



Monthly Editorial Consolidation



1st December to 31st December 2022

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Content

● Environment Friendly Genetic Modification	3
● E-rupee to Bolster Indian Economy.....	4
● The New Space Age.....	5
● Rethinking India's Cyber Defence.....	7
● Connecting India's East with Indo-Pacific.....	8
● Towards Effective Soil Management	10
● Reimagining Free and Fair Elections	11
● Preserving Our Past, Forging Our Future	13
● Expanding India's Food Security Net.....	14
● Towards Effective Democratic Decentralisation	16
● Countering Monopolisation of Big Tech.....	18
● India Towards Next-Gen Cities	19
● Revitalising India's Solar Energy Capacity	21
● Strengthening India's Export Capacities.....	22
● Re-energizing Counter Terrorism Agenda	23
● Revisiting Corporate Social Responsibility	25
● Conserving Diversity, Conserving Planet	26
● India's Booming Telecom Sector	28
● India's Growing FinTech Market.....	29
● Need of Police Reforms.....	31
● Unlocking India's Demographic Potential	32
● Global Energy Crisis and India's Energy Dynamics	33
● Constitutional silences, Unconstitutional inaction.....	35
● Migration Centric Development	36
● Bringing an End to Stubble Burning	38
● Realignment Towards FTAs.....	39
Drishiti Mains Questions	41-42

Environment

Friendly Genetic Modification

This editorial is based on “Long-term ecological, environmental effects of herbicide-tolerant crops haven’t been considered” which was published in The Indian Express on 29/11/2022. It talks about the release of GM mustard for seed production and issues associated with it.

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

Now-a-days with the rapid advance in research and development in Agricultural **Biotechnology**, countries are approving many **genetically modified crops for commercial release** and agricultural production.

Though, it is widely claimed that **Genetic modified organisms(GMO)** offer dramatic promise for meeting some of the greatest challenges but it also poses certain risks, because it brings together **new gene combinations which are not found in nature** having possible harmful effects on **health, environmental and non-target species**.

Therefore, **Genetically Modified crops must be carefully scrutinised** before they can be put into production.

What is Genetic Modification?

- “Genetic modification” involves altering the genes of an organism, be it a plant, animal or microorganism.
 - **GM technology involves direct manipulation of DNA** instead of using controlled pollination to alter the desired characteristics.
- It is one the **approaches to crop improvement**, all of which aim at **adding desirable genes and removing undesirable ones** to produce better varieties.

What is the Current

State of GM Crop Cultivation in India?

- Indian farmers started cultivating **Bt cotton**, a **pest-resistant**, genetically modified version of cotton, in 2002-03.
- Bt modification is a type of genetic modification where the Bt gene obtained from the **soil bacterium Bacillus thuringiensis** is introduced into the target crop, in this case, cotton.
 - **Bt cotton is resistant to bollworm**, a pest that **destroys cotton plants**.
- By 2014, around **96% of the area under cotton cultivation in India was Bt cotton**, making **India the fourth-largest cultivator of GM crops** by acreage and the **second largest producer of cotton**.

- Apart from cotton, there are **more than 20 crops under research and development in about 50 public and private sector organisations in India**. Out of these, 13 crops have been approved for contained limited field trials in India.
- In October 2022, **Genetic Engineering Appraisal Committee (GEAC)** under the **Union Ministry of Environment, Forest and Climate Change** recommended the “**environmental release**” of the **transgenic hybrid mustard DMH-11** for seed production.

How are Genetic

Modified Crops Regulated in India?

- In India, strict regulations are in place to control threats to animal health, human safety, and biodiversity at large during the **processes of development, cultivation and transboundary movement of GM crops**.
- Acts and rules that regulate GM crops in India include:
 - **Environment Protection Act, 1986 (EPA)**
 - **Biological Diversity Act, 2002**
 - **Plant Quarantine Order, 2003**
 - **Food Safety and Standards Act, 2006**
 - **Drugs and Cosmetics Rule (8th Amendment), 1988**
- Broadly, the rules cover:
 - All activities related to research and development of GMOs
 - Field and clinical trials of GMOs
 - Deliberate or unintentional release of GMOs
 - **Import, export, and manufacture of GMO**

What are the

Challenges Associated with GM Crops?

- **Ecological Concerns:** Gene flow due to cross pollination can result in **development of tolerant or resistant weeds** that are difficult to eradicate.
 - GM crops **could lead to erosion of biodiversity and pollute gene pools** of endangered plant species.
 - **Genetic erosion has already occurred** as the farmers have replaced the use of **traditional varieties with monocultures**.
- **Loss of Nutritious Value:** As **genetic modification focuses more on increasing crops’ production**, extending their lifespan, and **deterring pests**, some crops’ nutritional value has sometimes been compromised as well.
 - It has been reported that **some genetically modified foods drastically lacked nutritional value** when compared with the original variety.

- **Threat to Wildlife:** Altering the genes of plants can also have serious effects on wildlife. For example, **genetically modified plants**, such as tobacco or rice, used to make plastic or pharmaceuticals, can pose a **threat to mice or deer that eat crop debris after harvesting**.
- **Risk of Toxicity:** Due to the nature of the product changes after genetic modification it becomes an alien for human metabolism.
 - Sometimes, **newer proteins in transgenic crops** that are not consumed as food can become allergens and pose a risk of toxicity.

What Should be the Way Forward?

- **Curbing Illegal Cultivation of GM Seeds:** In order to curb the illegal cultivation of GM seeds, the **Genetic Engineering Appraisal Committee (GEAC)** should:
 - Collaborate with state governments and **launch a nation-wide investigation drive**.
 - Take action on **threats of deliberate GM crop cultivation**.
 - Investigate and **prosecute those involved in the illegal supply of GM Seeds**.
 - Encourage **organic farming** along with the GM crops.
- **Indigenous Gene Banks:** Native varieties should be preserved due to their ability to adapt to diseases and nutritional value. **Gene banks** can be established to assist various research institutions in conducting research and to help conserve indigenous varieties.
- **Blending Modern and Traditional Technology:** Supporting **precise agriculture technologies** with regulatory measures that **preserve indigenous methods of farming** is essential for **agricultural sustainability** in India.
 - **Promoting investment will motivate all technology developers to take interest in crops that are relevant to India** and using technologies for which there is a clear regulatory framework.
- **Comprehensive Move Towards Sustainability:** To create better food options and sustainable crop management, **genetic modifications must be combined with improved farming credit**, better use of water, and **reduced waste**.
- **Environmental Impact Assessment (EIA):** Compulsory **Environmental Impact Assessment** must be carried out by regulatory bodies in collaboration with independent environmentalists to **assess the long-term impact of GM crops on ecology and health**.



E-rupee to Bolster Indian Economy

This editorial is based on "How the e-rupee will work" which was published in The Indian Express on 02/12/2022. It talks about the launch of CBDC in India, its types and advantages.

Tag: Indian Economy, GS Paper-2, Government Policies & Interventions, GS Paper-3, Banking Sector & NBFCs

India is witnessing massive growth in digital transactions, the **volume and value of Unified Payments Interface (UPI) transactions increased by 118%** in 2022. **India's Digital rupee move** based on **transparent and efficient technology** will provide customers with continuous access to the payment system.

India launched its **Central Bank Digital Currency (CBDC)** or digital rupee or e-rupee on **December 1, 2022**. It is an **electronic version of cash** and will be primarily meant for **retail transactions**. The pilot will initially cover the four cities of **Mumbai, New Delhi, Bengaluru, and Bhubaneswar**.

This makes it important to know what CBDCs are, **how they are different from cryptocurrencies and UPI transactions**, and also about the **safety concerns** associated with it.

What is CBDC or E-rupee?

- It is a legal tender **issued by the RBI in digital form**. It is the same as the **fiat currency** and is **exchangeable one-to-one with the fiat currency**.
- **E-rupee will be in the form of a digital token representing a claim on the central bank** and will **effectively function as the digital equivalent of a banknote** that can be **transferred electronically from one holder to another**.
- Based on usage and the functions performed by the digital rupee, and considering different levels of accessibility, the **RBI has demarcated the digital rupee into two categories**:
 - **Retail E-rupee:** It is an **electronic version of cash** primarily meant for **retail transactions**, which can potentially be used by almost everyone, and **can provide access to safe money for payment and settlements**.
 - **Wholesale CBDC:** It is designed for **restricted access to select financial institutions**.
 - Financial transactions involving **government securities (G-Sec)** and **interbank transactions** could be transformed by this technology.
 - It also makes the **capital market more efficient and secure in terms of operational costs**, use of collateral, and liquidity management.

How will the E-rupee be Circulated in the Market?

- E-rupees will be issued in the **same denominations as paper currency and coins**, and will be distributed through the intermediaries, that is **banks**.
 - Transactions will be through a **digital wallet offered by the participating banks and stored on mobile phones and devices**.
- Transactions can be both **person to person (P2P) and person to merchant (P2M)**.
 - For P2M transactions (such as shopping), **there will be QR codes at the merchant location**.
- Users will be able to **withdraw digital tokens from banks** in the same way they can currently withdraw physical cash.
 - They will be able to keep their **digital tokens in the wallet**, and spend them online or in person, or transfer them via an app.

What are the Advantages of E-rupee?

- **Reducing Dependency on Dollar:** India can establish Digital Rupee as a superior currency for trade with its strategic partners, thus reducing reliance on the dollar.
 - This occurs at a time when **India is already in talks with Russia, UAE and Saudi Arabia to allow settlement of trade in the Indian rupee**.
- **Cutting Cost of Maintaining Physical Currency:** CBDC has the potential to **reduce dependency on cash**. To the extent large cash usage can be replaced by CBDCs, the **cost of printing, transporting, storing and distributing currency can be reduced**.
- **Regulated Intermediation:** Along with reducing operational costs, it will offer the public the same features as any private virtual currency (**cryptocurrency**) without any risks associated with it.
 - Unlike crypto, **E-rupee has regulated intermediation and control arrangements** that plays the crucial role of ensuring **integrity and stability of the monetary and financial ecosystem**.
- **Globalisation of Payment System:** CBDC can also enable a more real-time and **cost-effective globalisation of payment systems**. It could eliminate the **need for an expensive network of correspondent banks to settle cross-border payments**.
 - For **Indians working abroad, sending money home will become simpler and cheaper** resulting in **huge savings for India**, the world's top recipient of remittances.

What are the Challenges Associated with E-Rupee?

- **Privacy and Security Concern:** E-rupee has the capacity to **accumulate sensitive user and payment data on**

a massive scale. In the wrong hands, this data can be easily used to spy on the private transactions of citizens.

- If implemented **without proper security protocols**, an E-Rupee could substantially **amplify the scope and scale of many of the security and privacy threats** that already exist in today's financial system.
- **Digital Divide and Financial Illiteracy:** High level of **digital illiteracy** is the biggest challenge and hindrance in the success of E-rupee in India. India had a rank of **73 out of 120 countries for internet literacy (2021)**.
 - Also, **digital services are not available in local languages**, which is a major barrier to **financial literacy**.
- **Acceptability Concern:** Traceability of e-rupee transactions could become a deterrent to its uptake in India where **cash transactions are still hugely popular**, largely **because of their anonymity**. According to government data, the **volume of bank notes in circulation rose 5% in fiscal year 2022**.

What Should be the Way Forward?

- **Secured Digital Environment:** India's regulatory systems need to catch the **evolving risks of data privacy** and guide banking institutions to place appropriate safeguards and cushions to **avoid any personal data breach**.
- **Strict KYC Norms:** A digital rupee may well be a boon but **there is a need to enforce strict compliance of Know Your Customer (KYC) norms** to prevent the digital currency's use for **terror financing or money laundering**.
 - Also, given **India's still-vast digital divide**, a protocol for offline use has to be worked out.

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The New Space Age

This editorial is based on "Space for start-ups" which was published in Business Standard on 21/11/2022. It talks about India's Space Sector and successful launch of Vikram-S, India's first privately built rocket.

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

The **Space domain** is expanding as never before, with **rapidly increasing investment from both the public and private sectors** and an accelerated pace of technological innovation, pioneering **The New Space Age**.

India's Space Economy is likely to be worth nearly **USD 13 billion by 2025**, with the **satellite launch services** segment set to witness the fastest growth due to increasing private participation.

The successful launch of **Vikram-S**, India's first privately built rocket from start-up Skyroot, has focused welcome attention on the opening up of space to private enterprise.

While it affords many opportunities, it also poses distinct challenges that need to be examined to develop holistic perspectives of New Space and move towards peaceful and Sustainable Development in the Space sector.

What is Vikram S?

- **Vikram S** is a rocket developed by Indian Space Technology startup Skyroot Aerospace. It is named after **Vikram Sarabhai**, the founder of India's space programme.
- It is a single-stage sub-orbital launch vehicle that would carry three customer payloads.
 - It has been built using advanced technologies including carbon composite structures and 3D-printed components.

Why is Development in the Space Sector Important?

- **Positive Carryover to Other Sectors:** Space avenue is an integration of the aerospace, IT hardware and telecom sectors. It is thus argued that investment in this arena would foster positive carryover effects to other sectors as well.
- **Connect the Unconnected:** As for connectivity, satellite communication can reach more remote areas where conventional networks would require a heavy complimenting infrastructure.
 - The **World Economic Forum** had stated (in September 2020) that satellite communication can help connect 49% of the world's unconnected population.
- **Tackling Climate Change:** Satellites provide more accurate information on weather forecasts and assess (and record) long-term trends in the climate and habitability of a region.
 - For example, by monitoring the long-term impact of climate change at regional, territorial, and national scales, governments would be able to devise more pragmatic and combative plans of action for farmers and dependent industries.
 - Additionally, they can also serve as real-time monitoring and early-warning solutions against natural disasters such as earthquakes, tsunamis, floods, wildfires, mining etc.
 - Real-time tracking can also serve multiple purposes in defense.

What are the Challenges Related to Outer Space?

- **Small Window for Private Entry:** Approximately Rs. 15,000 crore is earmarked for ISRO's annual budget, most of which is spent on building rockets and satellites. Also, the private sector has a relatively small window of opportunity.
 - Due to this, India's space economy is small, and its potential has not been fully realized.
- **Influence of China in Space:** Due to the successful launch of its own navigation system, **BeiDou**, China has established a strong presence in space.
 - A strong position for China will be solidified if **Belt Road Initiative (BRI)** members contribute to or join China's space sector. Emerging space powers like India face a serious challenge in this regard.
- **Rise of Space Debris:** Increasing space exploration is causing more space debris to accumulate in the outer solar system, which can damage ongoing and future space missions due to high orbital speeds.
 - Space Debris can also lead to ozone depletion.
- **Increasing Global Trust Deficit:** An arms race for weaponization of outer space is creating an environment of suspicion, competition, and aggressiveness across the globe, potentially leading to conflict.
 - It would also put at risk the entire range of satellites as well as those involved in scientific explorations and communication services.
- **Unregulated Commercialisation:** Commercialization of outer space is accelerating due to the development of satellite expeditions to provide Internet services (Starlink-SpaceX) and for space tourism (Jeff Bezos).
 - If no regulatory framework is in place, rising commercialisation could lead to monopolization of space.

What Should be the Way Forward?

- **Legislative Backing to Private Entities:** As per the **Economic Survey 2020-2021**, over 40 funded start-ups are working in India in the space segment and the number is likely to increase in the coming years.
 - The current and emerging scenario justifies the need for casting the rights and obligations of private entities in legal certainty through a **National Legislation on private space activities in India**.
 - It would also support India to effectively discharge its obligations under **UN Treaties on Outer Space activities**.
- **Enhancing Space Self-Defense Capacities:** As space becomes a fourth battlefield, India needs to enhance its space capabilities. The **Kilo Ampere Linear Injector**

(KALI) is being developed as a possible response to incoming missiles intended to disrupt the country's peace is a good step in this direction.

- **Defending India's Space Assets:** In order to effectively defend its space assets, including debris and spacecraft, India needs reliable and accurate tracking capabilities.
 - **Project NETRA**, an early warning system in space to detect debris and other hazards to Indian satellites is a good step in this direction.
- **Space 4Women in India:** India can replicate The United Nations Office for Outer Space Affairs (UNOOSA)' Space 4Women project to promote gender equality and women's empowerment in space.
 - Space awareness programmes should be established in rural areas in India, and college-ISRO internships can be developed specially for female students to introduce them to the possibility of extending their wagons beyond our planet.
- **Permanent Seat in Space:** India should take the initiative to cooperate with international bodies and plan for a planetary defense program and joint space missions in the long term.
 - Also, with the **Gaganyaan mission**, ISRO has begun to focus on manned space flight as part of its rethinking of India's space presence.

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Rethinking India's Cyber Defence

This editorial is based on "The AIIMS attack shows the importance of a robust cybersecurity framework" which was published in Hindustan Times on 04/12/2022. It talks about Ransomware Attack on AIIMS server and related challenges to India's cyberspace.

Tag: Science & Technology, GS Paper-3, Cyber Security, Cyber Warfare, Challenges to Internal Security Through Communication Networks

The **Internet** has become one of the integral parts of our daily life. They are impacting most aspects of our day-to-day life. **Cyberspace** connects us virtually with crores of online users across the globe.

As India's internet base continues to grow, with over 900 internet users expected by 2025, a **parallel rise in cyber threats has become increasingly concerning**. The sophistication of cybercrimes is also increasing with the advancement of **digital technology**.

It is therefore imperative that India closely examines the **loopholes in its cyberspace** and addresses them holistically through a more comprehensive **Cyber-Security Policy**.

What is Cyber Security?

- **Cyber security** or information technology security are the techniques of **protecting computers, networks, programs and data** from unauthorised access or attacks that are aimed for exploitation of **cyber-physical systems** and **critical information infrastructure**.
 - **Critical Information Infrastructure(CII):** According to Section 70(1) of the **Information Technology Act**, CII is defined as a "computer resource, the incapacitation or destruction of which, shall have **debilitating impact on national security, economy, public health or safety**".

What are the Recent Instances of Cyber Attacks in India?

- In **2020**, approximately **82% of Indian companies** suffered **ransomware attacks**.
 - In **May 2017**, top five cities in India (Kolkata, Delhi, Bhubaneswar, Pune and Mumbai) got impacted due to **WannaCry ransomware attack**.
 - A **ransomware attack** recently hit **AIIMS Delhi**. The personal data of millions of patients in the top premier medical institute is at risk after a ransomware attack on its **servers**.
- In **2021**, A high-profile India-based payment company, **Juspay**, suffered a data breach impacting 35 million customers.
 - This breach is very noteworthy because **Juspay handles payments for online marketplaces, including Amazon** and other big players.
- In **February 2022**, **Air India** experienced a major cyberattack that compromised approximately **4.5 million customer records**. Passport, ticket, and some credit card information was compromised.

What are the Major Types of Cyber Threats?

- **Ransomware:** This type of **malware hijacks computer data** and then **demands payment (usually in bitcoins) in order to restore it**.
- **Trojan Horses:** A Trojan horse attack uses a **malicious program that is hidden inside a seemingly legitimate one**.
 - When the user executes the presumably innocent program, the **malware inside the Trojan can be used to open a backdoor** into the system through which hackers can penetrate the computer or network.
- **Clickjacking:** Act of tempting **internet users to click links containing malicious software** or unknowingly share private information on social media sites.

- **Denial of Service (DOS) Attack:** The deliberate act of **overloading a particular service** like website from multiple computers and routes with the aim of disrupting that service.
- **Man in Middle Attack:** In this kind of attack, the **messages between two parties are intercepted during transit.**
- **Cryptojacking:** The term **Cryptojacking** is closely related to **cryptocurrency**. Cryptojacking takes place when **attackers access someone else's computer for mining cryptocurrency.**
- **Zero Day Vulnerability:** A **zero-day vulnerability** is a flaw in the machine/network's operating system or application software which has not been fixed by the developer and can be exploited by a hacker who is aware of it.

What are the Challenges Related to India's CyberSpace?

- **Multiplying Capacity, Adding Vulnerability:** **India's digital economy** has flourished because of citizens' digital integration, but it has also created a vulnerability to data theft.
 - The government expected to remove all impediments to "data flows" across various sectors. This narrative resulted in **tech-industries paying only lip service to data protection.**
- **Parking Data Abroad:** In almost every sector, the **rush towards digitisation has led to collaborations with application service providers outside India**, so that customers can access the best apps and services as quickly as possible.
 - Having **foreign-sourced hardware and software**, or having **terabytes of data parked on servers outside India**, pose a threat to our national cyberspace.
- **Proxy Cyber Attacks:** **Artificial intelligence (AI)** is capable of producing autonomous lethal weapon systems that can kill and destroy lives and targets **without the involvement of humans.**
 - National security is also compromised by the vulnerability to illegal activities such as **fake digital currency and intellectual property** thefts through use of the latest **cyber technologies.**
- **China's Quantum Lead:** China's quantum advances expand the **spectre of quantum cyberattacks against India's digital infrastructure**, which already faces a barrage of attacks from Chinese state-sponsored hackers.
 - India's dependence on foreign, **particularly Chinese hardware**, is an additional vulnerability.

What are the Present

Government Initiatives Related to Cyber Security?

- **Indian Cyber Crime Coordination Centre (I4C)**
- **Indian Computer Emergency Response Team (CERT-In)**
- **Cyber Surakshit Bharat**
- **Cyber Swachhta Kendra**
- **National Cyber security Coordination Centre (NCCC)**

What Should be the Way Forward?

- **Cyber-Awareness: Education** is one of the important sectors for **dissemination of information on prevention of cyber-crimes** and reiterated that the young population can act as a **force multiplier to be aware of their engagement in cyberspace and create an ecosystem for cyber security and to prevent cyber-crimes.**
- **Tech-Diplomacy for Secure Global CyberSpace :** To tackle **emerging cross-border cyber threats** and move towards a secure global cyberspace, **India should strengthen its diplomatic partnerships with advanced economies and techno-democracies.**
- **Cooperative Federalism and Cybersecurity:** **Police and public order** are included on State Lists, so states must ensure that law enforcement is well-equipped to deal with cybercrime.
 - The **IT Act and major laws** are enacted centrally, so the central government can develop **uniform statutory procedures for law enforcement.**
 - Also, the **centre and states must commit adequate funds** to develop much-needed **cyber infrastructure.**
- **Mandatory Data Protection Norms:** All government and private agencies dealing with **personal data** should be required to **adhere to mandatory data protection norms.**
 - To ensure compliance with norms, **relevant authorities should conduct regular data protection audits.**

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Connecting India's East with Indo-Pacific

This editorial is based on "Connecting India's East with the Indo-Pacific" which was published in The Hindu on 03/12/2022. It talks about the significance of the northeastern region of India in integrating the rest of India with the Indo-Pacific region.

Tag: International Relations, GS Paper-2, Effect of Policies & Politics of Countries on India's Interests, Look East Policy, Act East Policy

The concept of **Indo-Pacific** is a recent one; about a decade old. However, it has risen to significance quite rapidly. One of the reasons behind the popularity of the **Indo-Pacific region** is the shift in the **center of gravity of geopolitics** towards Asia.

The world's largest economies are located in the **Indo-Pacific region** namely, **China, India, Japan, Indonesia, South Korea, Thailand, Australia, Taiwan, Malaysia and Philippines**.

India's "**Look East**" and "**Act East**" policies also entered the phase of **Indo-Pacific policy and strategy** in **2018**. The **northeastern region of India** is immensely significant from strategic as well as economic point of view when it comes to strengthening India's ties with the southeast and east Asian nations which are also a part of the Indo-Pacific.

What are the Look East and Act East Policies?

➤ **Look East Policy:**

- In order to recover from the loss of the strategic partner **USSR** (end of the **Cold war 1991**), India sought to build up a relationship with the **USA** and allies of the **USA** in **Southeast Asia**.
- In this pursuit, former Prime Minister of India **P V Narasimha Rao** launched **Look East policy** in **1992**, to give a strategic push to India's engagement with the **South-East Asia region**, to bolster its standing as a **regional power** and a **counterweight to the strategic influence of China**.

➤ **Act East Policy:**

- The '**Act East Policy**' announced in November 2014 is the **upgrade** of the **Look East Policy**.
- It is a diplomatic initiative to promote **economic, strategic and cultural relations** with the vast **Asia-Pacific region** at different levels.
- It involves **intensive and continuous engagement** with **Southeast Asian countries** in the field of **connectivity, trade, culture, defense and people-to-people-contact** at **bilateral, regional and multilateral levels**.

How NER Connects India with Indo-Pacific Region?

➤ **Strategic Significance:**

- **North-East India** is the gateway to **South-East Asia** and beyond. It is India's land-bridge to **Myanmar**.
- **India's Act East Policy** places the northeastern states on the territorial frontier of India's eastward engagement.

➤ **Economic Importance:** Investments in NER states basically have two fronts:

- The strategic location of the region connects the product markets of the larger Indian geography with the robust **South and Southeast Asian markets**.
- The existence of potent input market catalysts such as **social** (diversity, cultural richness), **physical** (potential energy supply hubs), **human** (inexpensive, skilled labor) and **natural** (minerals, forests) capitals in the region.

➤ **Infrastructure Development:**

- **Japan** has been engaged for decades in the development and modernization of infrastructure, particularly road connectivity, across states in the region.
- **The country** is presently involved in the construction of the **Dhubri-Phulbari bridge across the Brahmaputra River**.

What are the Major Challenges in Connecting NER with Indo Pacific?

- **Serious Non-Traditional Threats:** It includes the pernicious phenomena of **smuggling, drug trafficking, transnational border crime, rebel activity, and the inflow of refugees** from Myanmar.
- **China's Malicious Activities:** China has been known to play a pivotal role in the India's border tensions in the Northeast region such as **Doklam conflict** and in exacerbating the above-mentioned serious non-traditional threats.
 - Militant groups in northeastern region are getting funding from **China** such as **United Liberation Front of Assam (U.L.F.A.)** in 1979.
- **Internal Security Concerns: Extremist and insurgency groups** that have international links in escaping security forces, using of **hideouts in neighboring countries** like **Myanmar**, and the alleged **presence of international intelligence agencies** like **ISI** that operate in the **NER** are other major concerns that **hinder the optimum utilization of NER's potential**.
- **Growth and Developmental Challenges:** Isolation from the rest of India, lack of efficient infrastructure, poor road connectivity and slow pace of industrial growth are major causes of the NER's backwardness.

What can be Done to Uplift NER?

- **Act-East from Northeast:** Comprehensive implementation of Act East policy is relevant to the entire country but particularly important for the long-term growth of the NER.
 - The agenda for its implementation must be prepared in **active association with the State Governments of NER**.

- **Managing Border and Connectivity Issues:** Connectivity drives commerce, **air links to the NER should be a priority.** The development of road and railway projects should also be **in accordance with disaster-resilient measures.**
 - A fair assessment shows that there is **plenty of room for future border management and road connectivity.** that is both functional and people-focused.
 - Japan has been India's major partner in development of NER; such partnerships need to be leveraged with other countries too.
- **More Employment Opportunities:** Thousands of graduates are produced by local universities of NER. To uplift their living standard, creation of appropriate jobs and employment opportunities are need of the hour.



Towards Effective Soil Management

This editorial is based on "Poor soil management will erode food security" which was published in The Hindu on 05/12/2022. It talks about the Soil degradation and its consequences on human and ecosystem health.

Tag: Agriculture, GS Paper-1, Land Resources, GS Paper-3, Conservation, Environmental Pollution & Degradation.

87% of life forms on this planet – **human beings, microbes, worms, insects, birds, animals, and plants** on the planet are sustained by a thin layer of crust "**soil**". And **that is in grave danger right now.**

In the last 40 years, **40% of the world's topsoil has been lost.** The **United Nations** says we have soil left only for approximately **80 to 100 harvests**, which means just another **60 years of agriculture.** After that, we will not have the soil to produce food.

30% of India's land is already degraded, and 90% of India's states are seeing soil turn to desert. So, protecting the soil for the future generations of this land is the most important **not only for food and nutrition security** but for **humanity** as well.

What is the Significance of Healthy Soil?

- **Food and Nutritional Security:** Shedding light on the importance of soil management, the **UN says there are more living organisms in a tablespoon of soil than the people on Earth.**
 - Soil holds **minerals, organic components, and organisms** and needs to be protected from degradation to ensure **nutrient-rich plant life on Earth.**

- They support **healthy plant growth and enhance its nutritional value.**
- **Carbon Sink:** The **soil stores carbon**, making it the **second largest carbon sink** after the oceans, helping to keep a landscape **resilient to droughts and floods.**
- **Nature's Filter:** **Dust, chemicals, and other contaminants** are removed from surface water by soils, making underground water some of the cleanest on earth.
- **Livelihood and Settlement:** Soil supports **buildings and highways** thus contributing to the economy of our cities.
 - For instance, the **rich, deep fertile soils of the Ganga plain**, especially its delta, and the **coastal plains of Kerala** support **high population density** through agricultural prosperity.

What are the Challenges Associated with Soil Health?

- **Overuse of Agrochemicals:** The **overuse of agrochemicals** contributes to **soil acidification**, resulting in a reduction of organic matter in the soil (humus content), stunting plant growth and even causing greenhouse gases to be released.
 - The analysis of the **Soil Health Card Scheme** shows alarmingly low levels of **soil organic carbon (SOC)** across India (an important indicator of soil health).
- **Deforestation:** Due to **rapid deforestation, and urbanisation**, forests are being converted to farms, and farms into residential areas, that is **degrading soil health to a large extent.**
 - Soil degradation has been indirectly affecting **2 billion people worldwide** who are **reported to suffer from a lack of micronutrients**, a problem labelled as "**hidden hunger**" because they are difficult to detect.
- **Waterlogging:** **Excessive irrigation** causes waterlogging that is often **accompanied by soil salinity** as waterlogged soils **prevent leaching of the salts imported by the irrigation water.**
 - Waterlogging **impedes the ability of soil to provide an optimum medium for plant growth** and alters its physical and chemical properties to a large extent.
- **Climate Change Impact:** Though, climate change is a slow process involving relatively small **changes in temperature and precipitation** over a long period of time, nevertheless these slow changes in climate influence the **various soil processes particularly those related to soil fertility.**

What are the Initiatives to Improve Soil Health?

- **Paramparagat Krishi Vikas Yojana**
- **Neem Coating of Urea**
- **The Nutrient Based Subsidy (NBS) Scheme**
- **National Mission for Sustainable Agriculture (NMSA)**
- **World Soil Day** - 5 December
- **Soil Health Card Scheme**
- **Digital Agriculture**

How Soil Health can be Further Improved?

- **Agroforestry:** The inclusion of trees and shrubs into farming practices can **reduce runoff, increase infiltration** and reduce soil loss through their barrier effect.
 - They also help maintain the **soil organic matter** through decay of pruning and **root residues**.
- **Regular Soil Audits:** A specialised body is needed both at the **central as well as at state level for the management of soils**. With the help of local panchayats, they should be responsible for monitoring soil quality and **performing regular soil audits**.
- **Crop Rotation and Reforestation:** Rotating in high-residue crops such as **corn, hay, and small grain** can **help to reduce erosion** as the layer of residue protects topsoil from being **carried away by wind and water**.
 - **Restoration of a degraded ecosystem** and protection of the existing ones ensures sufficient soil erosion control. A recent study shows that a **properly planted and maintained tree reduces erosion by 75%**.
- **Towards Smart Agriculture:** India is known for its diversity of farming practices. It is important to get **diverse points of view engaged in a national-level dialogue** to find suitable solutions for **soil management and sustainable farming**.
 - India needs to move towards **smart and precision farming** using sensors and other scientific tools to **manage soil health and use appropriate herbicides and pesticides**.
 - The **Food and Agriculture Organization** collaborating with the **National Rainfed Area Authority** and the **Ministry of Agriculture and Farmers' Welfare (MoA&FW)** to develop **forecasting tools using data analytics** that will aid vulnerable farmers in making informed decisions on **crop choices**, is a good step in this direction.
- **Carbon Farming:** There is need to practice **carbon farming methods** of agricultural management that can help the **land store more carbon** and **reduce the amount of GHG** that it releases into the atmosphere, **in a way maintaining soil health and atmospheric stability**.

- **Multi Sectoral Approach to Soil Management:** There is a need to strengthen communication channels between academia, policymakers and society for the **identification, management and restoration of degraded soils**, as well as in the adoption of **anticipatory measures**.
 - Consumers and citizens **can contribute by planting trees to protect topsoil**, developing and maintaining **home/kitchen gardens**, and consuming **foods that are mainly locally sourced and seasonal**.



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Reimagining Free and Fair Elections

This editorial is based on "India is paving the way for truly accessible elections" which was published in Hindustan Times on 06/12/2022. It talks about the Elections in India and associated challenges.

Tag: Indian Polity, GS Paper-2, Constitutional Bodies, Transparency & Accountability

The **founding fathers of our Indian Constitution** conceived of **representative parliamentary democracy** as the polity most suited to **India's ethos, background and needs**.

They envisaged equal participation of all the adult citizens in the democratic process without any discrimination. **Selection of representatives** of the people through universal adult franchise and **free and fair elections** seemed to be the **best fit for the Indian republic**.

Elections in India are held to elect members of the **Lok Sabha, Rajya Sabha, State Assemblies, Legislative Council**, to the posts of **President, Vice-President, Local Bodies, Municipal Corporation, Gram Panchayat, Zila Panchayat and Block Panchayat**.

But the current election system is facing a number of challenges that **raise doubts about its "free and fair" nature**. It is therefore imperative that these issues are carefully scrutinised and addressed holistically.

What are the Constitutional Provisions Related to Elections in India?

- **Article 326** of the Constitution provides that the elections to the **House of the People and to the**

Legislative Assembly of every State shall be on the basis of adult suffrage.

- **Article 324** vests the **superintendence, direction and control of the preparation of electoral rolls** and conduct of elections in an independent **Election Commission**.
- Under **Articles 243K and 243ZA** elections to local bodies – **Panchayats and Municipalities** – are the responsibility of **State Election Commissions**.
- **Article 328** gives power to the Legislature of a State to make **provision with respect to elections to such Legislature**.

What are the Powers and Responsibilities of the Election Commission?

- Determining the **Electoral Constituencies'** territorial areas throughout the country.
- **Preparing and periodically revising electoral rolls** and registering all eligible voters.
- Notifying the **schedules and dates of elections** and scrutinising nomination papers.
- **Granting recognition to the various political parties** and allocating them election symbols.
- The **Commission also has advisory jurisdiction in the matter of post-election disqualification** of sitting members of Parliament and State Legislatures.
- It is also responsible for conducting **bye-elections** in any constituency whenever the need arises.

What are the Challenges Associated with Free and Fair Elections in India?

- **Distorting Informed Decision Making of Voters:** **Unregulated populism** that offers and distributes **'irrational freebies'** during election campaigns causes voters to be biased, **especially the unprivileged**, since freebies can sway them and **affect the informed decision making process** for choosing their representatives.
- **Lack of Independent Staff:** Since ECI does not have its own staff, it relies on those of the **Central and State Governments** whenever elections are held.
 - As a result, the **administrative staff** is also responsible for **ordinary administration**, as well as **electoral administration**, which makes the electoral process less impartial and efficient.
- **No Statutory Backing for Enforcing Model Code of Conduct (MCC):** As far as enforcing **Model Code of Conduct (MCC)** and other election-related decisions are concerned, there is no clarity regarding the powers of **Election Commission of India (ECI)** to **enforce them on ground**.

- **Booth Capturing:** A polling booth, which is the **designated location where voters exercise their right to vote**, is the most important part of the election process.
 - There are many instances of **booth capturing due to decay in the standards of political morality** where party loyalists or hired criminals "capture" a polling booth and vote in place of legitimate voters to ensure that a particular candidate wins.
- **Politicisation of Social Media:** **Social media** reflects public opinion, that is a **currency of democracy**. But one of the most common criticisms of social media is that it **creates echo chambers where people only see viewpoints they agree with**.
 - The **political campaigns on social media** sometimes **spark religious and social tensions** in different parts of the country that affect the **impartial electoral process**.
- **Inaccessibility of Booth for PwD:** A large number of **persons with disability (PwD)** faced immense problems in casting their vote due to **lack of supporting infrastructure** at polling booths.

What are the Recent Initiatives by Election Commission of India?

- **Systematic Voters' Education and Electoral Participation (SVEEP)**
 - **Model Polling Station**
- **Committee for Accessible Elections at National and State Level**
- **Electorals Verification Programme.**
- **Cvigil App** – to report the violations of Model Code of Conduct (MCC)
- **Voter Helpline App** – to ease the registration process
- **Divyang Sarathi and Divyang Doli**

What Should be the Way Forward?

- **Democratizing Elections:** In a democracy, **equality for all parties is demanded**, and free & fair elections ensure those opportunities.
 - To **ensure equal attention is given to minority political campaigns**, strict norms must be established for the **use of social media for political purposes**.
 - The **Election Commission of India** can go to great lengths to make sure that **one party doesn't have an undue advantage over another just because it is in power**.
 - Regulations should also be maintained to ensure **checks on use of personal data** in the context of electoral campaigns complies with national laws.

- **No Voter to be Left Behind:** Apart from conducting free and fair polls, the Election Commission should take steps to ensure “**participative, accessible, inclusive**” elections by providing necessary **infrastructure and facilities specially to the persons with disabilities**.
- **Voter Awareness:** Voters hold the **power to block or permit the march of freebies**. There must be a consensus on regulating irrational freebies and **ensuring voters are not swayed by irrational promises**.
 - All of this requires **eternal vigilance on the part of the voting class**.
- **Enforcing Model Code of Conduct:** There is a need to enforce the **Model Code of Conduct For Guidance of Political Parties and Candidates** by providing it a statutory backing to **effectively regulate election manifestos** in order to **prevent the manipulation of informed voter behaviour**.
- **Law Commission 255th Report on Electoral Reforms:** A permanent and independent Secretariat for the **Electoral Commission of India (ECI)** along the lines of Lok Sabha/Rajya Sabha Secretariat is recommended in this report.
 - Furthermore, **State Election Commissions** can also be provided with similar provisions to **guarantee their autonomy and fairness**.

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Preserving Our Past, Forging Our Future

This editorial is based on “Heritage conservation can drive climate action” which was published in Hindustan Times on 08/12/2022. It talks about the Indian Heritage Conservation and its role in climate action.

Tag: Indian Heritage & Culture, GS Paper-1, Indian Heritage Sites, Indian Architecture

India has a **rich heritage** that is a storehouse of **archaeological assets and mind-blowing monuments**. They represent a unique legacy of civilization and therefore the **conservation of built heritage** is generally perceived to be in the **long term interest of society**.

But the majority of India’s architectural heritage and sites remain **unidentified and largely** unprotected, and even those that are protected are facing challenges related to climate change and **unsustainable tourism practices**. Therefore, the **issues related to Indian Heritage** must be carefully identified and solved in a comprehensive manner.

What is a Heritage?

- Heritage is deemed to mean those **buildings, artefacts, structures, areas and precincts** that are

of historic, aesthetic, architectural, ecological or cultural significance.

- It must be recognized that the **‘cultural landscape’ around a heritage site is critical for the interpretation of the site** and its built heritage and thus is very much its integral part.
- The **three key concepts** that can be considered to determine whether a property can be listed as a Heritage are:
 - **Historic significance**
 - **Historic integrity**
 - **Historic context**.
- In India, heritage comprises archaeological sites, remains, ruins.
 - The primary custodian of **‘Monuments and Sites’** in the country, i.e. **Archeological Survey of India (ASI)** and their counterparts protect them.

What is the Role of India’s Rich Heritage in Embracing its Cultural Identity?

- **Storytellers of Indian History:** Heritage is a legacy of physical artefacts and intangible attributes through the generations that are **inherited, preserved, and passed on**.
 - Heritage has been **woven into the fabric of Indian society with spiritual, religious, social, and political significance**.
- **Embracing Diversity:** India heritage is itself a museum of different types, communities, customs, traditions, religions, cultures, beliefs, languages, castes and social systems.
- **Tolerating Nature:** Indian society gave every **culture the opportunity of prospering that is reflected in its diverse heritage**. It does not try to suppress diversity in favour of uniformity.

What are the International Conventions Relating to Heritage?

- **United Nations Educational, Scientific and Cultural Organization (UNESCO)**
- **Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, 1977**
- **Convention for the Safeguarding of the Intangible Cultural Heritage, 2005**
- **Convention on the Protection and Promotion of the Diversity of Cultural Expressions, 2006**
- **United Nations World Heritage Committee:** India has been elected as a member of the committee for the term 2021-25

What are the Challenges Associated with Heritage Conservation in India?

- **Pollution and Climate Change:** **Pollution** is another problem faced by our heritage sites and India is still struggling to save its wonder, **Taj Mahal** from the pollution.
 - Of late, India is seeing a spate of **floods due to climate change** in various parts of the country including in those locations where heritage sites are located.
 - **Puri in Odisha** and **Hampi in Karnataka** are some of the latest examples of **heritage sites getting damaged due to natural calamities** which in turn is said to be the **result of global warming**.
- **Heritage Encroachments:** Many ancient monuments have been encroached upon by **local residents, shopkeepers, and souvenir sellers**.
 - There is **no harmony between these structures and the architectural style of monuments** or the surroundings.
 - For instance, according to the **Comptroller and Auditor-General of India (CAG) Report, 2013**, there was encroachment on the **Taj Mahal's premises near Khan-i-Alam's Bagh**.
- **Exploitation over Excavation:** Development activities have exploited many archaeological sites in India with rich deposits of artefacts.
 - Also, there is **no provision for Cultural Resource Management** before developmental projects, which adds to the problem.
- **Lack of Database for Heritage Sites:** There is no comprehensive national database with state-by-state distribution of heritage structures in India.
 - **Indian National Trust for Art & Cultural Heritage (INTACH)** has inventoried about **60,000 buildings** in around **150 cities**, but that's still just the tip of the iceberg since there are estimated to be over **4000 heritage towns and cities** throughout the country.
- **Lack of Human Resource:** Lack of adequate numbers of qualified and competent **human resources** to look after the monuments and **carry out conservation activities** is the biggest problem faced by agencies like ASI.

What are the Recent Government Initiatives Related to Heritage Conservation?

- **National Mission on Monuments and Antiquities (NMMA), 2007**
- **Adopt a Heritage Programme**
- **Project Mausam**

What Should be the Way Forward?

- **Reimaging Excavation and Conservation Policy:** In light of the **changing scenarios with the advancement in technology**, ASI needs to update its **Excavation Policy**.
 - Using new technology such as **Photogrammetry & 3D Laser scanning, LiDAR and satellite remote sensing surveys** should be used for documentation, surveys, excavation and conservation.
- **Smart City, Smart Heritage:** It is necessary to consider the **Heritage Impact Assessment** for all large infrastructure projects.
 - The **Heritage Identification and Conservation Projects** need to be adjoined to the city master plans and **integrate with the Smart City Initiative**.
- **Innovative Strategies for Increasing Engagement:** The **use of monuments that do not attract a large number of visitors** and not have cultural/religious sensitivity can serve as **venues for cultural and wedding programmes** that can fulfil twin objective:
 - The **promotion of the associated intangible heritage**.
 - **Increasing visitor numbers** to such sites.
- **Corporate Heritage Responsibility:** Companies should be encouraged to take on restoration and preservation of monuments as part of their **Corporate Social Responsibility (CSR) obligations**.
- **Linking Heritage Conservation with Climate Action:** Heritage sites can serve as **opportunities for climate communication and education**, and **research on historic sites and practices** to understand past responses to changing climate conditions can help **adaptation and mitigation planners develop strategies that integrate natural science and cultural heritage**.
 - For example, **coastal and river communities such as the island of Majuli in India** have been living with and adapting to changing water levels for centuries.

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Expanding India's Food Security Net

This editorial is based on "Expand the food safety net without any more delay" which was published in The Hindu on 10/12/2022. It talks about Food Security in India and issues related to Public Distribution System coverage.

Tag: Agriculture, GS Paper-3, Food Security

The **Green Revolution** initiated in the late 1960s was a historic watershed that transformed the **Food Security**

situation in India. It tripled **food grain production** over the next three or four decades and consequently **reduced by over 50% both the levels of food insecurity and poverty in the country**; this was **achieved in spite of the increase in population** during the period.

The country succeeded in the laudable task of becoming a **food self-sufficient Nation**, at least at the **macro level**. But with rising **land degradation, loss of soil fertility and water logging, climate change**, and **global supply chain disruption (Russia-Ukraine War)** giving rise to the challenges faced by the farming community. The fall in ground water levels is adding to the problem.

Therefore, India needs to **examine these issues holistically** in order to maintain food sustainability.

What is Food Security?

- The **Food and Agricultural Organization (FAO)** states that food security emerges when all people at all times have physical and economic access to **sufficient, safe and nutritious food** to meet their dietary needs and food preferences for an active and healthy life.
- Food security has three important and closely related components, which are **availability, accessibility and affordability of food**.

What is the Current

Framework for Food Security in India?

- **Constitutional Provision:** Although the **Indian Constitution** does not explicitly state that **food is a fundamental right**, **Article 21** of the Constitution can be interpreted so that it includes the **right to live in dignity**, including the **right to food and other basic necessities**.
- **Buffer Stock:** The **Food Corporation of India (FCI)** has the **primary responsibility of procuring food grains at minimum support prices (MSPs)** and storing them in its warehouses at various locations for supply to the state governments.
- **Public Distribution System:** 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.**
- **National Food Security Act, 2013 (NFSA):** Through the **NFSA**, food security has shifted from a **welfare to a rights-based approach**. It covers **75% of the rural population** and **50% of the urban population** under the following categories:

- **Antyodaya Anna Yojana:** It constitutes the **poorest-of-the-poor**, and is entitled to receive **35 kg of foodgrains per household per month**.
- **Priority Households (PHH):** Households covered under PHH category are entitled to receive **5 kg of foodgrains per person per month**.

What are the Challenges

Related to Food Security in India?

- **Menace of Climate Change:** **United Nations** called out climate change, extreme weather events as the **key factors driving growing food insecurity**.
 - Increased temperatures, weather variability, invasive crops and pests, and more frequent extreme weather events have **detrimental effects on farming** – from **diminishing agricultural yields, to weakening the nutritional quality of produce on farms, to reducing farmer incomes**.
- **Pest and Weed Attacks:** Over the past **15 years**, India has experienced more than **10 major invasive pest and weed attacks**.
 - **Fall Armyworm (Pest)** destroyed nearly all the **maize crop in India in 2018**, forcing India to import maize in 2019.
 - **Rajasthan and Gujarat** were also affected by **locust attacks** in 2020.
- **Volatile Market Pricing:** The concept of **globalisation** has given more **openness to agricultural commerce**, but it is unable to **assure more stable market pricing**.
 - The lack of remunerative prices for **end goods, distressed sales, high cultivation costs** combined with **inappropriate market prices** act as a **barrier in the path of food security**.
- **Waterlogging:** Excessive irrigation causes **waterlogging** that is often accompanied by **soil salinity** as **waterlogged soils prevent leaching of the salts** imported by the irrigation water.
 - The **presence of waterlogged soil hinders plant growth** and reduces agricultural productivity.
- **Lack of Food Management Policy:** There is no strict management policy for food security in India, and the **Public Distribution System** is **prone to leaks and diversion, errors in inclusion and exclusion, fake and bogus ration cards, and a weak grievance redress and social audit system**.
- **Shifting Focus to Biofuels:** The growth of the **biofuel** market has **reduced the land used for growing food crops**. Also, massive quantities of water are required for proper irrigation of biofuel crops as well as to manufacture the fuel, which **strain local and regional water resources, that is the essence of food security**.

What are the Recent Government Initiatives Related to Food Security?

- **National Food Security Mission**
- **Rashtriya Krishi Vikas Yojana (RKVY)**
- **Integrated Schemes on Oilseeds, Pulses, Palm oil and Maize (ISOPOM)**
- **eNAM Portal**

What Should be the Way Forward?

- **Prioritising Supporting Infrastructural Development:** The government should prioritise development of **warehouses, cold storage facilities, farm to factory corridors, and competitive market facilities.**
 - Encouragement of the **PPP model in agriculture** will result in **speedier infrastructure development.**
- **More Transparent Food Security Measures:** The Indian government could ensure more transparency on **food stocks regulation in the private sector.** For that, there is a **need to set restrictions on the reserves that the private sector can hold**, as they often tend to **hoard food stocks to later sell at a profit.**
 - Internationally, **positional limits could be set on speculators** but that would require a **multilateral accord**, a topic which should be on the **agenda at the India's G20 presidency.**
- **Strengthening One Nation One Ration Card Scheme:** The plight of migrant workers at the height of the pandemic showcased that the **lack of a universal PDS is a major limitation in achieving food security.**
 - The **'one nation one ration card'** scheme should be operationalised through the **proper issuance of universal ration cards to individuals seeking foodgrain** so that the **PDS can be accessed at any geographical location in the country.**
- **Towards Sustainable Agriculture:** Sustainable agriculture practices such as **crop rotation, mixed cropping with pulses, using biofertilizers, limiting the use of pesticides and integrated pest management** must be encouraged and promoted.
 - **Drip irrigation and solar panels** can be encouraged by **redirecting the subsidy on electricity for drawing water for irrigation purposes to the adoption of drip irrigation techniques and installing solar panels.**
- **Incentivising Climate Resilient Crops:** Investment is needed for the **development and distribution of climate-resilient crops** that can handle temperature variation and precipitation fluctuations.
 - The government should **incentivise the production of water- and nutrient-efficient crops** (such as **millets and pulses**) and announce a **lucrative Minimum Support Price and input subsidies for farmers.**

- **Agricultural Diplomacy:** India can provide support to other developing countries in Africa and Asia through **technology partnerships, joint research in promoting drought resistant crops, promoting climate smart agriculture**, thereby establishing India as a major player of Global South.



Towards Effective Democratic Decentralisation

This editorial is based on "Why local bodies are financially starved" which was published in Hindu Business Line on 11/12/2022. It talks about the Urban Local Bodies in India and related challenges.

Tag: Indian Polity, GS Paper-2, Local Self Governance, Co-operative Federalism

Democratic decentralisation is often founded upon the notion it empowers **local political bodies** to create **institutions that are more accountable to local citizens and more appropriate to local needs and preferences.**

The passing of the **73rd and 74th Constitutional Amendments** was a crucial step in this direction **identifying Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) as agents of self-governance** and giving them the responsibility for preparing plans for promoting **economic development and social justice.**

Next year, India will celebrate the **30th anniversary of the enactment of these constitutional amendments.** A lot remains to be done to have truly decentralised local bodies in the country.

What is Democratic Decentralisation?

- It is the **process of devolving the functions and resources of the state from the Centre and State to the elected representatives at the lower levels** so as to facilitate greater direct participation of citizens in governance.
- The **73rd and 74th Amendments**, by constitutionally establishing **Panchayati Raj Institutions (PRIs) in India**, mandated the establishment of **panchayats and municipalities** as elected local governments.
 - The **11th Schedule of the Constitution** contains the powers, authority and responsibilities of Panchayats.
 - The **12th Schedule of the Constitution** contains the powers, authority and responsibilities of Municipalities.

How Democratic Decentralisation Impact Governance?

- **Enhances Transparency:** It also enhances the transparency of government, and the flow of

information between government and citizens (in both directions).

- **Transparency** increases because a **much larger number of people than before can see how the government works**, and what is happening within the policy and political processes.
- **Responsible Government:** When democratic decentralisation works well, it makes the **government more responsive**. The **speed and quantity of responses** (actions, projects) from the government increase.
- **Political and Civil Pluralism:** Civil society is galvanised by local governance, and the more people join, the more active and competitive the governance will become. This strengthens **political and civic pluralism**.
- **Alleviate Poverty:** Decentralised systems can help to **reduce poverty** that arises from **inequalities between regions or localities** because it tends to **provide all arenas with equitable representation and resources**.

What are the Challenges Related to Decentralisation in India?

- **Infrastructural Loopholes:** Many **Gram Panchayats (GPs)** lack a building of their own and share spaces with **schools, anganwadi, and other entities**.
 - While some have their own building, they lack basic facilities such as **toilets, drinking water, and electricity**.
 - Although **Panchayats have internet connections**, they are not always functional. Panchayat officials have to visit **Block Development offices** for any **data entry purposes**, which delays the work.
- **Lack of Sufficient Financial Resources:** Both **rural local bodies (RLBs)** and **urban local bodies (ULBs)** across the country are under **financial stress**. Urban local governments and panchayats rely heavily on **grants-in-aid** from state consolidated funds.
 - Taxes collected by the **urban bodies are not sufficient to cover the expenses** of the services provided. Also, unlike the **Centre and the States**, **no distinction is made between revenue expenditure and capital expenditure** at the local government level.
- **Lack of Accurate Data on Finance:** The **State Finance Commissions (SFCs)** are **not presented with accurate and updated data** on the finances of the local bodies.
 - No rigorous fiscal analysis is possible without disaggregated fiscal data for the PRIs and ULBs.
 - In the absence of data, in a significant number of cases, **recommendations by SFCs tend to be the ad-hoc opinion** of the chairperson, which is not grounded in data.

- **Downgraded Role of Local Government:** Local governments are merely acting as an **implementation machinery** rather than an **active policy-making body** for local development.
- **Corruption and Criminalisation of Politics:** Many times, **decentralisation has simply empowered local elites to capture more public resources** at the expense of the poor, and **political power at the local level assists criminals in legitimising their activities**.
- **Ceremonial Status to Mayor:** The **2nd Administrative Reform Commission** noted the **Mayor in the Urban Local Government in most states enjoys primarily a ceremonial status**.
 - In most cases, the **Municipal Commissioner, appointed by the State Government, has all the powers** and the **elected Mayor ends up performing the role of the subordinate**.
- **Irregular Elections:** Elections in **PRIs (Panchayati Raj Institutions)** are still irregular. Recently, several states conducted local bodies elections just because the **Union Finance Commission recommended grants** only for the **"duly constituted local governments"**.
- **Rule of Proxy:** **One-third of seats** in local government bodies—in panchayats and municipalities are **reserved for women**. However, **male candidates use their wives as pawns** and dictate from behind, which leads to the perennial problem of **Rule by Proxy**.

What Should be the Way Forward?

- **Organisational Strengthening:** It is imperative that the **organisational structures of local governments be strengthened** with sufficient manpower. Efforts should be made to hire support and technical staff so that panchayats can function smoothly.
 - The **2nd ARC** had also recommended that there **should be a clear-cut demarcation of functions** of each tier of the government.
- **Fiscal Prudence:** For the **ULB to be independent and financially secure**, fiscal decentralisation is very crucial. It should be **accompanied by fiscal accountability** that can provide a long-term solution.
 - **Audit committees** may be constituted by the State Governments at the **district level to exercise oversight of the integrity of financial information**, adequacy of internal controls, compliance with the applicable laws and **ethical conduct of all persons involved in local bodies**.
- **Local E-Governance:** Urban local bodies and Panchayats should be provided with **suitable digital infrastructures to maximise e-participation** of citizens and include **various social categories and in decision-making** and following **bottom-up approach** in policy-making in real sense through the use of new technologies.

- **Grievance Redressal Mechanism:** ULBs and Panchayats can establish a technology-enabled platform to register complaints, **which will make city governments responsive to the needs of citizens.**
 - Through this mechanism, **citizens should also be allowed to provide feedback and close complaints.**
 - Addressing these structural and architectural problems of urban governance will ensure effective service delivery in cities, **improving the quality of life for its citizens.**
- **Sustainable Decentralisation:** For **sustainable decentralisation**, transparency and accountability in the governance process is necessary, and for transparency there needs to be active citizen participation.
 - To ensure this, **ULBs can create functional, decentralised platforms such as area sabhas and ward committees**, which facilitate discussion and deliberation between **elected representatives and citizens.**



Countering Monopolisation of Big Tech

This article is based on “Big Tech and the need in India for ex-ante regulation” which was published in The Hindu on 13/12/2022. It talks about the Market dominance by Big Tech in India and related issues.

Tag: Indian Economy, GS Paper-3, GS Paper-2, IT & Computers, Statutory Bodies

The Indian antitrust body, the **Competition Commission of India (CCI)**'s move to impose a **penalty of ₹1,337.76 crore on Google** for abusing its dominant position in the android mobile device ecosystem, has forced us to **rethink the market power of Big Tech companies.**

Big Tech companies are **celebrated for their innovative products** and services which bring tremendous benefits to **consumers, businesses, and governments.** But they are also **criticised for market monopolisation** and undermining democratic processes.

Therefore it's high time for India to **update its competition law** and make amendments to ensure a **free, fair, and justified competitive market.**

What is Big Tech?

- The term '**Big Tech**' is used to refer to a **handful of large**, globally significant technology companies, such as **Google, Facebook, Amazon, Apple and Microsoft.**
- Big Tech is better **understood as a concept, rather than a static set of companies.** New companies may enter this category just as existing ones may drop out of it.

How Big Techs are Transforming India's Digital Space?

- **Revenue Source:** They play a prominent role in the **fintech market**, an **attractive revenue source** particularly because of **low per user ad revenues** in India.
- **Overcoming Literacy Barriers:** Voice-based and **regional language interfaces** are offered by Big Tech companies to reach new users and **overcome literacy barriers.**
- **Bridging Infrastructural and Employment Gaps:** New business verticals that **bridge existing infrastructural and employment gaps** by providing warehousing, delivery facilities and job opportunities are helping **India to serve Indian markets better.**
- **Social and Political Progress:** Most Indian internet users rely on one or more **Big Tech platforms** to access **information, communicate, and participate** in political and social life.
 - This is also **democratising the exercise of the constitutional right of free speech.**

What is India's Current Approach to Regulate Big Tech?

- In India, antitrust issues are governed by the **Competition Act, 2002**, and the Competition Commission of India **checks upon monopolistic practices.**
 - For instance, the **Competition Commission of India** has **recently raised concerns over Google's commercial flight search option**, making it a dominant position in the online search market.
 - Google was also found guilty in 2019 of **misusing its dominant position in the mobile Android market** to impose unfair conditions on device manufacturers.
- In addition, the government has proposed amendments to the competition law in the **Competition Amendment Bill, 2022.**

What are the Challenges Associated with Big Tech Firms in India?

- **Unrestricted Flow of Sensitive Data:** While the **data economy has evolved**, we have not dealt with its regulation as **effectively.** There is **sensitive data stored on these platforms** (financial records, phone location, and medical history).
 - Big corporations have asserted ownership of the right to use or transfer this data **without restriction.**
- **Monopolising Internet:** Tech giants acquire competitors to gain monopolies in **different spheres of business instead of earning consumers' loyalty.** They lock

in consumers into their ecosystem and make them bound to use their platforms.

- It is also possible for them to **swing elections** and **change the political mood of a nation** with their combined power.
- **Regulatory Vacuum:** As Big Tech firms innovate rapidly, the **regulators are only able to react, not prepare**. These platforms maintain that they are **only intermediaries** and therefore **cannot be held responsible for the content they generate**.
- **Discretionary Pricing:** In the **non-digital arena**, **price determination happens through market forces**. However, in the digital space, **rules are largely dictated by the large platforms**. Consumers are themselves products on these platforms.
 - Concepts like **network effects** and **winner-takes-all** coupled with **gatekeeping** by Big Tech firms exacerbate the problem.

What Should be the Way Forward?

- **Regulating Digital Marketplace:** With India now on the cusp of a **digital transformation**, it is essential that the country has a level-playing field to ensure a fair opportunity for **new-age start-ups** and **Micro, Small and Medium Enterprises**.
 - The **Competition Act of 2000** was largely constituted to deal with the physical marketplace. There is an urgent need to **contextualise the law to the digital marketplace**.
 - The EU has already noted this need through the **European Union Digital Services Act**. It is time that **similar legislation is adopted in India**.
- **Price Monitoring:** Pricing plays a fundamental role in defining the position of any digital platform in the marketplace. It is essential to establish an **ex-ante framework** for pricing to **ensure a level playing field for local sellers**.
 - The Government's **Open Network for Digital Commerce (ONDC) platform** is a reliable option for these small players.
- **Ensuring Neutrality, Interoperability and Accountability:** Platform Neutrality should be made a mandatory norm so that **Big Tech platforms cannot unfairly discriminate against other businesses** using their platform.
 - **Interoperability**, to enable consumer choice and reduce the weight of AI based algorithms.
 - **Algorithmic Accountability**, to identify, assess and penalise harmful algorithmic amplification.
- **Providing Cushion to Consumers:** For consumers, there is a need to establish harmony of the **Competition law with the new Consumer Protection (E-Commerce) Rules, 2020**.

- There is a need to devise a mechanism to ensure **fair compensation for consumers who face the brunt of the anti-competitive practices** of the Big Techs.

- **Data Privacy and Security:** Governments around the globe have implemented **stringent laws to protect users' right to privacy** by requiring tech companies to adhere to certain basic and essential measures for **data security and privacy**.
 - In this context, the **dedicated data protection norms should be devised for all digital market players** that will also monitor cross border flow to ensure that transfer of data outside India **does not inhibit domestic innovation, law enforcement or other services**.

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India Towards Next-Gen Cities

This editorial is based on "The urban vision: Creating next-gen cities across India" Which was published in Hindustan Times on 13/12/2022. It talks about Urban development vision for India's next-gen cities.

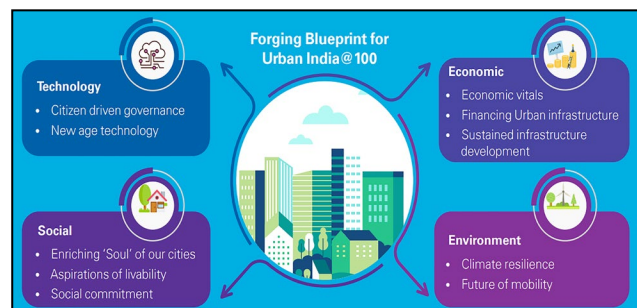
Tag: Governance, GS Paper-2, Urbanization, Separation of Powers, Local Self Governance, Government Policies & Interventions

India's Urban Population contributes **63%** to the **Gross Domestic Product (GDP)**, which is expected to rise to **75% by 2030**. Despite this huge contribution, **growth has not been equitable across cities, creating extreme pressure on megacities**.

Our mega-cities are witnessing **growth of informal sector in form of slums and**

unorganised economic activities, overcrowding, **deterioration of quality of civic infrastructure**, traffic and transportation inadequacies, **climate change**, and an **increasing disconnect with our culture and heritage**.

While the economic revolution of the last 25 years moved **India towards a paradigm that focuses on urban economic development**, it is now evident that India must develop solutions that prioritise more **equitable and sustainable growth for its next-gen cities**.



How India Recognises the Need of Urban Development?

- India's first pan-Indian urban vision was articulated in the 1980s with the creation of the **National Commission on Urbanisation (1988)**.
- The Indian Constitution establishes a clear mandate for **Democratic Decentralization** (Municipality) in India's urban space through its **Directive Principles of State Policy** and 74th Amendment Act 1992.
- Additionally, the **15th Finance Commission report** on local bodies emphasised the need to empower city governance structures financially.
- Recent Government Initiatives:
 - **Smart Cities**
 - **AMRUT Mission**
 - **Pradhan Mantri Awas Yojana-Urban**
 - **Pradhan Mantri Garib Kalyan Yojana**
 - **Atmanirbhar Bharat Abhiyan (self-reliant India)**

What are the Major Issues Related to Indian Cities?

- **Lack of Robust City Planning:** India faces a **lack of robust and uniform city planning**, which according to a **UNEP report**, may be costing us up to 3% of our GDP every year.
 - It includes the absence of **uniform urban design standards for crucial public utilities**, such as **urban roads and footpaths**.
 - **Most of the town planning authorities** face a lack of modern and eco-friendly techniques, which results in **infrastructural ineffectiveness**.
- **Accountability Mismatch:** City governments are led by the city **Mayor/Council**. This model, which is the common governance mechanism in most cities.
 - However, they are managed by a spectrum of **disorganised government bodies and parastatals (such as water, transport and development authorities)** run by the **state government through which they often influence city affairs and policy**.
 - This leads to **accountability mismatch and collision of responsibilities**.
- **Absence of Citizen Centricity:** There are **no structured platforms for citizen participation (ward committees and area sabhas)**, no coherent participatory processes (such as **participatory budgeting**), **weak citizen grievance redressal mechanisms** and low levels of transparency in finances and operations, adds to the problem.
 - An absence of a strong component of **transparency, accountability and participation** have resulted

in **weak levels of engagement between citizens and governments**, therefore leads to **low levels of trust** and in general **tarnished democratic values of a city**.

- **Unauthorised Settlements and Slums:** People who **migrate from rural to urban areas** cannot afford the high cost of living in urban areas, which leads to the growth of **slums as safe havens for migrants**.
 - According to the **World Bank**, the population living in slums in India was reported at **35.2 % of the total urban population**. **Dharavi in Mumbai** is considered the largest slum in Asia.
- **Inefficient Sewage Facilities:** Rapid urbanisation leads to haphazard and unplanned growth of cities, **most of which suffer from inadequate sewage systems**.
 - According to GOI **almost 78% of the sewage generated in India remains untreated** and is disposed of in rivers, lakes, or sea.
- **Inefficient Transport and Climate Change:** Many city dwellers **use private transport** more often for maintaining social status. This has led to **overcrowding of roads, pollution, and increased travel times**.
 - Also, the **growing number of vehicles in Indian cities is viewed as the essential driver of climate change** due to high dependence on combustible fuel.

What Should be the Way Forward?

- **Centre-State Collaboration in City Development:** **Central government** can lead the way by framing city model laws and policies.
 - State governments must **hold the beacon for driving institutional reforms in spatial planning, fiscal decentralisation**, overhauling cadre and recruitment rules for municipalities, **empowering mayors and municipal councils**, and instituting **decentralised platforms for citizen participation**.
 - Also, Indian cities can devise a **common digital GIS base-map of different wards**, shared among the plethora of agencies involved in delivering services.
- **Organising the Informal Urban Economy:** It is important to gather data on migrants for use in city development activities benefiting migrants.
 - The **Labour Ministry's proposed Unorganised Worker Index Number Card** would also help formalise the workforce.
- **Involvement of Citizenry:** Citizens must be made **stakeholders in city-making through awareness programmes** about urban planning processes being made available to them and their elected leaders.
 - **City leadership must also be enlightened** and aware of how to make cities both **liveable and inclusive**.

- **Urban Employment Guarantee:** Urban areas need a scheme similar to **MGNREGA** to provide basic living standards to urban poor.
 - The **Indira Gandhi Urban Employment Guarantee Scheme** has been rolled out in Rajasthan is a good step in this direction
- **Towards Green Transition:** There is a need to align towards effective solutions for urban issues that can include **blue- green infrastructure**, **mixed-use of public spaces** and use of **alternative energy** sources such as solar and wind.
 - **Public-private partnerships** should also be invited for the **green transition of cities**.



Revitalising India's Solar Energy Capacity

This editorial is based on "An energy conundrum: On India betting big on solar power" which was published in The Hindu on 15/12/2022. It talks about India's solar energy capacity and associated challenges.

Tag: Indian Economy, GS Paper-3, Solar Energy, Renewable Energy, Infrastructure, GS Paper-2, Government Policies & Interventions

India's need to increase energy provision for its population and fast growing economy poses a formidable challenge which is perceived as both a **great opportunity** as well as a **necessity for the country** to increase the share of **renewables** in the overall energy mix.

Solar energy is driving India towards the adoption of **cleaner energy** generation technologies. From less than **10 MW in 2010**, India has added significant solar capacity over the past decade, **achieving over 50 GW by 2022**.

Based on a commitment to address the global climate crisis, **India has promised to source nearly half its energy from non-fossil fuel sources by 2030** and, in the shorter term, source at least **60% of its renewable energy from solar power**.

In order to meet these targets, it is **essential to look towards self-sufficiency in solar energy production** as well as its **affordability and accessibility**.

What is the Need of Solar Energy?

- **Energy Security:** India energy demands are largely fulfilled by **non-renewable sources of energy**. The scarcity of these fossil resources stresses the need for renewable energy sources.
 - Abundance of solar energy can fulfil **India's clean energy demands**.

- **Economic Development:** India being a developing economy **needs proper electricity for industrial growth and agriculture**.
 - India also needs **self sufficiency and minimal cost in power generation**, assured regular supply, which will boost industries and economy.
- **Social Development:** The problem of power cuts and **unavailability of electricity especially in rural areas**, leads to improper human development.
 - Mostly energy demands are fulfilled by **subsidised kerosene**, leading to loss for exchequer.
- **Environment Concern:** India's large part of energy demand is fulfilled by **thermal energy** largely dependent on fossil fuels.
 - It also causes **environmental pollution**. Solar energy is a clean form of energy resource, which can be a **substitute**.

What are the Government Schemes to Enhance Solar Energy Production in India?

- **International Solar Alliance**
- **National Solar Mission**
- **Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)**
- **One Sun, One World, One Grid (OSOWOG)**

What are the Challenges Related to the Solar Sector in India?

- **Insufficient Contribution to Power Sector:** Despite significant growth in the installed solar capacity, the **contribution of solar energy to the country's power generation has not grown at the same pace**.
 - In 2019-20, for instance, **solar power contributed only 3.6% (50 billion units)** of India's total power generation of **1390 BU**.
 - Also, while India has achieved record **low tariffs for solar power generation** in the utility-scale segment, this has not **translated into cheaper power for end-consumers**.
- **High Import Dependence:** India's current solar module manufacturing capacity is limited to **~15 GW per year**. Also, India has **no manufacturing capacity for solar wafers and polysilicon ingots**, and currently **imports 100% of silicon wafers and around 80% of cells even at the current deployment levels**.
 - **Risk of Weaponization of Supply Chain:** Silicon wafer especially, the most expensive raw material, is not manufactured in India. Since **>90% of the world's solar wafer manufacturing currently happens in China**, the current geopolitical tensions between India and China could lead to the weaponization of the supply chain in future.

- **Space Scarcity:** Ground-mounted solar projects require a lot of space to install, and **land availability is low in India**.
 - For a small piece of land, solar cells near substations may have to compete with other land-based necessities, resulting in **conflict with local communities**.
- **Solar Waste:** India's solar waste has been predicted to grow by **1.8 million tonnes by 2050**. Currently, India's **e-waste rules are not mandatory on solar cell manufacturers** which leads to a **large generation of solar waste** every year.
- **Losses in Cost and T&D (Transmission and Distribution):** Solar energy is also having problems with **cost competitiveness** and competing with other sources of energy.
 - The **cost of T&D losses** is approximately **40%**, making generation through solar energy sources highly **unfeasible**.

What Should be the Way Forward?

- **Extended Producer Responsibility (EPR) in Solar Sector:** India could look at developing appropriate guidelines around **Extended Producer Responsibility (EPR)**, which means holding **manufacturers accountable for the entire life cycle of solar products** and creating standards for waste recycling.
 - This could give **domestic manufacturers a competitive edge** and go a long way in addressing **waste management** and supply side constraints.
- **Self-reliance in Solar Energy:** As part of **Atmanirbhar Bharat's** vision, India must cultivate a strong domestic solar energy market. The best way to **promote solar PV manufacturing is to directly support upstream startups**, such as through incentives for Design and Production.
 - India can also explore the use of **bio solar cells by generating electricity from microbial photosynthetic** and respiration processes.
- **Localised Solar Power Generation:** Mini-grids and community rooftop solar installations can facilitate the solar shift in India, while **localised solar energy production and utilisation, implemented by panchayats and municipalities** can be the cornerstone of the **net-zero India we envision by 2070**.
- **Solar Diplomacy:** International Solar Alliance (ISA) established by India and France at **Conference of the Parties (COP-21) in 2015**, can be a platform to bring countries **together to facilitate collaboration on issues such as mobilising investments, capacity building, diversification of supply chain and advocacy of solar energy for global good**.



Strengthening India's Export Capacities

This editorial is based on "India's current account deficit reveals the need to increase exports" which was published in Indian Express on 16/12/2022. It talks about India's current account deficit and the need for an export boost.

Tag: Economy, GS Paper-3, Growth & Development, Mobilization of Resources Effect of Policies & Politics of Countries on India's Interests

India has reached **USD 418 billion dollars** of **manufacturing exports** in the **fiscal year 2022 (FY22)** with rapid growth over the last **2 years**. Despite having the fifth-largest economy in the world, contributing to **3.1% of the GDP**, India's export contribution to **global trade** is still only **1.6%** that includes a variety of factors like rising protectionism and deglobalisation, lack of basic infrastructure and low market penetration in high-income countries.

Therefore, it calls India to look forward towards expediting **Free Trade Agreements**, lowering tariffs and addressing supply-side bottlenecks would help in addressing export challenges.

What are the Major Sectors that Contribute to Indian Exports?

- **Petroleum Products:** It contributed in a major way to India's exports, amidst **crude oil prices rising due to the pandemic** and made worse by geopolitical tensions due to the **Russia- Ukraine war**.
 - India exports **USD 55.5 bn worth of petroleum products**, a massive rise of 150% over last year.
- **Engineering Goods:** They registered a **50% growth in exports**, at **USD 101 bn in FY22**. Currently, **all pumps, tools, carbides, air compressors, engines, and generators manufacturing MNC companies** in India are trading at all-time highs and shifting more production units to India.
- **Jewellery:** Made up **USD 35.3 billion of India's exports in FY22**. With the reduction of **import duty on cut and polished diamonds** in this year's budget, **this is only going to rise**.
- **Agriculture Products:** Agricultural exports were buoyed by the government's push to meet global demand for food amid the pandemic. India exports rice worth **USD 9.65 bn**, the highest among agricultural commodities.
- **Textile and Apparels:** India's textile and apparel exports (including handicrafts) stood at **USD 44.4 billion in FY22**, a **41% increase on a YoY basis**.

- Government's schemes like **Scheme for Integrated Textile Parks (SITP)** and **Mega Integrated Textile Region and Apparel (MITRA) Park scheme** are giving a strong boost to this sector.
- **Pharmaceuticals and Drugs:** India is the **third-largest producer of medicines by volume** and the biggest supplier of generic drugs.
 - India supplies over **50% of Africa's requirement for generics**, around **40% of generic demand in the US** and **25% of all medicine in the UK**.

What are the Challenges

Related to Indian Export Growth?

- **Rising Protectionism and Deglobalisation:** Countries around the globe are moving towards **protectionist trade policies** due to **disrupted global political order (Russia-Ukraine War)** and weaponization of supply chain, that is in way shrinking India's export capacities.
- **Lack of Basic Infrastructure:** India's **manufacturing sector lacks sufficient** manufacturing hubs, internet facilities and **transportation are costly when compared to developed nations** which is a huge deterrence to Industries.
 - **Uninterrupted power supply** is another challenge.
- **Lack of Innovation Due to Low Spending On R&D:** Currently, India **spends about 0.7% of GDP on research and development**. This prevents the manufacturing sector from **evolving, innovating and growing**.
- **Specialisation versus Diversification:** Indian exports are characterised by **high diversification combined with low specialisation**, implying that India's exports are spread thin over many products and partners, resulting in **lack of competitiveness compared to other countries**.

What Should be the Way Forward?

- **Exploring Joint Development Programmes:** Amidst a wave of **deglobalisation** and **slowing growth**, **exports cannot be the sole engine of growth**. India can also explore **joint development programmes with other countries** in sectors like **space, semiconductor, solar energy** to improve India's **medium-term growth prospects**.
- **Dedicated Export Corridors:** The economic policy should also strive to promote **export dynamism** and **product specialisation alongside product diversification through Dedicated Export Corridors** to offer the best of the best service across the globe and propel the Indian economy to the path of long term sustained economic growth.
- **Promoting Acquisitions Abroad:** Indian entrepreneurs can be incentivised to sign **joint venture undertakings**

abroad for building up an **export potential for their products especially** in developing countries where there is a favourable **political climate and a demand for Indian products**.

- **Frontlining MSME Sector:** MSMEs account for **29% of GDP and 40% of international trade**, making them key players in achieving ambitious export targets.
 - It is important for India to link **Special Economic Zones with the MSME sector** and incentivize small businesses.
- **Filling Up Infrastructural Gaps:** A robust infrastructure network - **warehouses, ports, testing labs, certification centres, etc.** will help Indian exporters compete in the global market.
 - It also needs to adopt **modern trade practices that can be implemented through the digitisation of export processes**. This will save both time and cost.

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Re-energizing Counter Terrorism Agenda

This editorial is based on "Countering terror: On action against groups targeting civilians" which was published in The Hindu on 17/12/2022. It talks about the Terrorism in India and measures that can be taken to eliminate it.

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

Terrorism in all its manifestations are **unacceptable and never be justified**. Today all States in every region are **vulnerable to terrorism and this menace has become a global concern**. India since its independence has been facing the problem of **insurgency and terrorism** in different parts of the country.

The terrorist groups have been resorting to varied terrorist activities **adopting improved and sophisticated technologies** which make their activities more gruesome. In the light of this, **India should evolve equally improved strategies to combat and counter frontier- terrorism** in consonance with global counter terrorism strategy.

What is the Current Framework for Combating Terrorism in India?

- India recently hosted a special meeting of the **United Nations Security Council's Counter Terrorism Committee (CTC)**, with theme of '**Countering the use of new and emerging technologies for terrorist purposes**' and **No Money For Terror**.
- The **Unlawful Activities Prevention Act, 1967** was amended in **August 2019** to allow for the **designation of individuals as terrorists**.

- In 2016, India and the United States signed an arrangement to **exchange terrorism screening information**, and continues to work on implementation.
- At the central government level, the **National Investigation Agency** is the **lead law enforcement investigative agency to combat terrorism**.
 - The Indian Parliament passed amendments to the **National Investigation Agency (NIA) Act of 2008** to give NIA the **ability to investigate terrorism cases overseas**.
 - The **National Security Guard (NSG)** retains the mandate for nationwide response as the **sole federal contingency force**.
- India's state governments continue to be responsible for **law and order**. India's state-level law enforcement agencies play a significant role in **detecting, deterring, and preventing acts of terrorism**.
 - **State antiterrorism squads** were created after **2008** for rapid first response.

What are the Challenges in Combating Terrorism?

- **Terror Financing:** According to the **International Monetary Fund (IMF)** and World Bank, criminals are estimated to **launder up to four trillion dollars a year**. Fund movements by terrorists have also been **concealed through charities and alternative remittance methods**.
 - It taints the **international financial system** and erodes public trust in the integrity of the system.
 - **Several states are also accused of sponsoring terrorist organizations** and contributing to the global threat of terrorism.
 - Furthermore, the lack of **regulation of crypto currency** could make it a breeding ground for terrorists.
- **Politicisation of Countering Terrorism:** The members of the **United Nations Security Council (P5)** have exercised the **veto power to varying degrees** when it comes to identifying terrorists.
 - Also, **absence of universally accepted definitions for what constitutes terrorism** provides terrorists with an edge and **allows some countries to remain silent and veto any action at global institutions**.
- **Use of Emerging Technology by Terrorists:** Innovations in computing and telecommunications like widespread **internet access, end-to-end encryption, and virtual private network (VPN)** have made new types of operations possible for a higher number of **radicalized individuals across the globe, contributing to the threat**.

- **Social Networking of Terrorism:** **Social media** platforms have turned into **potent instruments in the "toolkit" of terror networks** and their **"ideological fellow-travellers"**.
 - Also, **"lone wolf" attackers** have significantly enhanced their capabilities by gaining access to new technologies.
- **Bio-Terrorism:** While **biotechnology** is beneficial to mankind, it can also pose a significant threat since **small amounts of biotic agents can be easily hidden, transported, and released into susceptible areas**.
 - **Tropical agricultural pathogens** or pests can also be used as anticrop agents to hamper food security worldwide.

What Should be the Way Forward?

- **Re-energizing Counter Terrorism Agenda:** It is necessary to **re-energize the global agenda of counter-terrorism** by emphasizing the need for unity, and **checking the veto power of P5** when it comes to identifying terrorists worldwide.
- **Adopting a Universal Definition of Terrorism:** A universal definition of terrorism is needed so that all members of the **United Nations General Assembly (UNGA)** can incorporate it into their own criminal laws, banning terror groups, **prosecuting terrorists under special laws**, and making **cross-border terrorism an extraditable offense worldwide**.
 - In 1986, India proposed a draft document on **Comprehensive Convention on International Terrorism (CCIT)** at the UN. However, it is **yet to be adopted by the UNGA**.
- **Preventing Youth From Terrorism:** Educational establishments play a significant role in promoting **nonviolence, peaceful coexistence, and tolerance**.
 - Also, **undertaking policies to tackle economic and social inequalities will help in deterring disgruntled youth** from being lured towards terrorism.
- **Enhancing Capacity of NIA:** The Indian military should be specially trained to combat **cross-border terrorism, ensuring co-ordination among intelligence and security agencies** to prevent infiltration.
 - Also in order to have speedy trials, India also needs to enhance its **National Criminal Justice system** and implement strict legal protocol against terrorism
- **Curbing Terror Funding:** There is a need for stronger laws that require banks to perform due diligence on clients and to **report suspicious transactions to prevent terrorism**.
 - Also, India can move **towards regulating cryptocurrency**.

Revisiting Corporate Social Responsibility

This editorial is based on “A plan for better CSR funds to boost rural livelihoods” which was published in The Hindu on 07/10/2022. It talks about Corporate Social Responsibility (CSR) and its potential for rural development.

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

In developing economies like India, **Corporate Social Responsibility (CSR)** is seen as part of **corporate philanthropy** in which **corporations augment the social development** to support the initiatives of the government.

And in keeping with the Indian tradition, it was believed that **every company has a moral responsibility to play an active role in discharging the social obligations.**

In the early 20th century **Mahatma Gandhi** introduced the **concept of trusteeship** helping socio-economic growth.

India became the **first country to legislate the need to undertake CSR activities** and mandatorily report CSR initiatives under **Section 135 of the Companies Act, 2013**. But current CSR frameworks have some flaws, such as transparency, lack of community participation in CSR activities, and lack of timely audits.

In order to achieve sustainable development, **India should streamline its CSR framework and focus on collective betterment through shared responsibility.**

Which Companies Fall Under the Purview of Corporate Social Responsibility?

- A company whose turnover is at least **1,000 crores**, net worth is at least **500 crores**, or net profit is at least **5 crores** falls under the CSR provisions of the **Companies Act, 2013**.
- Under the Act, companies must set up a **Corporate Social Responsibility Committee** that recommends a Corporate Social Responsibility Policy to the Board and monitors the same.
- The Act also encourages companies to **spend 2% of their average net profit in the previous three years** on CSR activities.

What are the Activities Included under CSR Category?

- Specified under **Schedule VII of the Companies Act 2013**, some major activities include:
 - **Eradicating hunger, poverty and malnutrition**, promoting health care including preventive healthcare and sanitation including contribution

to the **Swach Bharat Kosh** set-up by the Central Government for the promotion of sanitation and making available safe drinking water.

- Promoting education, including special education and **employment enhancing vocational skills** especially among children, women, elderly and the differently abled and livelihood enhancement projects.
- Promoting **gender equality**, **empowering women**, **setting up homes** and hostels for women and orphans; setting up old age homes, day care centres and such other facilities for **senior citizens** and **measures for reducing inequalities** faced by **socially and economically backward groups**.
- Ensuring **environmental sustainability**, **ecological balance**, **protection of flora and fauna**, animal welfare, **agroforestry**, **conservation of natural resources** and maintaining quality of soil, air and water including contribution to the **Clean Ganga Fund** set-up by the Central Government for rejuvenation of river Ganga.

What are the Challenges Related to CSR Activities in India?

- **Shrinking Role of Government:** Governments used to deliver **social and environmental objectives in businesses through legislation** and regulation.
 - Due to **shrinking government resources and distrust of regulations**, voluntary and non-regulatory initiatives are getting explored.
- **Absence of Clear CSR Guidelines:** There are **no clear principles and directions about the CSR in India** and because of **lack of clear-cut statutory guidelines**, the level of CSR depends upon the size of organisations, which means bigger the organisation, bigger the CSR programs.
 - This is also a **barrier for the small organisations** that want to contribute to this field.
- **Duplication of CSR Activities:** There is a lack of consensus amongst local agencies regarding CSR projects.
 - This **lack of consensus often results in duplication of activities** by corporate houses in areas of their intervention and **results in a competitive spirit between local implementing agencies** rather than building collaborative approaches on issue
- **Unavailability of Well-Organized NGOs:** Due to the lack of recognition of many **Non-governmental Organisations (NGOs)** in India, corporations have **limited options and benefits**, and they often partially fund NGOs in order to gain **visibility and brand recognition**, not realising that CSR serves a more important purpose.

- Also, the **lack of well-organised NGOs** in remote and rural areas makes it **difficult to identify real needs of the community** and ensure successful CSR implementation.
- **Lack of Time Bound Audits:** The **lack of time-bound audits** causes many Indian companies to **not disclose information about CSR activities** they take part in, including funds used for the projects.
 - Also, as a result, **these companies fail to create a sense of belonging** and connect with society.

What Should be the Way Forward?

- **Regular CSR Compliance:** Companies should **conduct regular reviews of CSR compliance** and put in place **measures for a more professional approach**. They should also set clear objectives and align all stakeholders with them.
 - It is equally important to let their NGO partners **know of their business needs**.
- **Proactive Role of Government:** Governments should also **address the issue of non-availability of NGOs** and raise awareness about the **importance of CSR in society**.
 - **Artificial Intelligence and Machine Learning** tools can be used by the government to mine data from mandated reports in order to maintain regular audits.
- **Linking CSR with Research Institutions:** From **Designing sustainable construction materials that are affordable and recyclable**, to developing **India-centric greening options** like novel heat and power management systems.
 - Projects such as these can be enabled through CSR funding and led by higher education institutions that would accelerate the **transition from laboratory to actualisation and serve communities in innovative ways**.
- **SDG with CSR:** With India prioritising and achieving **Sustainable Development Goals**, **NITI Aayog** has made this mainstream to the national agenda, and **now is the time to tie CSR and SDGs together**.
 - In this way, **India can improve accountability of CSR** at the same time moving towards green and sustainable growth.
- **Integrated CSR Interface:** A national platform, centralised by the **Ministry of Corporate Affairs**, is needed where all states can list their possible **CSR-admissible projects** so that companies can determine where their CSR funds would have the most impact.
 - **Corporate Social Responsibility Projects Repository on the India Investment Grid (IIG)** can serve as a guide for such efforts.

- **Replacing End of Life Concept with CSR:** Corporate social responsibility should replace **end-of-life concepts** for products with **technologies and regulations that facilitate recycling and reusing**.
 - In this way, the **life cycle of products can be extended, wastage can be minimised, and pollution reduced**. In line, India can transition towards a **circular economy**.
 - This can be an **attempt to realise the vision of a just, humane and equitable society where every action, however small, is driven by this larger sustainable vision**.



Conserving Diversity, Conserving Planet

This article is based on "A planet in crisis: on tangible outcomes from biological diversity convention" which was published in The Hindu on 20/12/2022. It talks about Convention of Biological Diversity (CBD) and challenges related to Biodiversity conservation.

Tag: Biodiversity & Environment, GS Paper-3, Environmental Pollution & Degradation, Conservation

India is a megadiverse nation and the land of around 10% of the world's species. It also has a rich **cultural heritage** traced back to thousands of years. Much of Indian biodiversity is intricately related to the socio-cultural practices of the land.

Unfortunately, due to **population explosion, climate change and lax implementation of environmental policies**, several species are facing the threat of extinction. At least **97 mammals, 94 bird species and 482 plant species in India are threatened with extinction**, as per the **International Union for Conservation of Nature's red list** of plant and animal species that have been endangered.

This rapidly accelerating biodiversity loss led to a series of negotiations and agreements among countries like the **Convention of Biological Diversity (CBD)**. But the current rate and scale of extinction is unprecedented. India must therefore **take serious steps in the direction of conserving biodiversity**.

What is the Convention on Biological Diversity?

- **Convention on Biological Diversity (CBD)** is a legally binding treaty to conserve biodiversity that has been in force since 1993. It has **3 main objectives**:
 - Conservation of biological diversity.
 - Sustainable use of the components of biological diversity.

- Fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.
- It has been ratified by **196 nations**.
- India enacted **Biological Diversity Act in 2002** for giving effect to the provisions of the **CBD**.

What is the Significance of Biodiversity?

- **To Meet Survival Needs:** Perhaps the most important value of biodiversity, particularly in India, is that it **meets the basic survival needs of a vast number of people**.
 - **Genes regulate all biological processes on the planet** and increase the ability of organisms to cope with **environmental stressors**.
 - Even today there are many **traditional communities which depend, wholly or partially**, on the surrounding natural resources for their daily needs of **food, shelter and clothing**.
- **Pharmaceutical Value:** Biodiversity has greatly contributed to **modern medicine and advancements in human health research** and treatment.
 - Many modern **pharmaceuticals** are derived from **plant species**, including the **anti-tumor agent Taxol** from the **Pacific yew tree** and the **antimalarial artemisinin** from **sweet wormwood**.
- **Aesthetic Value:** Each species and ecosystem adds to the **richness and beauty of life on Earth**. Highly diverse environments are prime **ecosystems that support many species in addition to being aesthetically beautiful, educational, and interesting recreation sites**.
- **Ethical Value:** Each species is **unique and has a right to exist**. Each species is worthy of respect regardless of its worth to human beings. This point of view was recognised in the **World Charter for Nature, adopted by the United Nations in 1982**.
- **Ecological Services:** Specific life forms present in a particular habitat helps in **providing conditions for other life forms to live in that environment**. Destroying one species can lead to further extinctions or changes.

What are the Challenges Related to Biodiversity Conservation?

- **Erosion Traditional Breeding Systems:** **Commercial agriculture** and the need for more efficient breeds have increased as industrialization advances. This has led to a **gradual erosion of traditional breeding systems and loss of biodiversity**.
 - Further, there is a steady **loss of traditional knowledge** associated with ancient breeding systems.

- **Conflict Between Forest Rights and Wildlife Conservation:** The Supreme Court of India earlier raised the issue that **most of the protected areas in the country are notified without recognising the settlement rights of the tribal communities**.
 - The purpose of the **Forest Rights Act and the Wildlife Protection Act, amendment of 2006**, was to **democratise administration and governance in protected areas**, which is **yet to get actualised**.
- **Introduction of Exotic Species:** **Invasive alien species** include plants, animals and pathogens that are **non-native to an ecosystem** cause environmental harm or adversely affect ecological balance.
 - According to CBD reports, **invasive alien species have contributed to nearly 40% of all animal extinction**.
- **Global Warming and Climate Change:** It poses **threats to plant and animal species** as many organisms are **sensitive to carbon dioxide concentration** in the atmosphere that may lead to their disappearance.
 - Use of **pesticide, rise of tropospheric ozone, sulphur and nitrogen oxides from industries** also contribute to the degradation of natural ecosystems.
- **Choking Marine Biodiversity:** Due to lack of efficient plastic waste management, microplastics are getting **dumped into oceans choking and starving marine life** and causing **liver, reproductive, and gastrointestinal damage in animals** and directly impacting marine biodiversity.
- **Genetic Modification Concern:** **Genetically modified plants** impose high risks to the **disruption of ecosystem** and biodiversity because the better traits produced from engineering genes can result in the favouring of one organism.
 - Hence, it can **eventually disrupt the natural process of gene flow** and affect the sustainability of indigenous variety.

What are the Recent Initiatives Related to Biodiversity Conservation?

- **India:**
 - **India Business & Biodiversity Initiative (IBBI)**
 - **Wetland (Conservation and Management) Rules 2010**
 - **National Plan for Conservation of Aquatic Ecosystem**
 - **Wildlife Crime Control Bureau**
- **Global:**
 - **Nagoya Protocol**
 - **Convention on International Trade in Endangered Species of Wild Fauna and Flora**
 - **World Wide Fund for Nature**

What Should be the Way Forward?

- **Protecting Entire Biosphere:** Conservation should not be limited to the **species level** but should be about the **conservation of the entire ecosystem**, including the **local communities**.
 - India needs more **biosphere reserves** to protect biodiversity and ensure **sustainability of the ecosystem**.
- **Native Gene Banks:** It is important to **preserve the indigenous variety** due to its ability to **adapt to diseases and nutritional value**.
 - **Gene banks** can be created that will assist various research institutions in conducting research as well as help in conserving indigenous crops.
- **Breaking Down Plastic Waste:** Plastic has become so **enmeshed in our ecosystem that bacteria have evolved to digest it**. Plastic-eating bacteria, discovered in Japan, have been cultivated and modified to **digest polyester plastics** (food packaging and plastic bottles), this can be a **way to prevent plastic dumping** into oceans and protect **marine biodiversity**.
- **Recognition of the Rights of the Indigenous People:** For preserving the rich biodiversity of the region, the **recognition of the rights of the forest dwellers who depend on the forests is as important as the declaration of natural habitat**.
 - Tribal peoples are generally regarded as the **best conservationists**, as they **connect with nature more spiritually**.
 - The cheapest and quickest way to conserve areas of high biodiversity is to **respect tribal peoples' rights**.



India's Booming Telecom Sector

This article is based on "Telecom licensing is about carriage, not content" which was published in Hindu Business Line on 20/12/2022. It talks about the Telecom Sector in India and related challenges.

Tag: Indian Economy, GS Paper-3, Industrial Growth, IT & Computers, GS Paper-2, Government Policies & Interventions

The past two decades have been considered as the **golden period for the telecommunications industry** in India with exponential growth and development in terms of **technology, penetration, as well as policy**.

Currently, India is the **world's second-largest telecommunications market with a subscriber base of 1.16 billion** and has registered strong growth in the last decade. The **liberal and reformist policies of the Government of India** have been instrumental along with strong consumer demand in the rapid growth of the Indian telecom sector.

However, **limited spectrum availability, low broadband penetration, lack of Over-the-Top (OTT) regulation** has limited the scope of telecom that needs to be scrutinized from a **detached point of view and addressed holistically**.

What are the Drivers for Growth of Telecom Sector in India?

- **Robust Demand:** In India, the total subscriber base stood at 1178.41 million in December 2021.
 - Also, India is one of the **biggest consumers of data worldwide**. As per TRAI, average wireless data usage per wireless data subscriber was **11 GB per month in FY20**.
- **Attractive Opportunity:** By 2025, India will need **about 22 million skilled workers in 5G-centric technologies** such as **Internet of Things (IoT), Artificial Intelligence (AI)**, robotics and cloud computing.
- **Policy Support:** The Union Cabinet approved Rs. 12,195 crores **production-linked incentive (PLI) scheme** for telecom & networking products under the **Department of Telecom**.
 - Also, to drive the development of **6G technology**, the **Department of Telecommunications (DoT)** has developed a **sixth generation (6G) innovation group**.
- **Increasing Investments:** In Union Budget 2022-23 the **Department of Telecommunications** was allocated **Rs. 84,587 crores**.
 - FDI inflow in the telecom sector stood at **USD 39.02 billion between April 2000-September 2022**.

What are the Recent Government Initiatives Related to the Telecom Sector?

- **Prime Minister Wi-Fi Access Network Interface (PM-WANI)**
- **Bharat Net Project**
- **One Nation Full Mobile Number Portability (MNP)**
- **Draft Telecommunication Bill 2022**

What are the Challenges Related to the Telecom Sector?

- **Right of Way Challenge:** Due to **variable and complex legal procedures across states**, non-uniformity in levies, and approvals from the **Forest Department, Railways, and National Highway Authority**, the **Right of Way** has been a contentious issue for the Indian telecoms sector.
 - The delay in this process has affected **several tower and fiber planning and rollout processes** across the country.

- **OTT-Telecom Conflict:** Voice calls and SMS services are provided by **OTT platforms** like WhatsApp and Telegram **using the network infrastructure of telecom providers** like Airtel and Jio.
 - Telecom Service Providers (TSPs) **contend that these features adversely affect their sources of revenue** (voice calls, SMS).
- **Insufficient Fixed-Line Penetration:** The Indian network does not have very much fixed-line coverage, while most developed countries have a high penetration of fixed lines (**telephone lines connected to a nationwide telephone network via metal wires or optical fibers**).
 - There are fewer than **25% of towers in India connected to fiber networks**, compared to more than 70% in developed nations.
 - **5G Networks** require towers to be connected to very high-speed systems. These high speeds cannot be achieved by the **current radio systems**.
- **Lack of Efficient Disposal of E-waste:** The telecom industry **impacts the environment in multiple ways**, including by generating **e-waste**.
 - In India, more than 95% of e-waste is illegally disposed of.
- **Lack of Rural Connectivity:** In India, **adequate tele density has been achieved**, but there is a large discrepancy between penetration in **urban (55.42%) and rural (44.58%) areas**.
 - **Getting into semi-rural and rural areas** is challenging for service providers due to the huge initial fixed costs.

What Should be the Way Forward?

- **Digital Infrastructure with Digital Skills:** The creation of digital infrastructure and the development of digital skills must go hand in hand, and internet access and digital literacy are interdependent.
 - To **educate and empower young students and the working population**, especially women, **Digital Foundation Centres** can be established in rural areas.
- **Sector Specific Data Management and Grievance Redressal:** To ensure seamlessness and security of digital communication across India, **sector-specific data management and grievance redressal standards** (including OTT platforms) are needed while keeping citizens' interests at the forefront while also ensuring their autonomy and choice.
 - A more proactive and timely **Dispute Resolution by TDSAT (Telecom Disputes Settlement and Appellate Tribunal)** is the need of the hour.
- **Harnessing Technology, Sharing Capacities:** It is important for telecom operators to harness the **talent**

pool in the country, which is bringing about many new innovations in **artificial intelligence, blockchain technologies, etc.**

- Also, there is a need for **new infrastructure on a shareable basis**, just like telecom service providers share tower costs.
- **Enabling Environment for Exports:** It is important that the **government invests more in R&D** and creates an environment that makes India capable of manufacturing and **exporting hardware components such as mobile phones, CCTV cameras, touch screen monitors, etc.**
- **Linking BharatNet with Bhashini:** BharatNet aims to ensure **highly scalable network infrastructure accessible on a non-discriminatory basis**. On demand, affordable broadband connectivity can be ensured with Bharatnet alongside **integrating e-citizens from different parts of the nation curbing the language barrier through Bhashini Platform** which is an **artificial intelligence (AI)** led language translation platform.

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India's Growing FinTech Market

This editorial is based on "Four challenges that fintechs face in practising responsible innovation & how to fix them" which was published in Economic Times on 21/12/2022. It talks about the Fintech Industry in India and challenges related to it.

Tag: Indian Economy, GS Paper-3, Capital Market, IT & Computers, Cyber Security, Scientific Innovations & Discoveries

The **Fintech industry** has seen tremendous growth in India over the last decade since it caught pace after the **expansion of internet services in the country**. With a fintech adoption rate of **87% against the global average of 64%**, India is **one of the fastest growing fintech markets in the world**.

However, despite registering unprecedented growth in the last few years bolstered by the rapid **internet penetration**, India **still has the second largest population without access to banking services** with 190 million unbanked people. Therefore, there is a need to **extend technology-based financial services across the length and breadth** of the country in a secured manner.

What is Fintech?

- **Financial technology (better known as Fintech)** is used to describe new tech that seeks to improve and **automate the delivery and use of financial services**.
- It includes any technological innovation in the financial sector like **retail banking, investment and even cryptocurrencies (Decentralised Finance (DeFi))** that seeks to enhance financial literacy and education.

What is the Significance of Fintech in Indian Context?

- **Promoting Financial Inclusion in India:** A large number of Indians remain outside the formal financial system, and the use of financial technologies can help close the gap left by traditional banking and finance models.
- **Finance for Micro, Small and Medium Enterprises (MSME):** One of the biggest threats to MSME existence is a lack of capital. According to the IFC Report, the MSME credit gap is estimated at USD 400 billion, which is where FinTech can play a key role, and solve the issue of credit availability.
 - With several FinTech start-ups offering easier and quicker access to loans, MSMEs are no longer required to go through the tedious process of documentation, paperwork and multiple visits to a bank.
- **Improved Customer Experience:** FinTech start-ups provide convenience, personalisation, transparency, accessibility, and ease-of-use to their customers, empowering them to a high degree.
 - Developing credit scores and underwriting credit for customers with limited credit histories will improve financial services penetration in India by leveraging big data, machine learning, and alternative data.

How is the Growth of FinTech Being Driven by Government Initiatives?

- **Jan Dhan Yojana:** The world's largest financial inclusion initiative, "Jan Dhan Yojna", has helped in new bank account enrolment of over 450 Mn beneficiaries for direct benefits transfer and accessibility to a host of financial services applications such as remittances, credit, insurance, and pensions.
 - This has enabled FinTech players to build technology products to penetrate the large consumer-base in India.
- **India Stack:** IndiaStack is a set of APIs that allows governments, businesses, startups and developers to utilise a unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.
 - The India Stack has been the driving force behind the accelerated evolution of Fintechs.
- **UPI (Unified Payments Interface):** It is an advanced mobile app-based payment system to transfer funds between bank accounts developed by the National Payments Corporation of India in 2016, is the multiplier force behind the Fintech revolution in India.
 - UPI, with over 338 banks registered under the platform, recorded more than 6.28 billion transactions in July 2022 worth 10.62 lakh crore.

- **Digital Rupee:** India launched its Central Bank Digital Currency (CBDC) or digital rupee or e-rupee recently. It is an electronic version of cash and will primarily accelerate the growth of the FinTech market in India.

What are the Issues Associated with the Fintech Industry?

- **Cyber-Attacks:** Fintech systems are vulnerable to hackers because of automation of processes and digitization of data. Recent hacks by debit card companies and banks demonstrate the ease with which hackers can gain access to systems and damage them irreparably.
- **Regulatory Challenges:** Regulation is also a problem in the emerging world of FinTech, especially cryptocurrencies. The Indian government is following a wait and watch policy towards cryptocurrencies. Absence of regulatory authority has led to increased chances of fraud threat to investor protection and movement of money in the economy.
 - Due to the diversity of offerings in FinTech, it is difficult to formulate a single and comprehensive approach to these problems.
- **Financial Illiteracy:** The lack of financial literacy is also a problem. Only 27% of Indian adults – and 24% of women meet the minimum level of financial literacy as defined by the Reserve Bank of India.
- **Illegal Digital Lending:** During the pandemic, digital lending through mobile apps became popular, but many problems accompanied it.
 - It was found that more than half of these digital loan providers were operating illegally. Many apps used tactics to exploit the widespread lack of financial literacy, charging interest rates up to 500%.

What Should be the Way Forward?

- **Consumer Awareness:** In addition to establishing technological safeguards, educating and training customers will also help in democratising fintech and guarding against cyberattacks.
- **Effective Regulatory Framework:** Transparency and sound regulation will strengthen the fintech sector over time and facilitate the Indian economy's growth at its potential rate by fuelling the engine of economic growth.
 - There is a need for a more constructive approach towards recognizing the role FinTechs play in India's financial inclusion agenda and setting up financial targets that removes current ambiguities while allowing FinTechs sufficient flexibility to come up with new propositions.

- **Maintaining Data Privacy:** The regulatory framework for Fintech companies to manage their data can be framed through joint collaboration between **Ministries of Corporate Affairs and Electronics and Information technology**.
 - The government should require **Fintech companies to ensure that the data harvested from consumers** will not be used for any purpose other than serving the consumer's interest.



Need of Police Reforms

This article is based on the "Need urgent police reforms" which was published in Financial Express on 22/12/2022. It talks about the legal and institutional framework governing police matters in India and challenges related to it.

Tag: Governance, GS Paper-2, Executive, Various Security Forces & Agencies & Their Mandate

In India, **state police forces** are responsible for maintaining law and order and investigating crimes, **central forces assist them with intelligence and internal security** challenges (e.g., **insurgencies**). Expenditure on police accounts for about **3% of the central and state government budgets**.

The legal and institutional framework governing police matters in India was inherited from the British. The **current**

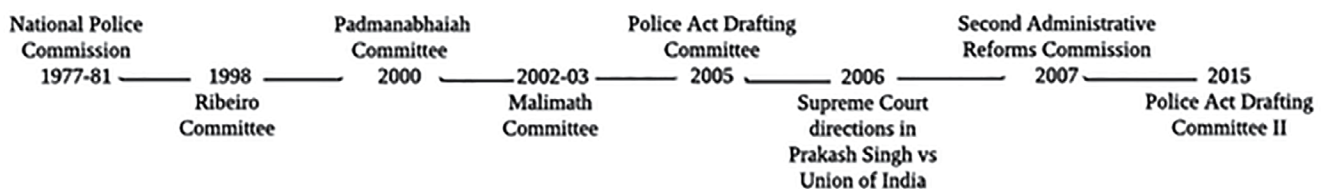
legal framework, comprising the **Police Act 1861** and other state specific laws, is deficient in establishing an accountable police force.

While multiple reform proposals have been recognised by the **Government of India** and the **Supreme Court**, such reform has not been achieved or implemented to the desired extent. Therefore, India needs to revise the **legal and institutional framework** to move towards **smart policing**.

What is the Ideal Role of Police in Context of Indian Democracy?

- The **primary role of police forces is to uphold and enforce laws, investigate crimes and ensure security** for people in the country.
 - In a large and populous country like India, **police forces need to be well-equipped, in terms of personnel, weaponry, forensic, communication and transport support, to perform their role well**.
- Further, they need to have the operational freedom to carry out their responsibilities **professionally, and satisfactory working conditions** (e.g., regulated working hours and promotion opportunities), while being **held accountable for poor performance or misuse of power**.
 - **Police reforms** are also necessary periodically, since crimes and insurgencies are changing and becoming more sophisticated.

What are the Committees/Commissions on Police Reforms?



What are the Challenges Related to Policing in India?

- **Low Police-Population Ratio:** State police forces had **24% vacancies** (about 5.5 lakh vacancies) in January 2016. Hence, while the sanctioned police strength was **181 police per lakh persons in 2016**, the actual strength was **137 police**. Note that the **United Nations recommended 222 policemen per lakh population**.
 - As a result of understaffing, **policemen are overburdened with work**, which not only reduces their effectiveness and efficiency (resulting in poor investigations), but also leads to **psychological distress** and leads to **pendencies of cases**.
- **Political Superimposition:** According to police laws, both the **Central and State police forces are under the control of political executives**. Police priorities

are frequently changed by political leaders according to the political mood of the state.

- The **Second Administrative Reforms Commission** noted in 2007 that **politicians unduly influenced police personnel for personal or political reasons**.
- **Colonial Legacy:** To streamline the country's police administration after the revolt of 1857, the British enacted the **Police Act of 1861**. This act does not correspond with the democratic aspirations of the population after 75 years of Republic India.
- **Public Perception:** The **Second ARC** has noted that **police-public relations are unsatisfactory in India** because people view the police as **corrupt, inefficient, and unresponsive**, and often hesitate to contact them.
- **Infrastructural Deficit:** Today's police forces require strong communication support, modern weapons,

and high mobility. **CAG audits for 2015-16** have found shortages in weapons among state police forces.

- Also, the **Bureau of Police Research and Development** has also noted a **30.5% deficiency in stock of required vehicles** with the state forces.
- **Changing Technology, Challenging Policing:** In the next decade, **digitalization, hyperconnectivity, and exponential growth of data** are expected to accelerate.
 - There is a threat to effective policing from the convergence of different domains like **bioweapons and cyberattacks**.

What Should be the Way Forward?

- **Making the Police a SMART Force:** There is a need for making Indian police **Strict and Sensitive, Modern and Mobile, Alert and Accountable, Reliable and Responsive, Tech Savvy and Trained**.
 - Various studies indicate that when **police officers treat citizens with dignity, allow them an equal voice in interactions** and are guided by considerations of transparency and accountability, it **strengthens people's compliance with laws**, ameliorating conditions for commission of crimes.
- **Promoting Community Policing:** Increasing **community policing** makes sense because it **involves police and community members working together to solve crime and crime-related issues** and also improves people-police relations.
- **Setting up Police Complaints Authority:** According to the Supreme Court, an **independent complaints authority is needed to investigate complaints** of police misconduct.
 - In accordance with the **Model Police Act, 2006**, each state must establish an authority **made up of retired High Court judges, civil society members, retired police officers, and public administrators** from another state.
- **Strengthening Cyber-Policing to Combat Cyber-crime:** As crime becomes more sophisticated, complex, and transnational, new digital investigative and data management capabilities along with innovative AI-enhanced tools are critical.
 - For example, **criminal statistics** will have to be updated to adequately capture cybercrime across the country.
- **Transparency in Appointments:** Police reforms are crucial to **hold the structure of the criminal justice system together**. The 1861 Act must be amended, in accordance with the **Supreme Court's directives**.
 - Since the **appointment of the director general of police**, i.e. The chief of the police in a state is **pivotal to the police's administration**, there is a

need to devise a **transparent and merit based procedure** for such appointments.

- **Addressing Women Under-Representation:** **Parliamentary Standing Committee** advised states and Union Territories to **create a road map for ensuring 33% representation of women in police**. It also recommended at least one all-women police station in each district.

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Unlocking India's Demographic Potential

This article is based on the "View: India's demographic dividend is for real, but it needs to be discounted heavily" which was published in Economic Times on 24/12/2022. It talks about India's demographic dividend and international comparisons.

Tag: Indian Society, GS Paper-1, GS Paper-2, Government Policies & Interventions, Population and Associated Issues

India entered the **demographic dividend opportunity window in 2005-06** and will remain there till **2055-56**. According to **Economic Survey 2018-19**, India's Demographic Dividend will peak around 2041, when the share of working-age, i.e. **20-59 years, population is expected to hit 59%**. which offers great potential for **India's economic growth**.

But a potential does not mean that it will be automatically achieved. It is an opportunity, which can be harnessed if the **right conditions are there or created**. These conditions are a **healthy population, especially women and children; educated young people, especially girls; a skilled workforce; a high-performing economy** that is generating required high-quality jobs; and people in gainful employment.

It is time for India to **harness the demographic potential of its population** and look toward enabling the environment to achieve real economic growth.

What is the Significance of India's Demographic Dividend?

- There is a perception that a larger young population means greater **human capital, greater economic growth, and better living standards**.
 - Better economic growth is brought about by increased economic activities due to higher working age population and **lower dependent population**.
- In the last seven decades, the **share of the working age population has grown from 50% to 65%**, resulting in a remarkable decline in the dependency ratio (number of children and elderly persons per working age population).

- As per the **World Population Prospects 2022**, India will have one of the largest workforces globally.
- In the next 25 years, **one in five working-age group persons will be living in India.**

What are the Challenges

Associated with India's Demographic Dividend?

- **Low Female Labour Force Participation:** India's labour force is constrained by the absence of women from the workforce. According to the **Periodic Labour Force Survey, 2018-19**, the female labour force participation rates (LFPR) among women aged above 15 years are as **low as 26.4% in rural areas and 20.4% in urban areas in India.**
- **High Dropout Rate:** While over 95% of India's children attend primary school, the **National Family Health Surveys** confirm that **poor infrastructure in government schools, malnutrition, and scarcity of trained teachers** have resulted in **poor learning outcomes and high dropout ratios.**
- **Disparity in Demographic Dividend Window:** Due to the heterogeneity of India's population, the window of demographic dividend is different in different states. **Kerala's population is already ageing, while Bihar's workforce is projected to continue to grow until 2051.**
 - As a result, **11 of the 22 major states will have a smaller working age population by 2031.**
- **Jobless Growth:** In light of **deindustrialization, deglobalization, and the industrial revolution 4.0,** there is growing concern that future growth will result in joblessness.
 - The **Economic Survey 2019** highlights the gap between the projected annual increase in working age population and the available number of jobs.
 - The **informal nature of the economy** in India is another hurdle in reaping the benefits of demographic transition in India.

What Should be the Way Forward?

- **Raising Education Standards:** In both rural and urban settings, the **public school system must ensure that every child completes high school** and goes on to skilling, training, and vocational education.
 - The modernization of school curricula along with the implementation of **Massive Open Online Courses (MOOCs)** and the establishment of open digital universities will further contribute to India's qualified workforce.
- **Meeting Health-Related Requirements:** There is a need to increase funds for health as well as upgrade health facilities based on **modern technologies** and to provide reproductive healthcare rights-based access.

- There is also a need to recognize that the **health of people is closely connected to the health of animals and our shared environment**, therefore India must follow the **One Health Approach** in order to reap its democratic dividends to the fullest extent possible.

- **Investing in Emerging Technologies:** The expansion of research and development and **incentivising Startups** in the field of **Quantum Technology, Blockchain, Internet of things** can help India to take **advantage of emerging technologies** to its advantage and provide Indian youth with the experience and skills to become global role models.
- **Federal Approach for Demographic Governance:** For policy coordination between states on emerging population issues such as **migration, ageing and urbanisation**, a new **federal approach to governance reforms** for the demographic dividend is required.
 - A key element of this governance arrangement should be inter-ministerial coordination for **strategic planning, investment, monitoring, and course correction.**
- **Gender Budgeting:** There is a need to **rectify gender inequities and ensure women have access to equal socio-economic status as men.** **Gender responsive budgets and policies** can contribute to achieving the objectives of **gender equality, human development and economic efficiency.**



Global Energy Crisis and India's Energy Dynamics

This article is based on the "How India is filling its fuel tank amid ongoing global energy crisis" which was published in Economic Times on 25/12/2022. It talks about the Global Energy Crisis and challenges associated with it.

Tag: Indian Economy, GS Paper-3, Solar Energy, Renewable Energy, Growth & Development, Energy Security

At times when the **world is in the midst of a global energy crisis**, the **International Energy Agency (IEA)** states that India's energy demand could rise over 3% annually until 2030 due to urbanisation and industrialisation.

Though, India continues to make great strides with renewables deployment and efficiency policies. **Climate change, supply logistic issues, geopolitical tension (Russia-Ukraine War), slow revival of the economy** after the Covid-19-induced lockdown have had a domino effect on the **energy dynamics in India.**

Therefore, to mitigate the continued risks to energy security, **accelerating a shift to renewable sources** and hastening the **end of the dominance of fossil fuels** should be a keystone of **India's Energy Security**.

What is Energy Security and Status of India's Oil Imports?

- Energy security means **access to energy resources and fuel in the required quantity and quality at reasonable prices**. Energy security aims for adequate amount of energy resources in terms of-
 - Accessibility
 - Affordability
 - Availability
- India imports **80% of its oil needs** and is the **third largest oil consumer in the entire world**. Also, India's energy consumption is expected to grow 4.5% every year for the next 25 years.
- Recently due to high **International Crude Oil Prices**, **Current Account Deficit (CAD) inflated** because of higher cost of oil import, raising concerns about long term economic stability in India.

What are the Major Concerns Related to India's Energy Security?

- **Climate Change Induced Demand Surge**: Stockpiles at the **coal-based thermal power plants** fell short despite this increase in domestic coal production, as the utilities were not prepared for the **unprecedented heat wave caused by climate change** in the country and the sharp surge in demand, **which touched 201 gigawatts in April 2022**.
- **Common Coal Pool and Price Hike**: The growing demand for coal was further exacerbated by the Russia-Ukraine conflict that resulted in **diverting Europe's attention to procure coal from Indonesia, Australia and South Africa** which so far had been major coal suppliers for China and India.
 - This dependency on the **common resource pool** led to a **spike in the price of coal** in the international market from \$70 per tonne to \$421 per tonne in March.
- **Risk to Health**: The burning of **traditional energy fuels**, including **wood, dung, and crop residue**, causes **indoor air pollution**, which is detrimental to human health.
 - There are approximately **1 out of every 4 premature deaths** caused by **household air pollution (HAP)** in India each year.
 - **90% of them are women**, who work close to these fuels in poorly ventilated kitchens.

- **Concern Over Affordability and Retail Inflation**: Despite high subsidies to oil, India ranks low in affordability of petrol and diesel
 - **Petrol prices** directly affect retail inflation. Diesel prices account for **60-70% of India's freight costs**. High freight costs due to rise in diesel prices increase prices for products across the board.
- **Import Dependence and Geopolitical Disruptions**: In the first half of **2022-23**, **India's crude oil import bill increased by 76% to USD 90.3 billion** and total import quantity increased by **15%**.
 - Increasing dependence on imported oil has placed India's energy security under severe strain, and **geopolitical disruptions have exacerbated the problem**.

What are the Initiatives Shaping India's Energy Transition?

- **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)**
- **Green Energy Corridor (GEC)**
- **National Solar Mission (NSM)**
- **National Biofuels Policy and SATAT**
- **Small Hydro Power (SHP)**
- **Pradhan Mantri Ujjwala Yojana (PMUY)**
- **International Solar Alliance (ISA)**

What Should be the Way Forward?

- **Diversifying India's Energy Mix**: India needs to **gradually, but significantly, diversify its sources of energy generation**, including more **renewable sources** of energy (**solar, biogas, etc.**) that are cleaner, greener, and more sustainable.
 - The **use of renewable energy** can contribute to the **development of low-carbon development strategies** and generate employment opportunities for the country's working population.
- **Energy Planning to Curb Energy Inequality**: Increasing power demand and recurrent coal crises require **advance planning that enables the entire power generation** and supply chain to withstand these shocks.
 - In order to facilitate this, policy makers and other stakeholders should collect **data that reveals intra-family and collective differences in energy, income, and gender disparity** in order to bridge the energy gap between different social groups and protect them from any geopolitical shocks.
- **Making Sustainable Development Goals a Reality**: To achieve sustainable development goals like **zero hunger, zero malnutrition, zero poverty, and universal well-being**, **energy security** will be crucial.

- Tackling these issues under a common umbrella with stringent **monitoring mechanisms at the local level to oversee implementation of policies** can **help India realise the goal of Energy Security**.
- **Interlinking Women Empowerment with Energy Security:** Promoting clean energy through **women's empowerment** and leadership could accelerate the transition to a **low-carbon economy and energy security**.
- As responsible **mothers, wives, and daughters, women** play a crucial role in **social awareness of green energy transition**.
- Transitioning Towards Responsible Renewable Energy: Renewable energy shouldn't stand for just renewable energy, but for responsible energy as well.
- The emerging renewable energy sectors in India should recognise:
 - Committing to participatory governance principles,
 - Actively promoting universal labour, land, and human rights, and
 - Protecting, restoring and nurturing resilient, thriving ecological systems.

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Constitutional silences, Unconstitutional inaction

This article is based on "Constitutional silences, unconstitutional inaction" which was published in The Hindu on 26/11/2022. It talks about issues related to the Governor in India.

Tag: Governance, GS Paper-2, Constitutional Bodies, Role of Governor

When the **Constitution was adopted by the Constituent Assembly**, the founders left deliberate gaps in it to enable a future **Parliament** to modify and amend the Constitution that was in accordance with the aspirations and the will of the people. A number of friction points in **Indian Polity** were born from this silence over time.

One of the silences in the Constitution is in **Article 200** which does not prescribe a timeline for the Governor to provide assent to Bills sent by the Legislative Assembly. This has been used to advantage by the Governors of various **Opposition-ruled States** to obfuscate the mandate of democratically elected governments.

It is therefore necessary to examine the **grey areas between the Governor and State Legislature** from a detached perspective and find solutions to improve governance machinery at State level.

Which Constitutional Provisions Apply to the Governor?

- **Article 153** says that there shall be a **Governor for each State**. One person can be appointed as Governor for two or more States.
- The Governor is **appointed by the President** by warrant under his hand and seal and holds office under the pleasure of the President (**Article 155 and 156**).
- **Article 161** states that the governor has the power to grant pardons, reprieves, etc.
 - It was ruled by the **Supreme Court** that a Governor's sovereign power to pardon a prisoner is actually exercised in consensus with the State government rather than by himself.
- Under **Article 163**, the Governor is assisted and advised in the exercise of his functions by a **council of ministers headed by the Chief Minister**.
 - Discretionary powers include:
 - Appointment of a chief minister in the absence of a clear majority in the state legislature
 - In the event of a motion of **no confidence**
 - In case of failure of constitutional machinery in the State (**Article 356**)
- **Article 200** gives power to the **Governor to give assent, withholds assent, or reserves the bill** for the consideration of the President passed by the Legislative Assembly.

What are the Areas of Friction Related to the Governor?

- **Lack of Time bound Consideration of Bills:** **Article 200** has been accused by critics of being misused by governors in a number of cases range from the **Tamil Nadu Prohibition of Online Gambling and Regulation of Online Games Bill, 2022** (passed by the Tamil Nadu Assembly) to the **Kerala Lok Ayukta (Amendment) Bill, 2022** (passed by the Kerala Assembly).
 - In Tamil Nadu alone, almost **20 Bills are awaiting assent by the Governor**.
- **Lack of Clear Demarcation of Powers:** It is unclear how the **constitutional mandate to act on the advice of the council of ministers should be distinguished from the statutory authority** to act as chancellor. This results in many conflicts between the **governor and the state government**.
 - Recently, the Kerala Governor appointed a **Vice Chancellor** at a university **bypassing government nominations**.
- **Appointment Bias:** Critics argue that **the central government has appointed political figures and former bureaucrats aligned with particular political ideologies**

as governors, which violates the constitutionally mandated neutrality of the office.

- **Apprehensions of Centre's Agent:** In 2001, the **National Commission to Review the Working of the Constitution**, held that the Governor owes his appointment and his continuation to the Union. Apprehensions exist that he will follow instructions given by the Union Council of Ministers.
 - Critics state that this has been a **major cause behind the Governor's recommendation for President's Rule (Article 356)** in a state. It has not always been based on 'objective material', but on political whim or fancy.
- **No Written Procedure for Removal:** Governors have been removed arbitrarily several times because there are no written grounds or procedures for removing them.

What Should be the Way Forward?

- **Honouring the Will of Legislature:** In **Purushothaman Nambudiri vs State of Kerala (1962)**, a Constitution Bench of the Supreme Court clarified that the Constitution does not impose any time limit within which the Governor should provide assent to Bills.
 - However, the Court has maintained that the Governor must honour the will of the Legislature and they can act only in harmony with their Council of Ministers.
- **Reasonable Time for Consideration of Bills:** The constitutional silences should not give way for unconstitutional inaction, leaving space for anarchy in the rule of law.
 - The 'National Commission to Review the Working of the Constitution' 2000 recommended that "there should be a time-limit, say a period of six months, within which the Governor should take a decision whether to grant assent or to reserve a Bill for consideration of the President.
- **Rethinking Chancellorship:** **Punchhi Commission** suggested that the Convention of Governors serving as Chancellors of Universities and holding other statutory positions should be abolished because it opens their office to controversies and public criticism.
- **Security of Tenure and Guided Discretion:** According to the **Venkatachaliah Commission**, Governors should be allowed to complete their five-year terms normally. Before removing them early, the central government should consult the concerned Chief Minister of State.
 - Also, the **Second Administrative Reforms Commission** stated that the Inter-State Council should formulate guidelines on how governors should exercise discretionary power.



Migration Centric Development

This editorial is based on "A retelling of the Indian migrant worker's plight" which was published in The Hindu on 28/12/2022. It talks about the issues faced by Migrants and the requirement of tangible and comprehensive migration policy.

P Tag: Indian Economy, GS Paper-3, Employment, GS Paper-2, Government Policies & Interventions, Human Resource

According to the **International Organization of Migration (IOM)**'s **World Migration Report 2022**, there were 281 million international migrants globally in 2020, with nearly two-thirds being labour migrants.

Population pressure on cities has increased with the development of the manufacturing and service sectors. According to the "World Cities Report 2022, India's urban population to stand at 675 million by 2035. A result of urbanisation and the growth of cities in India is a significant strain on basic infrastructure and services, particularly housing and sanitation. Migrant workers suffer most from the lack of access to these basic needs.

The **Covid-19 pandemic** has further aggravated the poor housing conditions of the urban poor/ migrant workers. So, it's high time India started addressing the issues facing migrants in a comprehensive manner and worked towards improving their living conditions.

What are the Positive Effects of Domestic Migration in India?

- **Diversifying Labour Markets:** Migration fills the gap between demand and supply for labour, and efficiently allocates skilled, unskilled, and cheap labour.
- **Development of Skills:** Exposure and interaction with the outside world enhance migrants' knowledge and skills.
- **Quality of Life:** Migration enhances employment opportunities and economic prosperity, which in turn improves quality of life. The migrants also send money home, which has a positive effect on their families back to their hometown.
- **Social Evolution:** Migration helps to improve the social life of migrants, as they learn about new cultures, customs, and languages which helps to improve brotherhood among people and ensures greater equality and tolerance.
- **Food and Nutrition Security:** According to the 2018 State of Food and Agriculture report by **Food and Agriculture Organisation (FAO)**, outmigration often leads to improved food and nutrition security for migrants.

What are the Challenges

Associated with Domestic Migration in India?

- **Feminisation of Agriculture:** Due to their education opportunities and preference for physical labour, men are typically viewed as breadwinners. Due to this, males in the Indian rural belt tend to migrate to urban areas in search of better jobs, whereas women are primarily responsible for household chores and agriculture.
 - The separation of male spouses, the lack of companionship, and the increased household responsibilities may lead to mental health problems among left-behind female spouses.
- **Absence of WASH Facilities:** In a 2020 report by the International Labour Organization (ILO) on internal migrants, the lack of adequate water, sanitation, and hygiene (WASH) facilities has been a major challenge for migrant workers where lack of social security compounds the lack of decent housing.
- **Inaccuracy of Identifying Migrants:** Migrants are placed within two larger categories that have troubled policymakers for a long time: unorganised workers and urban poor. Despite the use of the e-Shram portal, it has been difficult to accurately distinguish and target migrants.
 - Policy interventions in major urban destinations continue to conflate the urban poor with low-income migrants.
- **Pressure on Resources of Host Cities:** Influx of workers and population explosion increase competition for jobs, houses, schools, etc, and overpopulation overloads resources, amenities, and services in host cities.
 - Resulting from mass migration is the development of slums, which compromises quality of infrastructure and life at destinations, which further causes unhygienic conditions, crime, and pollution.
- **Prone to Abuse:** Non-literate and underqualified migrants lack basic knowledge and remain out of the pursuit of formal jobs that makes them prone to abuse, exploitation, trafficking, psychological abuse, and gender-based violence against female migrants.

How Sustainable Development Goals Recognise Migrants?

- As part of the 2030 Agenda for Sustainable Development (with its core principle of "leave no one behind," including migrants), migration

is recognized for the first time as a contributor to sustainable development.

- **11 out of the 17 Sustainable Development Goals (SDGs)** contain targets and indicators that are relevant to migration or mobility.
- **Target 10.7 in the SDGs** stresses the importance of facilitating orderly, safe, regular and responsible migrations, including by implementing well-managed migration policies.

What Should be the Way Forward?

- **Migration-Centric Policies:** In order to achieve inclusive growth and development and reduce distress-induced migration, India needs to develop migration-centric policies, strategies, and institutional mechanisms, helping India on the path of achieving Sustainable Development Goals and reducing poverty.
- **Organising the Informal Economy:** Migrant data must be collected for the purpose of city development like the SMART Cities Mission can result in a large number of green jobs for migrants.
 - The Labour Ministry's proposed Unorganised Worker Index Number Card would also help formalise the workforce.
- **Urban Employment Guarantee:** To provide basic living standards to urban poor as well as migrants, urban areas need a scheme similar to MGNREGA.
 - The Indira Gandhi Urban Employment Guarantee Scheme has been rolled out in Rajasthan is a good step in this direction.
- **Social Security:** Having a social security blanket is important to ensure migrants do not run out of funds during health crises, child-rearing, or child-education.
 - As a result, migrants' psychological conditions will also improve.
- **Upgrading Slums:** Providing basic amenities such as Clean Water, Sanitation and Electricity to the slum areas should be at priority.
 - Slums need to be rehabilitated and upgraded along with establishing identity markers based on the National Food Security Act List as well as recording the hygiene condition.
- **Migration Support Centres:** To reduce the trauma of migrants arriving in cities in search of work, Migration Support Centres can be established.
 - Support for the destitute and the homeless must be made a priority.

Bringing an End to Stubble Burning

This article is based on “*Bringing an end to stubble burning*” which was published in *Hindu Business Line* on 22/10/2022. It talks about the issues related to Stubble Burning and Ways to address the issue.

Tag: Agriculture, GS Paper - 1, GS Paper-3, Government Policies & Interventions, Health, Environmental Pollution & Degradation

The need for providing food grains for a growing population, while sustaining the natural resource base, has emerged as one of our main challenges for India. **Foodgrains are a major source of energy and are thus vital for food and nutritional security.**

But harvesting of various crops generates a **large volume of residues both on and off farm. The Ministry of New and Renewable Energy** estimated that about **500 Mt of crop residues are generated annually.**

The problem of ‘on-farm’ burning or **stubble burning** is intensifying in recent years due to **shortage of human labour, high cost of removing the crop residue from the field** and mechanised harvesting of crops, contributing majorly to **air pollution in Northern India.**

Therefore, there is a need to find **innovative solutions** that curb the menace of stubble burning, in order to foster **healthy, sustainable, pollution-free farming practices.**

What is Stubble Burning?

- Stubble burning is a process of setting on fire the **straw stubble**, left after the harvesting of grains, like **paddy, wheat**, etc.
- In India, stubble (parali) burning is practised to **remove paddy crop residues** from fields to sow wheat, which occurs **around the end of September** and beginning of **November**.
 - The practice is prevalent especially in **Punjab, Haryana, and Uttar Pradesh** in **October and November**.

What are the Ill Effects of Stubble Burning?

- **Damage to the Environment:** Burning stubble emits toxic gases such as **Carbon Monoxide (CO), Methane (CH₄), Polycyclic Aromatic Hydrocarbons (PAH), and Volatile Organic Compounds (VOC).**
 - A thick blanket of smog is formed from these pollutants dispersing into the surrounding area, **ultimately affecting air quality and health.** This is one of the **primary causes of Delhi’s air pollution.**

- **Impact on Soil Properties:** Heat from burning residues **elevates soil temperature** causing death of beneficial soil organisms.
 - **Frequent residue burning leads to complete loss of microbial population** and reduces levels of **Nitrogen and Carbon** in the soil, which is important for crop root development.
- **Impacts on Human Health:** There have been several health effects caused by the resultant air pollution, **ranging from skin irritation to severe neurological, cardiovascular, and respiratory problems.**
 - Research shows that pollution exposure also has an adverse effect on mortality rates - the **life expectancy** of Delhi residents has decreased by about **6.4 years** as a result of high pollution levels.
- **Insufficient Stubble Management Infrastructure:** Farmers burned almost 15.4 million metric tons (out of 19.7 MMT) in open fields due to the lack of stubble management infrastructure (**Punjab government 2017**).
 - Also, it is preferred by farmers because it is **cheaper and faster**, helping them to **clear the land in time for the next cropping season.**
- **Negative Effects of Subsidies for Agriculture:** **Subsidies for electricity and fertilisers**, along with **easier access to credit in agriculture**, have led to substantial increases in **crop yields and agricultural productivity** in subsequent decades, which has in turn **exacerbated stubble burning.**

What can be the Alternatives to Stubble Burning?

- **Bio Enzyme-PUSA:** A **bio-enzyme called PUSA** has been developed by the **Indian Agriculture Research Institute** as a solution to stubble burning.
 - As soon as it is sprayed, this enzyme starts decomposing the stubble in 20-25 days, turning it into manure, which further improves the soil.
 - It also Increases organic carbon and soil health while reducing fertiliser expenses for the **next cropping cycle.**
- **Palletisation:** Paddy straw can be dried and converted into **pellets** can be mixed along with coal which can be used in thermal power plants and industries as fuel. This can **save coal as well as reduce carbon emissions.**
- **Happy Seeder:** Instead of burning the stubble, a tractor-mounted machine called the **Happy Seeder** can be used that “cuts and lifts rice straw, sows wheat into the bare soil, and deposits the straw over the sown area as mulch.

- **Chhattisgarh Innovative Model:** It is an innovative experiment that has been undertaken by the Chhattisgarh government which involves the setting up of **gauthans**.
 - Gauthans are **five-acre plots owned by each village where unused stubble or parali is collected** through parali daan (people's donations) and turned into **organic fertiliser by mixing cow dung with natural enzymes**.
- **Additional Alternative Uses:** Stubbles can be used in various ways; cattle feed, compost manure, roofing in rural areas, for packing materials, for preparation of papers and for preparation of **bioethanol** as well.

What Should be the Way Forward?

- **Revitalising Stubble Management:** Similar schemes like the **MGNREGA** should be replicated for harvesting and composting stubble burning, as well as regulating post-harvest management at the ground level.
 - **Incentives can also be offered to farmers** who reuse and recycle their stubble.
- **New and Improved seed varieties:** Recent studies has pointed out that the use of new and improved varieties of rice and wheat crop particularly short duration crop varieties like **Pusa Basmati-1509 and PR-126**, could be seen as a measure to **overcome the problem of stubble burning** as they mature quickly and also improve the quality of the soil.
- **Farmer Awareness:** Behavioural change is also needed to achieve this goal. Farmers need to be **educated and informed about how stubble burning poses a threat to human life** as well as the fertility of the soil and should be encouraged to adopt **eco-friendly technologies**.



Realignment Towards FTAs

This editorial is based on "India's FTA imperative" which was published in Financial Express on 28/12/2022. It talks about India's Alignment Towards FTAs and its impacts on global value-chain.

Tag: Economy, GS Paper-3, Effect of Policies & Politics of Countries on India's Interests

While the **Covid-19 pandemic** has made the world realise the importance of secure and reliable **supply chains**, there have been concerns regarding economic self-interest and slowdown in global trade.

Recovering from the pandemic, **India has undertaken a slew of measures to facilitate trade** with the aim of

manufacturing for **export** and positioning itself as a global supply chain hub (**PLIs, Gati Shakti master plan, faceless and paperless cargo clearance**, etc.).

However, realigning its policies to seek **global market access** by partnering with like-minded countries through **Free Trade Agreement (FTA)s** is most crucial towards this aim.

What is a Free Trade Agreement (FTA)?

- **Free Trade Agreements (FTAs)** are agreements between two or more countries to reduce or eliminate tariffs and other trade barriers on a wide range of goods and services.
- India has **entered into a number of FTAs** with other countries in order to expand its trade and boost its economic growth.

What are the Significant Benefits of Realignment Towards FTAs?

- **FTA aids integration with the global value chain** as a reliable supply hub, which is important in the post-pandemic world where businesses look for safe and cost-efficient trading routes.
- They also **provide deeper market access for Indian value-added exports** for the consuming markets of the West.
- They ensure the **removal of existing non-tariff barriers to goods and services exports** with fair and reciprocal trade terms.
- And finally, they are important to **leverage better opportunities vis-à-vis regional competitors** who already have preferential access.

What are the Challenges Related to India's FTAs?

- **Market Access:** One of the main challenges in **India's FTAs** is the **lack of market access for its products in other countries**.
 - Many Indian products face **high tariffs and other barriers** to entry in other countries, which makes it **difficult for Indian businesses to compete in those markets**.
- **Intellectual Property Rights:** Another challenge is the **protection of intellectual property rights (IPR) in other countries**.
 - India has a large number of **small and medium enterprises (SMEs)** that rely on the protection of their IPR in order to compete in international markets. However, **many countries have stronger protections for IPR**, which can make it difficult for Indian businesses to sell their products in those markets.

- **Trade Deficit:** India has a trade deficit with many of its trading partners, **which means it imports more goods and services from those countries than it exports**. This can be a challenge for India's economy, as it relies on exports to drive growth.
 - India has accounted for a trade deficit of **USD 16 billion in 2020-21 with ASEAN countries**. At the same time, the trade deficit with Japan remained **USD 6.5 billion in 20-21**.
- **Impact on Agricultural Sector:** The **agricultural sector is a key part of India's economy**, and many farmers in India rely on exports to make a living.
 - However, India's FTAs with other countries have often led to an increase in imports of agricultural products, **which can be a challenge for Indian farmers**.
- **Lack of Transparency:** Most FTAs are **negotiated behind closed doors** without much information on the objectives and processes involved.
 - Moreover, there are **no institutional mechanisms to scrutinise the actions** of the executive during and after the FTA has been signed.

What Should be the Way Forward?

- **Scrutiny of FTAs:** Legislative oversight of FTAs should be handled by the **Committee on Commerce**, by discussing different aspects of agreements and negotiations, in a way **maintaining executive accountability to the legislature**.

- **Boosting Domestic Production** India needs to strengthen its domestic manufacturing base in **value-added products like engineering goods, electronic products, drugs and pharmaceuticals, textiles**, and agriculture machinery, that could be used to boost exports.
- **Developing a Comprehensive FTA Strategy:** India should develop a **comprehensive strategy for its FTA negotiations**, including clear goals and objectives, and a plan for how to achieve them.
 - This should involve consultation with key stakeholders, such as **businesses, trade unions, and civil society groups**.
- **Reviewing and Updating Existing FTAs:** India should regularly review its existing FTAs to ensure that they are still providing benefits to the country and its trading partners.
 - This may involve **negotiating updates or amendments to the agreements** to address changing economic conditions or other factors.
- **Linking FTAs with India's Act East and Neighbourhood Policy:** India should consider negotiating **regional FTAs with countries in its immediate region**, such as those in **South Asia or Southeast Asia**.
 - This could help to increase trade within the region, boost economic development in the area **through increased connectivity and economic diplomacy**.

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Drishti Mains Questions

1. Assess the current state of genetic modification of crops in India and suggest ways to address the challenges related to it.
2. What is the relevance of Central Bank Digital Currency (CBDC) in Indian context? Also discuss major challenges involved in its implementation.
3. Emerging Space has multiplied India's capacities, but also added to its vulnerabilities. Comment.
4. As modern Cyber Technology multiplies India's capacity in different sectors, it also adds to its vulnerabilities. Comment.
5. Discuss the implications of linking India's northeast to the Indo-Pacific region.
6. Identify various reasons for soil degradation and suggest effective soil management measures.
7. Discuss the major challenges related to elections in India and suggest measures to make the electoral process more inclusive and fair.
8. Discuss major challenges related to India Heritage sites. Also suggest how climate action can be linked with Heritage Conservation.
9. Outline major pitfalls in India's Food Security Net and propose measures for universalisation of Public Distribution System.
10. Discuss major roadblocks to effective and sustainable democratic decentralisation in India. Also suggest measures to improve local governance.
11. "Big Tech firms have revolutionised India's digital space but also monopolised the digital marketplace". Comment.
12. Discuss major loopholes in urban planning in India. Also, suggest how India can move towards sustainable urban development.
13. Examine the challenges associated with solar energy production in India and how the International Solar Alliance can contribute to global energy security.
14. Examine major roadblocks to India's export dominance. Also discuss major sectors that can boost India's export capacities.
15. Discuss the current framework for combating terrorism in India. Also, suggest how Comprehensive Convention on International Terrorism (CCIT) can help in addressing issues related to terrorism.
16. Describe how Corporate Social Responsibility can facilitate India to achieve Sustainable Development Goals.
17. Discuss the major factors responsible for the loss of biodiversity in India. And suggest how India can effectively implement biodiversity protection policies.
18. Discuss major challenges related to the Telecom Sector in India. Also cite major provisions of the recent draft Telecommunications Bill 2022 as well.
19. Discuss how the Fintech industry is driving financial inclusion in India. And cite recent government initiatives responsible for the growth of Fintech.

Drishti Mains Questions

20. Discuss the need of Police Reforms in India considering the evolving nature of crime and insurgencies.
21. Discuss major roadblocks for India to reap maximum benefit from its Demographic Dividend.
22. Diversifying sources of energy generation is a keyystone for India's Energy Security. Discuss.
23. Highlight the instances where Constitutional silences have resulted into unconstitutional inaction.
24. Discuss major issues associated with domestic migration in India. Also suggest innovative measures to improve the living conditions of migrants.
25. Discuss the ill effects of stubble burning in India. And suggest innovative measures how this menace can be tackled.
26. Discuss what can be significant benefits of realignment towards Free Trade Agreements for India.