiksha Abhiyan (RUSA).
 - National Curriculum Framework.

How Far Does the Public Examinations Act, 2024 Deal with Cheating in India?

Arguments in Favour:

- **Computer Based Test:**
 - The Rules lay down the full parameters of Computer Based Tests (CBT).
 - It covers from the registration of candidates, allocation of centres, and issue of admit cards to the opening and distribution of question papers, evaluation of answers, and the final recommendations.
- **National Recruitment Agency's Role:**
 - The central government's **National Recruitment Agency** shall prepare the norms, standards, and guidelines for CBTs in consultation with stakeholders. Once finalised, these norms will be notified by the Centre.
 - Norms will include physical and digital infrastructure, SOPs, candidate check-in, biometric registration, security, invigilation, and post-exam activities.
- **Centre Coordinator:**
 - Appointed from the Central/State Government, PSUs, public sector banks, universities, or other government organizations.
 - The Centre Coordinator shall be the representative of the public examination authority for coordination of activities of the various service providers and the examination authority, and for overseeing the compliance of all norms, standards, and guidelines for the exam.
- **Defining Public Examination Authorities:**
 - **Section 2(k) of The Public Examinations (Prevention of Unfair Means) Act, 2024** defines a "public examination" as "any examination conducted by the public examination authority" listed in the Schedule of the Act.
 - The Schedule lists public examination authorities which include UPSC, SSC, RRBs, IBPS, NTA, and other Central Government ministries/departments.
- **Use of Unfair Means:**
 - **Section 3 of the Act** lists 15 actions that amount to using unfair means in public examinations "for monetary or wrongful gain".
 - It includes question paper leakage, tampering with answer sheets, and providing unauthorized solutions.
- **Non-Bailable Provision in New Anti Cheating Law:**
 - The Act provides for punishment of **a minimum of three to five years** of imprisonment to curb cheating and for those involved in **organised crimes** of cheating will face five to **10 years of imprisonment and a minimum fine of Rs 1 crore.**

Arguments Against the Law:➤ **Existing Anti-Cheating Laws:**

- Critics argue severe punishment alone won't address cheating, as similar offences are already punishable under existing laws.
- Several states have their own anti-cheating laws, but cheating persists, indicating limited effectiveness.
 - Examples include Rajasthan, Andhra Pradesh, Uttar Pradesh, Gujarat, and Uttarakhand.

➤ **Prevalence of Organized Cheating:**

- Organized criminals with political ties often facilitate cheating, complicating enforcement.
- Innovative cheating methods and high-profile arrests highlight the ongoing challenge
 - Examples include a Russian hacker breaching IIT entrance exams and candidates using Bluetooth devices to cheat.

➤ **Focus on Punitive Measures:**

- Some critics suggest that the focus on punitive measures against individuals involved in exam malpractice may overshadow the need for systemic reforms in education, curriculum, evaluation methods, and support systems for students.

➤ **Declining Public Confidence:**

- Declining public confidence in the fairness and reliability of exams, leading to protests, litigation, and demands for reforms from various stakeholders.
- Disputes and protests over exam results, such as the railway recruitment test, demonstrate the ongoing issues in the examination system should be addressed effectively.

➤ **Discretion of State Governments:**

- While the act aims to serve as a model for states to adopt, the discretion given to state governments may lead to variations in implementation across different states.
 - This could potentially weaken the effectiveness of the law in preventing unfair means in public examinations.

What Should be the Steps Ahead to Ensure a Fair Examination System in India?➤ **Creation of a National Examination Integrity Council (NEIC):**

- The government should consider the creation of a National Examination Integrity Council that

would be responsible for overseeing the conduct of all major examinations across the country, ensuring uniform standards and practices.

- The Council may conduct regular audits to assess the effectiveness of examination processes and identify areas for improvement.
- There should be strong governance in the form of foolproof and complete Standard Operating Procedures (SOPs) and their compliance.

➤ **Transparent Recruitment and Accountability**

- Ensure that key positions within examination bodies are filled based on merit and integrity, reducing the chances of corruption and collusion.
- Implement robust whistleblower protection mechanisms to encourage reporting of malpractices without fear of retaliation.

➤ **On-Demand Testing:**

- Shift to an **on-demand computer-based testing model similar to GRE**, where students can schedule their exams at their convenience. This reduces the logistical burden of conducting exams for millions on a single day and mitigates the risk of leaks.
- Develop a large pool of questions for each subject, allowing the system to generate unique question papers for each candidate to minimize cheating opportunities.

➤ **Digital Security Measures:**

- Employ blockchain to create an immutable record of examination processes, from question paper setting to result declaration. This would ensure that any tampering is easily detectable.
- Utilize state-of-the-art encryption techniques to protect question papers and candidate information from unauthorized access.

➤ **Rigorous Enforcement:**

- Reduce the invigilator-to-student ratio to ensure better supervision during exams.
- **The Public Examination Act, 2024** should be rigorously enforced, with stringent penalties for malpractice, including fines, imprisonment, and lifetime bans from appearing in future exams for offenders

➤ **Secure Transportation and Storage:**

- Use tamper-evident packaging and **GPS tracking** for the transportation of physical examination materials. Storage facilities should be highly secure and monitored 24/7.

- Install CCTV cameras in all examination centers, ensuring comprehensive coverage of all activities. Recorded footage should be reviewed in case of any disputes or allegations of malpractice.

➤ **Post-Examination Processes:**

- Implement double-blind evaluation processes where multiple examiners independently grade the answer scripts. This reduces bias and errors.
- Establish a dedicated cell for quick resolution of discrepancies or grievances related to examination results.

➤ **Reducing Exam Pressure:**

- Reduce over-reliance on single-day exams by incorporating continuous assessment, project work, and interviews as part of the evaluation process.
- **NEP 2020** seeks to transform learning assessments from a summative approach that primarily tests rote memorization to a more regular, formative, and competency-based system that evaluates

higher-order skills such as analysis, critical thinking, and conceptual clarity.

➤ **Cultural and Educational Shifts:**

- Conduct workshops and seminars on ethics and integrity for students, educators, and examination officials to instill the importance of honesty in examinations.
- Launch awareness campaigns highlighting the repercussions of examination malpractices and promoting a culture of fairness and hard work.

Conclusion

By fostering a culture of integrity at every level—through enhanced surveillance, robust governance frameworks, and comprehensive stakeholder engagement—we can safeguard the sanctity of examinations. This vision not only protects the aspirations of millions of students but also strengthens India's educational foundation, paving the way for a more equitable and merit-based society.

■■■

drishti

Drishti Mains Questions

1. Discuss the key challenges related to the tourism sector and what strategies can be implemented to improve infrastructure and connectivity to remote tourist destinations in India?"
2. What are the recent initiatives taken by the Indian government to promote green energy transition? Discuss the potential roadblocks in implementing these initiatives and suggest measures to overcome them.
3. India's agricultural sector forms the lifeblood of its economy. However, it grapples with numerous hurdles. Critically evaluate these challenges and propose solutions that transcend the limitations of existing government policies.
4. Recent economic assessments project continued growth for the Indian economy. Discuss the key factors driving this positive outlook.
5. Artificial Intelligence is increasingly transforming various sectors of the economy. Analyze the ethical and regulatory considerations that must be addressed to ensure responsible AI deployment.
6. Discuss the major challenges faced by the healthcare regulatory framework in India. Suggest measures to strengthen the overall healthcare system in India to ensure equitable and efficient healthcare delivery.
7. What are the challenges and critical areas that need improvement to ensure equitable and quality healthcare for all citizens?
8. Discuss the key challenges facing India's criminal justice system and suggest comprehensive reforms to address these issues.
9. Analyze the key causes of India's water crisis and propose effective solutions for sustainable water management.
10. Evaluate the challenges and opportunities for India in aligning its interests with those of the West, taking into account recent geopolitical developments and strategic imperatives.
11. Discuss various emerging terrorist threats that India faces. Suggest measures that India can adopt to mitigate the impact of these challenges on its national security.
12. Discuss the concept and evolution of Federalism in India. Identify major challenges and propose solutions for strengthening India's federal structure.
13. Evaluate the potential for India to achieve developed country status. Discuss the key challenges and opportunities that could influence this transition.
14. Examine the challenges faced by gig workers in India and propose effective measures to address these issues.
15. What are the primary factors contributing to the ageing phenomenon in India? Discuss the challenges faced by the ageing population and propose solutions to address their vulnerabilities.
16. Examine the overall performance and challenges encountered by Indian Railways in recent years, and suggest effective strategies for its enhancement.

Drishti Mains Questions

17. Despite numerous government initiatives and schemes, the development of rural India continues to face significant challenges. Analyze the major impediments and suggest innovative measures to accelerate inclusive and sustainable growth in rural areas.
18. Discuss the challenges and opportunities associated with the adoption of electric vehicles in India. How can government policies be optimized to support a sustainable transition to EVs while balancing environmental and economic considerations?
19. How has the refugee situation in India become deeply intertwined with broader issues of human rights and international humanitarian principles? Examine the connections and implications.
20. India's agriculture sector requires immediate policy reforms to ensure sustainable livelihoods, enhance food security and foster inclusive growth in the country. Comment
21. Discuss the primary environmental challenges in the Indian Himalayan Region (IHR). Propose measures to advance an ecocentric approach to development in the region.
22. Discuss the strategic importance of the Andaman and Nicobar Islands in India's maritime security framework. Additionally, evaluate the challenges and opportunities in balancing economic development with environmental conservation in the region.
23. How do constitutional constraints and state borrowing practices impact the fiscal health of Indian states? Suggest potential reforms for enhancing fiscal stability of states.
24. Discuss the implications of changing monsoon patterns on agricultural productivity and water management in India. How should policy frameworks adapt to mitigate these challenges effectively?
25. How effective will the Public Examinations Act, 2024 be in combating cheating in India? What steps should be taken to ensure a fair examination system in the country?