



Monthly Editorial Consolidation



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Metaverse - A Virtual Reality

This editorial is based on “*Why Metaverse may Supersede the Internet*” which was published in Livemint on 11/02/2022. It talks about Metaverse which is being seen as a new version of the Internet.

Tags: Science & Technology, GS Paper 3, Scientific Innovations & Discoveries, Indigenization of Technology, Technology Mission

Metaverse is a combination of multiple elements of technology, including virtual reality, augmented reality, and video where users “live” within a digital universe.

The concept is gradually gaining immense significance with many tech giants have already set in motion the progress for this process, with **Facebook and Epic leading the pack**.

Metaverse isn't going to get built by any one company or even a small number of companies— but through empowering millions of creators around the world. In fact, as Mark Zuckerberg says, **India is going to be a huge part of Metaverse** considering that **India's online gaming sector**, one of the important components of Metaverse, has seen a lot of growth over the past few years.

What is Metaverse?

- The metaverse is not a new idea, science fiction writer **Neal Stephenson coined the term in 1992**, and the concept is commonplace among video game companies.
- Metaverse is the next version of the Internet **focused on social connection**.
 - It can be defined as a simulated digital environment that uses **Augmented Reality (AR)**, **Virtual Reality (VR)**, and **blockchain**, along with concepts from social media, to create spaces for rich user interaction mimicking the real world.
- It can be imagined as a 3D virtual world, with ever-evolving aspects which are **collectively shared by its inhabitants** - a virtual world with real-time events and an online infrastructure.
- In theory, it encapsulates everything that's happening into the real world and will bring real-time events and updates going forward. The **user exists in a virtual world without borders**.

What Opportunities does Metaverse Offer?

- Virtual **communities, activities, events, all seamlessly accessible** without the need to sign into multiple apps.
- For a user-centric approach, a key aspect of the Metaverse that will work in its favour is the **effortless transition from one to the next step without discrepancies**.

- One can sign into his virtual office as a **virtual avatar** of himself, meet a client, take a break or play a sport - virtually all in one place.
- With the Covid-19 pandemic confining us to our homes for work, the Metaverse takes it to another level. It facilitates seamless cross-platform interaction with one's friends, family, colleagues across the world.
- Cross-platform interaction is in its infancy even in the gaming industry. With the Metaverse, **cross-platform interaction** will be the gold standard for seamless virtual interaction across the globe. Addresses and pin codes won't be a mandate anymore.
- With the Metaverse, the **virtual marketplace will be a serious business affair**.
 - Brands will transform the way they advertise, which will be a memorable experience rather than the intrusive pop-ups and forced ads as seen today.

What are the Associated Challenges?

- Several women have reported **incidents of harassment**, including a beta tester who was virtually groped by a stranger. There has been a reported incident of gang-rape as well.
- It could also lead to **new scrutiny of old issues like privacy** and managing who does what to whom in a virtual world.
 - These are early days for the metaverse. If safety isn't baked early on into its design, it'll be much harder to secure down the line.
- Psychologists and social scientists across the world are now worried about the **psychological impacts of dual reality**.
 - They are already predicting a **loss of emotional quotient (EQ)**, a **loss of individuality**, and a **dulling of our sensitivities** with shifting to a virtual world.

What Could Be The Way Forward?

- **Addressing Concerns:** While technological constraints are always there, **privacy concerns are hard to ignore**. One more concern is the concept of currency in the virtual world. All these challenges need to be taken into account.
 - The **government's involvement in Metaverse** is also a significant aspect as it may change the whole dynamic of the Metaverse since cryptocurrency is one of its driving forces.
- **Upgrading Technologies:** The metaverse is being seen as the **Internet 2.0** and for a smooth transition to it, **new tech infrastructure needs to be created and protocols written**. Today's internet as a **file-sharing protocol will need to be re-imagined** for the metaverse.

- **Integrating Metaverses:** If Facebook and other big internet companies build their own metaverses and sell their own proprietary hardware to access these zones, then the result could be a **collection of isolated worlds**, forcing digital citizens to pick where they spend the bulk of their time.
 - On the other hand, the **metaverse could comprise a set of more closely interconnected worlds**, some of them controlled entirely by their users.
 - This would be a place where people could take their personal data, digital goods and favourite services with them as they move from place to place.
- **Ensuring Safety in Metaverse:** Metaverse should be made more secure by **making safety features easier to find, like a fire extinguisher**, and get **volunteers to monitor behaviour**.
 - **Educating visitors about what constitutes potentially criminal behaviour** would help mitigate harassment, too.
 - With the police already stretched from social-media cases and the offline world, **tech firms should try more radical solutions to address harassment** in the metaverse before it's too late.
 - The dearth of women in the development process for virtual reality certainly isn't helping and needs to be fixed.
- **India's Role in Metaverse:** India's talent at **producing and exporting software** and **software developers** gives the country a unique advantage in the coming world of the metaverse, where our digital personas would be as important as our physical selves.
 - **Digital India and the components** under it such as - **Aadhar, Digital Health IDs and Digital Payments System**, therefore, is the **preparatory infrastructure that is needed for the transition** to a digital economy and to the metaverse.



India and the Sixth Assessment Report

This editorial is based on "The Heat Is On" which was published in Indian Express on 02/03/2022. It talks about the India-specific analysis of the second part of IPCC's sixth assessment report.

Tags: Biodiversity and Environment, GS Paper 3, Environmental Pollution & Degradation, Conservation

The **Intergovernmental Panel On Climate Change (IPCC)** released the **second of its three-part report in the**

6th assessment report, which focuses on the impacts of climate change and its implications on vulnerability and adaptation.

With global **warming of 1.1°C**, some impacts of climate change are already locked in, causing disruptions in the lives of billions of people. India, which has almost all the world's agro-ecological zones, is not spared. **The study's India-related findings are sobering.**

Dealing with the climate problem will require correcting past mistakes such as ignoring hydrology while planning towns and cities, neglecting flood alert systems, and encouraging water-guzzling crops.

What does the Second Part of the Report reveal for India?

- The **Indian population is one of the most vulnerable** and exposed to severe climate-induced risks and disasters.
- The **three major climate change hotspots** are the **semi-arid and arid regions**, the **Himalayan ecosystem** and **coastal zones**.
- About half of India's landmass is arid and semi-arid, prone to impacts of rising temperatures.
- It has found that climate change is **increasing vector-borne and water-borne diseases** such as **malaria** or **dengue**, particularly in **sub-tropical regions of Asia**.
 - It has also said deaths related to **circulatory, respiratory, diabetic and infectious diseases**, as well as infant mortality, are likely to increase with a rise in temperature.
- The **sea-level extremes** that previously occurred once in 100 years **could happen more frequently**.

How Urbanisation is linked to Climate Vulnerability?

- **Urbanisation-Climate Interlinkage:** **Urbanisation** processes have **generated vulnerability and exposure** combined with climate change hazards; this has driven the urban risk and impacts.
 - Life-threatening climatic conditions will arise from **extreme heat and humidity**.
 - Cities in India will experience more heat stress, urban floods and other **climate-induced hazards such as cyclones**.
 - Roughly a quarter of Indians now live in urban areas, in the next 15 years, this figure is expected to reach 40%.
 - The combination of **global warming and population growth** in already-warm cities in India is the **primary driver of increased heat exposure**.

- **Consequences:** Older adults, **people with comorbidities** and **dwellers** living without much access to hygienic environments will be at a **much higher risk in urban areas**.
- A higher urban population accompanied with high climate vulnerability in urban areas implies **heat-induced labour productivity loss, resulting in economic impacts**.
- The current adaptation measures **largely focus on knee-jerk solutions** and disaster management which has to move towards long-term planning for resilient cities.
- Sea level rise, increase in tropical cyclone storm surge and higher intensities of rainfall will lead to larger **probabilities of cities getting flooded**.
 - **Coastal megacities** (Mumbai, Chennai, Kolkata, Visakhapatnam), smaller **coastal towns and villages** and the **Andaman and Nicobar Islands** are at a **greater risk of being flooded**.

What about the Impact on the Himalayas?

- Urbanisation in the Himalayas is sprawling small towns with populations under a lakh. The **unplanned urbanisation is causing significant changes in land use** and land cover.
- **Increased rainfall variability** is one of the climate-induced impacts on the physical environment. **Heavy rains are becoming a norm** and are **leading to more landslides**.
- Global warming has increased the average temperature in the Himalayas causing **glacier melt and subsequent change in hydrological regimes** of the region.
- Glacial decline has also been exacerbated by **black carbon** which is a consequence of **stubble burning**, brick kilns, polluting industries.
- Most towns in the Himalayan region meet their water needs using supplies from springs, ponds, and lakes.
 - Urbanisation in the Himalayas is **reducing the cover of these water bodies** thus making **water insecurity** in hill towns the order of the day.

What Steps Can Be Taken?

- **Managing Flood Impacts:** The current adaptation measures to manage flooding impacts such as **stormwater management, green infrastructure, and sustainable urban drainage systems** must be overhauled to prepare for flooding in the future.
 - The report identifies that flooding will intensify in the Ganga and the Brahmaputra basins and crop

production systems will be disrupted by droughts and water scarcity.

- Policymakers will have to find ways to **ensure that the country's food security is not adversely affected**.
- They will have to **cushion the most vulnerable from the impacts of inflation** and create avenues to offset climate-induced livelihood losses.
- **Adaptation Policies at Local Level:** Better adaptation policies could lead to a safer and more sustainable future. The economic benefits of adaptation are a strategy for **local institutions to support adaptation action**.
 - Surat stands out as a case where **city-level political leadership** has supported adaptation action beyond national policy.
- **Passive Cooling to Reduce Urban Heat Islands:** Passive cooling technology, a widely-used strategy to **create naturally ventilated buildings**, can be a vital alternative to address the urban heat island for residential and commercial buildings.
 - The IPCC report cites **ancient Indian building designs that have used this technology**, which **could be adapted to modern facilities** in the context of global warming.
- **Making Urban India Water-Secure:** The report cites the example of Bengaluru, where Indian communities have traditionally managed a network of water tanks of immense ecological importance.
 - However, urban development has increasingly threatened this blue network in the last half-century.
 - The **restoration of the blue network** offers a more sustainable and socially just alternative for managing water resources.
- **Climate Adaptation Fund:** India and other developing countries have for long and correctly argued that developed countries must accept their historical culpability for climate change. The **IPCC has again made a call for "equitable adaptation"** efforts across the world.
 - Mere commitments to the **net zero emissions** or increasing the share of renewable energy might not be just enough vis-a-vis the developed countries.
 - They will also have to do more or commit more in terms of **climate financing, ensuring better flow of finance to adaptation** to taking into consideration the issues like loss and damage of resources.



Fighting the AMR Pandemic

This editorial is based on “*The Lingering Pandemic*” which was published in Indian Express on 03/03/2022. It talks about the concerns regarding the spread of AMR (Antimicrobial Resistance).

Tags: Science & Technology, GS Paper 3, GS Paper 2, Health

In the past few years, alarmingly **high resistance rates in pathogens** of public health importance have been reported from Indian hospitals. The Covid-19 pandemic has also raised concerns about the improper use of antimicrobials amongst Covid-19 patients.

The **unnecessary prescription of antimicrobials** amid the Covid-19 pandemic, **unsustainable use of antibiotics** and the **discharge of untreated effluents and wastewater into water systems** has led to an increase in the already high levels of drug resistance in most parts of the world.

Antimicrobial Resistance (AMR)

What is AMR and How Prevalent is it in India?

- **Antimicrobial Resistance** is the resistance acquired by any microorganism (bacteria, viruses, fungi, parasite, etc.) against antimicrobial drugs that are used to treat infections.
 - It **occurs when a microorganism changes over time and no longer responds to medicines** making infections harder to treat and increasing the risk of disease spread, severe illness and death.
 - The **World Health Organisation (WHO)** has identified **AMR as one of the top ten threats to global health**.
- In India, over **56,000 newborn deaths each year due to sepsis** caused by organisms that are resistant to first line antibiotics.
- A study reported by **ICMR (Indian Council of Medical Research)** from 10 hospitals showed that **when Covid patients acquire drug-resistant infections** in hospitals, the **mortality is almost 50-60%**.
- The multi-drug resistance determinant, **New Delhi Metallo-beta-lactamase-1 (NDM-1)**, emerged from this region.
 - Africa, Europe and other parts of Asia have also been affected by multi-drug resistant typhoid originating from South Asia.

What does GRAM Report Present about AMR?

- The **Global Research on Antimicrobial Resistance (GRAM) report** provides the most comprehensive estimate of the global impact of antibiotic resistance to date.

- According to the report, **1.27 million people died in 2019 as a direct result of AMR** (AntiMicrobial Resistance).
- Lower respiratory infections accounted for more than 1.5 million deaths associated with resistance in 2019, making it the most burdensome infectious syndrome.
- Amongst pathogens, **E coli** was responsible for the most deaths in 2019, followed by **K pneumoniae**, **S aureus**, **A baumannii**, **S pneumoniae**, and **M tuberculosis**.
 - As per the yearly trends reported by the ICMR, since 2015, **India reports a high level of resistance in all these pathogens**, especially E coli and K pneumoniae.

What are the Concerns Regarding AMR?

- The growth of AMR has proved to be a **major challenge in the treatment of sepsis**, which is a life-threatening condition and, unfortunately, the failure of antibiotics is **leading to deaths which are preventable**.
- AMR is also **undermining and undoing medical advances made over decades**, especially for high-burden diseases like **tuberculosis** and various cancers.
- It is putting the gains of the Millennium Development Goals at risk and **endangers achievement of the Sustainable Development Goals**.
- Untreated wastewater from medical facilities is awash with chemical compounds that **promote superbugs**.
- The concoction of **self-medication and over the counter (OTC) antibiotic availability** has led to one of the **highest rates of antibiotic resistance** in the world.

What Initiatives have been taken by the Government to Prevent AMR?

- **AMR Surveillance and Research Network (AMRSN)** was launched in 2013, to generate evidence and capture trends and patterns of drug resistant infections in the country.
- The **National Action Plan on AMR** focuses on One Health approach and was launched in April 2017 with the aim of involving various stakeholder ministries/ departments.
- ICMR along with **Research Council of Norway (RCN)** initiated a **joint call for research in antimicrobial resistance** in 2017.
- ICMR along with the Federal Ministry of Education and Research (BMBF), Germany has a joint **Indo-German collaboration for research on AMR**.
- ICMR has initiated **Antibiotic Stewardship Program (AMSP)** on a pilot project across India to **control misuse and overuse of antibiotics in hospital wards and ICUs**.

What are the Challenges Related to Preventing AMR?

- **Inadequate Information Systems:** The resistance rates reported by the hospitals and laboratories **do not automatically translate to disease burden** unless each resistant isolate is correlated with the clinical outcomes in the patients from whom they were isolated.
 - This has to do with **inadequate hospital information systems** in most public sector funded healthcare facilities in India and many low-middle income countries.
- **Insufficient Fundings: No new classes of antibiotics have made it to the market** in the last three decades, largely on account of **inadequate incentives** for their development and production.
 - Lack of an urgent action is leading towards an **antibiotic apocalypse** – a future with bacteria becoming completely resistant to treatment.
- **Exclusion of Antibiotic Residues:** In India, **current effluent standards do not include antibiotic residues**, and thus they are **not monitored** in the pharmaceutical industry effluents.
- **Inefficiency of Schemes:** The National Action Plan for AMR, approved in 2017, completes its official duration this year. The **progress under the plan has been far from satisfactory**.
 - Too many players, **missing governance mechanisms** and **absence of funding** are the key impediments to the effective rollout of the scheme.
- **Underreporting in GRAM Report:** Only a fraction of the Indian data, available through the **WHO-GLASS portal**, has been included in the GRAM report.
 - India has been reporting **high levels of resistance to fluoroquinolones, cephalosporins and carbapenems** across the Gram-negative pathogens that cause almost **70% of infections in communities and hospitals**.

What Steps Can Be Taken?

- **Multipronged Strategy for Reducing AMR:** Addressing AMR requires a multipronged and multisectoral approach. The urgency to develop new drugs should not discourage us from **instituting measures to use the existing antimicrobials judiciously**.
 - **Improved infection control** in communities and hospitals, **availability and utilisation of quality diagnostics** and laboratories and **educating people about antimicrobials** have proved effective in reducing antimicrobial pressure — a precursor to resistance.

- All this requires a **comprehensive plan, driven by a designated coordinating agency** backed with suitable funding.
- **One Health Approach:** AMR has the potential to return the world to a pre-antibiotic era when medicines could not treat even simple infections.
 - Therefore, to contain AMR, there is need for a **One Health Approach** through **coherent, integrated, multi sectoral cooperation** and actions, as human, animal and environmental health are integrated.
 - **Development of antibiotic resistance breakers (ARBs)** to restore effectiveness of older classes of antibiotics.
- **Effective Surveillance and Data Management:** It is time to adopt strategies for optimising use of antibiotics across disciplines and exercise prudence across the board including in **pharmaceutical effluent discharge**.
 - **Effective microbiological surveillance** of the agriculture and livestock industry and pharmaceutical manufacturing plants would allow for **informed policy actions to mitigate AMR**.
 - Promoting research to **address the data deficiency around AMR for evidence-based assessment and intervention** will further assist in this fight.



Green Hydrogen Policy

This editorial is based on “Our Green Energy Policy Needs A Close Relook” which was published in Livemint on 04/03/2022. It talks about the Green Hydrogen Policy and the challenges associated with its effective implementation.

Tags: Governance, GS Paper 2, GS Paper 3, Government Policies & Interventions, Environmental Pollution & Degradation, Conservation

Recently, the **Ministry of Power (MoP)** announced a **Green Hydrogen Policy (GHP)**. Industry participants have largely welcomed it, for it fits in well with the **climate-action thrust of India’s budget for 2022-23**.

The policy has set a target of **5 million tonnes per annum (MTPA) of green hydrogen production by 2030**, more than 80% of the current hydrogen demand in the country.

It is a **watershed moment in India’s energy transition journey**, and by doing so, India has become the **18th country to release a comprehensive Green Hydrogen Policy**. Ammonia and Hydrogen are seen to be the future fuels to replace fossil fuels.

What is the Green Hydrogen Policy?

- Under the policy, the government is offering to set up **manufacturing zones for production**, connectivity to the **ISTS (Inter-State Transmission System)** on priority basis, and **free transmission for 25 years** if the production facility is commissioned before June 2025.
- This means that a **green hydrogen producer will be able to set up a solar power plant** in Rajasthan to supply renewable energy to a green hydrogen plant in Assam and would not be required to pay any inter-state transmission charges.
 - Besides, producers will be allowed to set up **bunkers near ports for storage** of green ammonia for export by shipping.
- Manufacturers of Green hydrogen and ammonia are allowed to **purchase renewable power** from the power exchange or **set up Renewable Energy (RE) capacity** themselves or through **any other developer, anywhere**.
- It provides facility for producers to **bank any surplus renewable energy generated with discoms** (power distribution companies) for upto 30 days and use it as required.

What is the Significance of the Policy?

- India's largest oil refiner, Indian Oil Corp (IOC) estimates that GHP measures will **reduce the cost of green hydrogen production by 40-50%**.
- Fuels like Green Hydrogen and Green Ammonia are vital for any nation's **environmentally sustainable energy security**.
- India has already committed to achieving **net-zero carbon emissions by 2070**, and green hydrogen will play a **significant role as a disruptive feedstock** in India's transition from oil and coal.
- The GHP lays a solid **foundation for developing a competitive green hydrogen sector** in India.

What are the Challenges Associated?

- **Charges on Transmission:** Producing 1kg of green hydrogen takes about 50kWh of electricity (with electrolyser efficiency of 70%).
 - While India boasts one of the world's lowest average costs of RE generation, it **levies a plethora of charges on wheeling and transmission** of electricity between the points of generation and consumption.
- **Lesser Cost-Effective than Green Hydrogen:** In cases where the green hydrogen is produced from a remotely-located RE plant, the landed cost of power

determines the cost of output which ranges from ₹3.70 to ₹7.14 per kWh.

- At this rate, green hydrogen will be made at a cost of about ₹500 per kg, which is **nearly 3.5 times the cost of grey hydrogen**.
- So the **landed cost of RE from a distant source will need to at least be halved** to make green hydrogen competitive vis-a-vis grey.
- **Reluctance of States:** Many public sector electricity utilities are **unwilling to let go of their monopoly in power distribution**. The RE-rich states are either moving away from allowing RE banking or introducing regulations to restrict this facility.
 - **Gujarat** allows settlement for banked solar power only between 7am and 6pm and **levies ₹1.5 per unit** as its banking charges for 'high-tension' consumers.
 - **Rajasthan** permits banking of up to 25% of RE generation and settlement on an annual basis, but **levies a 10% charge, among the highest in India**.
 - Tamil Nadu and Andhra Pradesh **do not allow RE banking**.
 - Also, **most states do not permit banked energy to be drawn during the peak hours**.
- **Lesser Margins for Producers:** The GHP omits to mention any waiver of **ISTS losses for green hydrogen and ammonia projects**.
 - Also, it provides for discoms to procure and supply RE to makers of green hydrogen/ammonia at the cost of procurement with **only a small margin determined by the SERCs**.
 - This margin may **not be enough incentive for discoms** to procure and supply RE to green hydrogen makers on a long-term basis.
- **Unwillingness of Industries:** Industrial sectors such as chemicals, fertilisers, steel and refineries are unlikely to transition to low carbon alternatives because of the **higher associated costs**. Such industries might not find the transition viable with **no incentives to reduce emissions**.

What Steps Can Be Taken?

- **Role of State Governments:** The measures announced in the GHP would require the **active cooperation of state governments** (including allotment of land in RE parks and proposed manufacturing zones) and the relevant SERCs.
 - The RE-rich states shall **implement the GHP's banking provisions and levy uniform charges**, otherwise, it may not help green hydrogen producers much.

- **Role of Central Government:** To get the cooperation of RE-rich states, the Centre may consider **providing concessional finance to the discoms in such states** to clear their dues to power generators, and in return require them to **waive the aforementioned surcharges** for open-access RE projects and **cap RE-banking charges at the level specified in the GHP.**
- **Demand Generation:** While large refiners like Reliance and IOC have plans to set up green-hydrogen production facilities, other manufacturers and RE developers would be hesitant to commit large-scale investments in the absence of demand generators.
 - The GHP measures beside enhancing the supply of green hydrogen at competitive rates shall also **aim to make moves to stimulate demand.**
- **Incentivising Industries:** Hydrogen-purchase obligations or other demand boosters are required to **support the creation of a green hydrogen ecosystem.**
 - The Centre may consider incentivizing **petroleum refiners and fertiliser makers** to make and use green hydrogen by **offering subsidies linked to their level of its utilisation** as feedstock.
 - This would further India's goal of achieving its net-zero emissions target by 2070.



Rag-Pickers in India

This editorial is based on "Wheels of Swachh Bharat" which was published in Indian Express on 05/03/2022. It talks about the social and economic upliftment of the rag-pickers in India.

Tags: Social Justice, GS Paper 1, Population and Associated Issues, GS Paper 2, Issues Related to Development, Human Resource, Government Policies & Interventions

For decades, rag-pickers, working in dangerous and unsanitary conditions, have picked up what we throw away. They **form the base of a pyramid that includes scrap dealers, aggregators and re-processors.**

Unfortunately, **most informal rag-pickers remain invisible.** Between 1.5 and 4 million rag-pickers in India **work without social security, health insurance, minimum wages or basic protective gear.**

As India progresses towards meeting the **2030 Agenda for Sustainable Development**, the plight of Safai Saathis makes a compelling case to intensify efforts to address the challenges faced by them.

What is the Scenario of rag-pickers in India?

- It is estimated that India generates 65 million tonnes of waste each year and is **home to more than 4 million rag-pickers.**
 - **Predominantly women**, this army of rag-pickers or **Safai Saathis** is the backbone of traditional waste management in most Indian cities.
- There have been initiatives for the inclusion of rag-pickers such as:
 - A 1995 report of the **High-Power Committee on Solid Waste Management** constituted by the Planning Commission called for **integration of rag-pickers into the system.**
 - In 1988, an Expert Group constituted by the Supreme Court echoed the same recommendation.
 - The **Solid Waste Management Rules** and **Plastic Waste Management Rules**, 2016, also recognise the contribution of rag-pickers and hold that they be included in the solid waste management of local bodies.
 - However, the rag-pickers have **not been included in any disaster management plan** of the administration.
- When the government announced **measures during the pandemic to support frontline workers**, the rag-picker community remained conspicuous by its absence.
- Their multiple vulnerabilities, including **low and uncertain incomes, limited access to government schemes, high health risks, and severe social exclusion**, have all been **exacerbated by Covid-19.**

What are the Roadblocks to their Upliftment?

- **Unavailability of Data:** In 2018, the UNDP India started **working with Safai Saathis** through its Plastic Waste Management programme. However, the **paucity of data on this community** led to **obstructions in devising programmes** and policies to support Safai Saathis.
 - However, this led UNDP India to design and publish India's first large-scale analysis of the socio-economic conditions of Safai Saathis, based on a survey of over 9,000 workers across 14 Indian cities.
- **Lack of Formal Education:** The survey of the socio-economic conditions of Safai Saathis showed that they are **employed mainly on the margins of the urban informal sector.**
 - Their low incomes and job insecurity is compounded by the fact that nearly **70% come from socially backward groups** and over **60% have no formal education.**

- **Obstructions in Formalisation:** More than 90% of the workers reported owning an Aadhaar card - in line with broad national trends, but **only a tiny subset owned an income, caste, or occupation certificate.**
 - **This thwarts any attempts at formalising their work** and limits their access to government social security schemes.
- **No Health Insurance:** As per the UNDP survey, **less than 5%** of those surveyed had any **health insurance**, indicating very **high degrees of health-shock vulnerabilities.**
- **Not Connected to Government Welfare Schemes:** Out of the total Safai Saathis, surveyed, who had a bank account, **only 20% were linked to the Jan Dhan Yojana** — the government's flagship financial inclusion programme.
 - **Only half of the surveyed people reported owning and using a ration card** and this proportion was even smaller in cities where migrants formed a larger share among surveyed workers.

What Steps Can Be Taken?

- **Registration with ULBs:** An important starting point is the registration of Safai Saathis by **Urban Local Bodies**, and **providing ID cards that recognise them as municipal workers with a clear role.**
 - **Ensuring minimum pay** and enabling their **authorised access to waste** are essential next steps.
 - Diversified solid waste management-linked livelihoods like dry waste centre managers and machine operators can broaden employment horizons for these workers.
- **Ensuring Food-Security for Them:** With its focus on portability, the government's **One Nation One Ration Card scheme** has the potential to play a transformative role in **ensuring access to subsidised food grains for these workers.**
- **Economic and Social Upliftment:** The overall policy agenda for Safai Saathis must include a firm focus on **building resilience against shocks, expanding access to social protection**, and creating opportunities to **graduate towards safe, sustainable, and dignified livelihoods.**
- **Inclusion in Government Policies:** A welfare framework to design social protection schemes explicitly for Safai Saathis should be a policy priority.
 - Proactively reaching out to the workers for **enrolment in government schemes, minimising paperwork**, and a **greater awareness among Safai Saathis** about their entitlements are essential for linking them to government programmes.

- rag-pickers' cooperatives shall also **strengthen Safai Saathis' collective bargaining power enabling higher prices** for what they collect.
- **Alternative, Better Employments:** India makes determined strides towards realising the Sustainable Development Goals, it must look at **exploring alternate, technology-led circular economy models** that eliminate the need for any person to do this hazardous work manually.
 - There is a clear need to create better, safer, decent jobs in the economy that informal workers like Safai Saathis can eventually move to, **supported by efforts to enhance their skills.**



A Safety Net for Students Abroad

This editorial is based on "A Safety Net for Students Abroad" which was published in The Hindu on 07/03/2022. It talks about the need for Indian students to study abroad.

Tags: International Relations, GS Paper 3, Issues Related to Development, Indian Diaspora, Effect of Policies & Politics of Countries on India's Interests

Indian students going abroad to study is not a new phenomenon. For decades now, **lack of quality education institutes in India** and **demand-supply gap** has been forcing many families to send their children abroad. The spotlight, however, has turned on these students with two recent events — the **Covid-19 pandemic** and **Russia's war on Ukraine.**

Unless the **education system in India is tailored to the needs of students**, they will continue to fly abroad. Indian institutes need to start providing students with more options for professional courses including technical, medical and others.

What is the Current Scenario?

- Currently, **7,70,000 Indian students are studying abroad** from 4,40,000 in 2016 which is a **20% growth.** On the other hand, the growth in the domestic region has been merely 3% when compared to the demand for education abroad,
- **India is the second largest source of international students** after China. Before the onset of the pandemic, the Indian students studying abroad were spending \$24 billion in foreign economies, which is around **1% of India's GDP.**
 - The number is expected to rise to around 1.8 million by 2024 when the Indian students will be spending nearly **\$80 billion outside India.**

- To pursue a medical degree, Indian students have been heading out to **Russia, China, Ukraine, Kyrgyzstan, Kazakhstan and the Philippines** for about three decades now.
- Sushma Swaraj, former External Affairs Minister of India, referred to Indians abroad as **“brand ambassadors”**. The Prime Minister of India and U.K. have called **Indians in the U.K. the “living bridge” between both countries.**
 - The larger benefits of this Indian diaspora come in terms of **soft power, knowledge transfer and remittances** that come back to India.

What are the Causes of Studying Abroad?

- With more than half the Indian population under the age of 25, and **no Indian university in the world’s top 100**, it is natural that aspirational students would look to study abroad.
- In terms of medical degree, the **amount spent on living and the tuition fees are far more affordable** than paying for an MBBS seat in private medical colleges within India.
- There are **far more MBBS aspirants than there are MBBS seats in India.** As per data from the National Medical Commission (NMC), in 2021-22, there were **596 medical colleges** in the country with a **total of 88,120 MBBS seats.**

What are the recent crises faced by these Students?

- Amid the **recent Russia-Ukraine Conflict**, there have been cases of the unfortunate deaths of two Indian students (one died in shelling, the other suffered a stroke) in Ukraine.
 - Although there is chaos amid an external armed aggression, the **situation warrants serious interventions.**
 - It is estimated that around 20,000 Indian students were stranded in Ukraine.
- More recently, about 2,000 international students, mainly from India, have been affected after **three Canadian colleges shut down abruptly.**
 - As per the allegations, the colleges, which are now bankrupt, collected lakhs of rupees in fees, thereby **jeopardising the students’ futures.**
- A similar incident happened during the pandemic when **Australia shut its borders to the thousands of Indian students** enrolled to study on its campuses.

What Steps Can Be Taken?

- **Role of Host Countries:** The Indian students are the consumers of higher education abroad, and guests of the nations they reside in. It is only natural then for **India to mandate protection of Indians abroad by ensuring that host countries take on this responsibility.**
- **Safety Net Through International Treaties:** The Indian government should proactively create a safety net for the international students. **International agreements that oblige host countries** to ensure the **welfare of Indian students during times of crises and contingencies** should be given paramount importance.
 - The trade agreements India is currently negotiating with the U.K. and Australia make for a great opportunity to do so.
- **Student Insurance Schemes:** Contrary to popular opinion, a considerable chunk of students who study abroad are not from wealthy families; they take expensive loans to finance their education.
 - The aspiration to secure a better exposure and future can render them prone to difficulties.
 - A **mandatory student insurance scheme** as well as responsibility for the welfare of students in the foreign country should be **incorporated into agreements to secure the interests of students** who also spend considerably in the host country.
- **More Public Sector Medical Colleges:** Creating more medical colleges will be beneficial for the country, if **access and availability can be ensured.**
 - However, this will not be possible by resorting to private enterprise only - the **State and Central governments can start more medical colleges**, as recommended by **NITI Aayog**, by **utilising district headquarters hospitals, and expanding the infrastructure.**
 - This way, students from the lower and middle socio-economic rung, who are otherwise not able to access medical seats, will also benefit.
- **More Investments in Higher Education:** Enhancing investment in higher education, **especially in research and development**, is urgently required to raise the standard of higher education in India.
 - **HEFA (Higher Education Finance Agency)** is a welcome step in providing finance to premier educational institutions for **creation of high quality infrastructure and innovation ecosystems.**
 - Taking measures to allow **foreign universities to set up campuses in India** will increase the inflow of foreign funding in India’s Higher Education system and **reduce “Brain Drain” from India.**



Reaping the Potential of the Female Workforce

This editorial is based on “*International Women’s Day - Reaping the Potential of the Female Workforce*” which was published in *The Hindu* on 08/03/2022. It talks about the challenges to harnessing the potential of the female workforce in India.

Tags: Indian Economy, GS Paper 2, Issues Related to Women, Issue Related to Development, GS Paper 3, Employment, Growth & Development, Inclusive Growth.

The theme for **International Women’s Day 2022** (March 8) is ‘**gender equality today for a sustainable tomorrow**’. However, employment is one of the sectors where gender inequality can be witnessed at its peak.

India’s female labour force participation (FLFP) rate is the lowest among the **BRICS countries** and is also **lower than some of its neighbours in South Asia** such as Sri Lanka and Bangladesh.

To address this problem, what we need are **concerted efforts and targeted strategies along with a change in attitudes**, for women to take advantage of these new labour market opportunities.

Access to higher education, skill training and digital technology are the three great enablers in helping India reap the potential of its female labour force.

What is the Scenario of Women’s Workforce Participation?

- In some places, the presence of women is appreciable, for instance, female participation in projects under the **Mahatma Gandhi National Rural Employment Guarantee Scheme** is about **50%**.
- India also boasts of the **highest share of female airline pilots at 15%** while the world average is barely 5%.
- Also, not too long ago, half of India’s **banking assets were under institutions headed by women**.
- Despite this, the participation of women in the workforce in India has still remained low. India’s **female LFPR is now among the world’s lowest at around 20%**, on par with countries like Saudi Arabia.
 - As per a report by the **International Labour Organisation**, India ranks **121 out of 131 countries** on female LFPR.

What about the Women in Informal Sector?

- According to a 2018 study by the ILO, **more than 95% of India’s working women are informal workers** who work in labour-intensive, low-paying, highly precarious jobs/conditions, and with no social protection.

- The **Maternity Benefit (Amendment) Act, 2017** more than doubled the duration of paid maternity leave for women employees to 26 weeks, proposing an option to work from home after this period, on mutual agreement with the employer, and made crèche facilities mandatory for establishments employing 50 or more women.
 - However, **these benefits are mostly enjoyed by formal sector women workers**, constituting less than 5% of the women workforce.
- The **lack of affordable and quality childcare services** and maternity benefits increase the burden on informal women workers, aggravating gender and class inequalities.

What is the Share of Women in Different Sectors?

- According to **United Nations Women (UN Women)** estimates, women make up a significant proportion of all healthcare workers and more than 80% of nurses and midwives.
- Women also form a significant proportion of the workforce in the education sector in India, especially in primary education and early childhood care.
- The care service sector, which includes health, education, and other personal care services, is more labour-intensive than sectors such as manufacturing, construction or other service sectors where the employment potential gets affected due to factors such as the introduction of tools, technology and increased mechanisation.

What About the Gig Economy and Women’s Access to Digital Resources?

- The **Gig Economy** has demonstrated resilience even during the pandemic, with platform workers playing an indispensable role in urban India.
 - Studies indicate that **women appreciate the income-generating potential of the gig economy**.
 - The ILO Global Survey (2021) noted that working from home or job flexibility are particularly important for women.
- Digital platforms that allow remote work are, in principle, accessible to men and women in any location. However, **access to the Internet and smartphones can be a restricting factor**.
- Data suggest that in India, **women’s access to the Internet and to smartphones is much lower than that of men**.

- According to the GSMA Mobile Gender Gap Report, **only 25% of women owned smartphones compared to 41% of men** in India in 2020.
 - Closing this gap can be significant in boosting women's employment in the gig and platform sector.

What Can Be Done to Increase FLFP?

- **Providing Skill Training:** Skill training of women in **job roles aligned to the gig, platform and care sectors** as well as other emerging sectors such as those **covered under the Production-Linked Incentive Scheme** needs to be encouraged.
 - **Online skill training** can also be beneficial to women who face constraints in physical mobility due to social norms, domestic responsibilities or concerns over safety.
 - We need **training programmes with well-defined outcomes for women's digital access** and to mentor them to take up employment opportunities in emerging sectors.
- **More Investments:** Greater investment in **better health and care facilities** would not only improve the well-being of India's people and hence their economic productivity, but will also lead to more employment opportunities for women.
 - The ILO Report on Care work and Care Jobs for the Future of Decent Work: Key findings in Asia and the Pacific (2018) indicated that increasing investment in the care economy has the **potential to generate a total of 69 million jobs in India by 2030**.
 - **Enabling women to acquire both physical assets** (through credit facilities, revolving funds, etc.) and employable skills is crucial for them to take up employment opportunities in new and emerging sectors.
- **Providing Child Care Services:** This initiative will significantly **support women in managing their care responsibilities**, enabling them to devote sufficient time to paid employment.
 - Investments to set up child care services through **collaborative models in office complexes** and with industry associations in industrial corridors are also important.
 - The **National Creche Scheme** which lays out specific provisions for working women has suffered diminished government funding. **Revitalising the provisions of the scheme** and adding a **network of public and workplace crèches can be hugely beneficial**.

- Public crèches **can be operated at worksite clusters** such as near industrial areas, markets, dense low-income residential areas, and labour nakas.



The Tobacco Epidemic

This editorial is based on "Revive Tax Increases, Stub Out Tobacco Product Use" which was published in The Hindu on 09/03/2022. It talks about the scenario of tobacco consumption in India.

Tags: Governance, Health, GS Paper 2, Government Policies & Interventions

Despite a relatively high degree of societal attention, India reported to have lost half a million of its people to the pandemic over the past two years. Covid-19 is however not the only health issue that we are dealing with right now.

There also exists a silent killer in our midst that kills an estimated 1.35 million Indians every year - the use of **Tobacco**. As estimated by scientific studies, the consumption of tobacco results in the **death of more than 3,500 Indians every single day**.

What is the Status of Tobacco Consumption in India?

- According to the **Global Youth Tobacco Survey**, India has the **second largest number (268 million) of tobacco users in the world** and of these **13 lakh die every year** from tobacco-related diseases.
 - Ten lakh deaths are due to smoking, with over 2,00,000 due to second-hand smoke exposure, and over 35,000 are due to smokeless tobacco use.
- About 27 crore people above the age of 15 years and **8.5% of school-going children in the age group 13-15 years** use tobacco in some form in India.
 - India bears an **annual economic burden of over ₹1,77,340 crore** on account of tobacco use.
- Tobacco use is known to be a major risk factor for several **non-communicable diseases** such as cancer, cardiovascular disease, diabetes, and chronic lung diseases. **Nearly 27% of all cancers in India are due to tobacco usage**.

What has India done to Control Tobacco Consumption?

- India adopted the tobacco control provisions under **WHO Framework Convention on Tobacco Control (WHO FCTC)**.

- The **Promulgation of the Prohibition of Electronic Cigarettes Ordinance, 2019** prohibits Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement of e-Cigarettes.
- The Government of India launched the **National Tobacco Quitline Services (NTQLS)** which have the sole objective to provide telephone-based information, advice, support, and referrals for tobacco cessation.
- **mCessation Programme** is a similar initiative which uses mobile technology for tobacco cessation. It was launched in 2016 as part of the government's **Digital India initiative**.

What are the Implications of Imposing/Increasing Taxes on Tobacco?

- Although not a communicable disease like SARS-CoV-2, the tobacco epidemic — as the World Health Organisation characterises it — has some definitive solutions that can reduce the death toll.
 - Research from many countries around the world including India shows that a **price increase induces people to quit or reduce tobacco use** as well as **discourages non-users** from getting into the habit of tobacco use.
 - There is **overwhelming consensus** within the research community that **taxation is one of the most cost-effective measures** to reduce demand for tobacco products.
- As it hurts both revenue and profits, the **tobacco industry**, globally, is always devising tactics and narratives that will **preempt any kind of tax increases on tobacco products**.
 - High and **increasing tax rates provide a profitable opportunity for tax evasion** and **encourage growth in illegal trade**.

What is the Taxation Scenario of Tobacco in India?

- Ever since the introduction of the **Goods and Services Tax (GST)** legislation in 2017, there has been no significant tax increase on any tobacco product.
 - There was **only a minor increase in the National Calamity Contingent Duty (NCCD)** during the Union Budget 2020-21 which only had the effect of increasing cigarette prices by roughly 5%.
- The **Union Budget 2022-23** was an **excellent but lost opportunity** for the Government of India to buck this trend and significantly increase either excise duties or NCCDs.

- No significant tax increase on any tobacco product for four years in a row has **made all tobacco products increasingly more affordable**.
 - More affordable tobacco products could **attract new users especially among the youth**.
 - It would also mean **foregone tax revenues for the Government** especially at a time when the Government of India is looking forward to increasing the share of public spending on health

What Steps Can Be Taken?

- **Opportunities in Budget: Union Budget 2022-23** missed an opportunity, however, it is never too late for the right step. The government should take a considerate view of public health and **significantly increase excise taxes — either basic excise duty or National Calamity Contingent Duty (NCCD) — on all tobacco products**.
 - **Fixing an excise tax of at least ₹1 per stick of bidis** while aiming for a significant increase in the excise tax of cigarettes and smokeless tobacco products.
 - Taxation should **achieve a significant reduction in the affordability of tobacco products** to reduce tobacco use prevalence and facilitate India's march towards sustainable development goals.
- **Role of GST Council:** There is absolutely no public health rationale why a product as harmful as a *bidi* does not have a cess levied on it under the GST or why the specific cess applied on cigarettes has remained unchanged for four years in the face of increasing inflation.
 - GST Council meetings must strive to **keep public health ahead of the interests of the tobacco industry** and significantly **increase either the GST rates or the GST compensation cess** rates applied on all tobacco products.
 - The aim should be to arrest the increasing affordability of tobacco products in India and also rationalise tobacco taxation under the GST.
- **Tobacco Control Laws:** It is scientifically established that if a person is kept away from tobacco till the age of 21 and above, there is a very **high probability that he/she will remain tobacco-free for the rest of their life**.
 - The experts have urged the government to **increase the legal age of sale of tobacco products** from 18 to 21 by amending the **Cigarettes and Other Tobacco Products Act (COTPA), 2003**.
 - Also, imposing a **comprehensive ban on tobacco advertising** and **banning sale of single sticks**

of cigarettes/bidis would go a long way in preventing children and youth from initiating tobacco use.

- At least 14 countries (Ethiopia, Guam, Honduras, Japan, Kuwait, Mongolia, Palau, Philippines, Samoa, Singapore, Sri Lanka, Thailand, Uganda, and the U.S.) have now increased the minimum age to 21 for buying tobacco products.
 - At least 86 countries have banned the sale of single stick cigarettes to control their easy accessibility and affordability to youth.
- **Educating Children:** The role of teachers is most crucial in **creating awareness among children and their parents** about harm due to tobacco use and for shaping the attitude of children in this regard.
 - The more and the sooner awareness is created among children about harms due to tobacco use, the better will be the outcomes in terms of reduction in prevalence of tobacco use among children and consequently among adults.
 - **Harmful effects of tobacco use should be incorporated in school curricula** at various levels starting right from the primary school level.



Reforming Indian Medical Education System

This editorial is based on "What ails medical education in India" which was published in The Indian Express on 10/03/2022. It talks about the issues of medical education & medical seats and suggests a way forward.

Tags: Governance, Health, GS Paper 2, Government Policies & Interventions

India's medical education system has attracted a lot of adverse attention due to the crisis in Ukraine and the resultant need for evacuating medical students, delay in post-graduate counselling because of reservation-related litigation and Tamil Nadu legislating to opt out of NEET.

There is a need to take a look at what ails the system and take adequate measures to address the situation.

What are the Problems Plaguing Medical Education in India?

- **Demand-Supply Mismatch:** There is a serious demand-supply mismatch as well as inadequate seats in terms of population norms. In private colleges, these seats are priced between Rs 15-30 lakh per year (not including hostel expenses and study material).

- This is way more than what most Indians can afford. It is difficult to comment on quality as nobody measures it. However, it is highly variable and poor in most medical colleges, irrespective of the private-public divide.
- **Issues of Skilled Faculty:** The government's initiative to open new medical colleges has run into a serious faculty crunch. Except at the lowest level, where new entrants come, all that the new colleges have done is poach faculty from a current medical college. Academic quality continues to be a serious concern.
 - The Medical Council of India (MCI) did try to address many of the earlier loopholes of ghost faculty and corruption. It introduced the requirement of publications for promotions to improve the academic rigour of faculty. But this has resulted in the mushrooming of journals of dubious quality.
- **Low Doctor-Patient ratio:** India has one government doctor for every 11,528 people and one nurse for every 483 people, which is way below WHO recommended 1;1000.
- **Backdated syllabus and teaching style:** Regular breakthroughs take place in the medical field every day, but the medical studies syllabus in India is not updated accordingly.
- **Lack of Social Accountability:** Indian medical students do not receive training which instils in them social accountability as health practitioners.
- **Problems with Private Medical Colleges:** A change in the law in the 1990s made it easy to open private schools and so many such medical institutes cropped up in the country, funded by businessmen and politicians, who had no experience of running medical schools. It commercialised medical education to a great extent.
- **Corruption in medical education:** Fraudulent practices and rampant corruption such as fake degrees, bribes and donations, proxy faculties, etc. in the medical education system is a major problem.

What are the Reforms Required?

- There is a pressing need to **revisit the existing guidelines for setting up medical schools** and according permission for the right number of seats.
- **Extending teaching privileges to practising physicians** and allowing e-learning tools will address the shortage of quality teachers across the system. Together, these reforms could double the existing medical seats without compromising on the quality of teaching.
- **Periodic re-certification** based on continuing learning systems may become essential to keep up with the fast pace of change.

- Students need to improve their basic management, communication and leadership skills
- They must be trained by taking into account their **social relevance as doctors**.
- **Integration of subjects, innovative teaching methods**, and a more prevalent use of technology in classrooms is required
- Medical research and clinical skills need to be worked on in colleges.

What Steps Can Be Taken?

- **Rapid Scale-up of Seats:** There are many who propose a rapid scale-up of seats by converting district hospitals into medical colleges using a private-public partnership model. The **NITI Aayog** seems to be moving in this direction.
 - However, this is a dangerous idea without the government putting in place two things — a functional regulatory framework, and a good public-private model that serves the needs of the private sector as well as the country.
 - We have so far failed miserably in both, largely due to the political-private sector nexus.
- **Regulate College Fees:** Recent efforts by the National Medical Council (NMC) to regulate college fees are being resisted by medical colleges. The government should seriously consider subsidising medical education, even in the private sector, or look at alternative ways of financing medical education for disadvantaged students.
- **Regular Quality Assessments:** Quality assessments of medical colleges should be regularly conducted, and reports should be available in the public domain. The NMC is proposing a common exit exam for all medical undergraduates as a quality control measure.
- **Transform Health Professional Education:** Today's medical education should be able to groom such professionals to face medicine of the 21st century. The Lancet report, 'Health Professionals for a new century: transforming health education to strengthen health systems in an interdependent world' (2010) outlines key recommendations, to transform health professional education, needs to be looked upon.
- In addition to raising the standards of medical professionals, the system should innovate to meet the growing shortage of health professionals to serve ageing populations with lifestyle and lifetime ailments.



Old Age Care

This editorial is based on "A New Vision For Old Age Care" which was published in The Hindu on 10/03/2022. It talks about the old age homes and the elderly people in India.

Tags: Social Justice, GS Paper 2, Government Policies & Interventions, Health, Issues Related to Elderly, Human Resource

As India becomes increasingly urbanised and families break up into smaller units, **homes for the elderly have sprung up, typically in the urban and semi-urban areas**. The care of elderly people is managed by a set of professionals or voluntary organisations with support from the government, or by local philanthropists.

However, the **absence of a regulatory oversight** for these homes, lack of clearly established standard operating procedures, and due to **informal referral paths to health care**, these homes may have significant impact on physical and mental health of their residents.

A **formal approach to homes for the elderly** shall now be an important policy and planning concern for India.

What is the Share of Elderly in the Population?

- The **UN World Population Ageing Report** notes that India's ageing population (those aged 60 and above) is **projected to increase to nearly 20% by 2050** from about 8% now.
- By 2050, the percentage of **elderly people will increase by 326%**, with those aged **80 years and above set to increase by 700%**, making them the **fastest-growing age group in India**.
 - A major reason for the steady growth of the elderly population has been the dramatic rise in life expectancy aided by sustained periods of economic growth and enhanced access to healthcare facilities.
- In a demographic where the growth rate of elders far exceeds that of the young, the **biggest challenge is to provide a range of quality, affordable, and accessible health and care services** to the elderly.
 - With this future in mind, it is essential that our policy framework and social responses are geared to meet this reality.

Why are Old Age Homes (OAHs) for the Elderly becoming a Norm?

- The OAHs are a **consequence of the emergence of the nuclear family system**. Factors such as **familial neglect, disintegration of families** necessitated by the migration of children and their **inability to keep**

pace with the new generation in terms of education, technology etc pushes them towards these OAHs where they can live with people of their like.

- Even at times, elders feel comfortable in OAHs for the **freedom and friendly atmosphere with other elders** who keep them company, enjoying the time by interacting with each other.
 - They even show some detachment from family members and **feel more secure in OAHs**.
- These OAHs, however, **do not always provide good facilities**; not all elders are taken care of well by the management, some of them impose restrictions.
 - The food served is often reported to be of low quality and deficient in quantity in many of them. The bedrooms and toilets are often poorly maintained.
 - Some of the **managements do not utilise payments made to them by children** of these elderly people, leaving the helpless parents in the lurch.
 - Such abuse and misuse of OAHs come to the limelight often, but **seldom is action taken to rectify the situation**.

How is the Deterioration of the Physical Health of the Elderly Linked to their Mental Health?

- A recent study titled **Hyderabad Ocular Morbidity in Elderly Study (HOMES)** conducted by a Hyderabad based not-for-profit organisation reveals that about 30% of the residents who were part of the study (over 1,500 participants from 40 homes) had a vision impairment of some sort.
- The study found some **'unseen' effects of vision impairment**: many were prone to **depression**. In fact, those with both vision and hearing impairment had a **rate of depression that was five times higher** than those without.
- Our homes, buildings and social environment are not built keeping the elderly in mind. As people age, and their motor skills weaken, they are at a greater risk of falling down and hurting themselves. **Having an impairment increases this risk**.
 - **Instead of planning for accessible and elderly-friendly structures** that allow them to operate safely, there are **common incidents of reducing their mobility**.
- People with functional skills are asked to stay away from daily tasks like cooking, sewing, cleaning, or washing up. This reduces their sociability, their sense of independence and well-being — all **leading up to mental health issues** and depression.

What Steps Can Be Taken?

- **Basic Health Screening Facilities**: The state of homes for the elderly raises the need for **building formal pathways for basic health screening** between such homes and public health facilities.
 - This can include **screenings for blood sugar, blood pressure, periodic vision and hearing screening**, and a simple questionnaire to assess mental health.
 - Such interventions are inexpensive (such as a **motorcycle-operated screenings outside public grounds** for morning-walkers) and could go a long way in identifying health issues and offering support.
- **Role of Health Institutions**: The **next step would be to build formal pathways to address those health issues** that the screenings identify. Public, private and NGO-run hospitals have a major role to play in this aspect.
 - Health institutions will also need to offer a **comprehensive set of packages that are tailored for the elderly** — not piecemeal solutions for just diabetes, cardiology or cancer.
- **Policy Interventions**: It is crucial to have a **robust public policy to support homes for the elderly**. These old age homes must be guided by policy interventions to **make their facilities, buildings and social environment elderly-friendly**.
 - Design, architecture and civic facilities must be thought from the ground up — and these innovations must be available for all residents, not just those living in expensive ones.
- **Geriatric Healthcare Facilities**: According to a study by Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, there is **no specialised training in geriatrics in most medical schools**.
 - Whatever little geriatric care is available, it is restricted to tertiary hospitals in urban areas and is prohibitively expensive. Geriatric health care services **must be made part of the primary health care services**.
 - The **Centre must come up with a comprehensive preventive package**, which **provides awareness regarding common geriatric problems** with a focus on nutrition, exercise, and the promotion of mental well-being.
- **Building Elderly Inclusive Society**: One of the effective ways of ensuring proper health facilities to all the elderly in the OAHs is to **ensure a lesser number of the elderly people in these homes**.
 - Elderly are an asset to the society and not a liability; the best way of taking advantage of this asset is by **assimilating them into the mainstream population rather than isolating them in old age homes**.



Data Protection and Data Accessibility Policy

This editorial is based on “An Open Data Policy Won’t Work Without Earnest Implementation” which was published in Livemint on 10/03/2022. It talks about the Draft India Data Accessibility and Use Policy 2022 and the privacy concerns associated.

Tags: Governance, GS Paper 2, Government Policies & Interventions, GS Paper 3, Cyber Security, IT & Computers

Recently the **Ministry of Electronics and Information Technology (MeitY)** released its **Draft India Data Accessibility and Use Policy 2022** for public consultation. This is a continuation of earlier efforts to encourage better utilisation of large-scale data collected by the government machinery.

The draft policy is a step forward in **realising the potential of this large volume of data**. However, any data accessibility-and-use policy is incomplete without **adequate public safeguards** provided through a **comprehensive data protection framework**.

What are the Provisions of the Draft Policy?

- The policy aims to radically **transform India’s ability to harness public sector data**.
 - It proposes the **establishment of an India Data Office (IDO)** to streamline and unify data access and sharing among government and other stakeholders.
- It **covers all data and information generated, created, collected, or stored** by the central government and authorised agencies.
 - The measures can also be adopted by state governments.
- All government data will be open and shareable unless it falls under a **negative list of data sets**.
 - Data categorised under the negative list of datasets will be shared only with trusted users under the controlled environment.
- **Data shall remain the property** of the agency/ department/ ministry/ entity which generated/ collected it.
 - **Access to data under this policy shall not be in violation of any acts** and rules of the government of India in force.
- Despite the demands of academia and other stakeholders, large volumes of such data have remained unutilized.
 - The policy will take advantage of data generated through routine administrative processes for the **better delivery of public services**.

What are the Concerns Regarding the Policy?

- **Lack of Data Protection Law:** Any data accessibility-and-use policy is incomplete without adequate public safeguards provided through a comprehensive data protection framework. Unfortunately, the progress on that front has been slow.
 - The urgency of such a framework is all the more acute because the **proposed policy suggests licensing of public-sector data on citizens** to private entities.
- **Misuse of Data:** There are also issues of **conflict of interest and misuse of such data** for commercial or political purposes.
 - At a time when **data is “the new oil”**, monetization of valuable public sector **data without adequate safeguards can be counter-productive**, with implications for governance of public services and the privacy of individuals.
- **Citizens’ Attempts to Obtain Public Data:** Administrative control over data has also been **used to thwart attempts by users and citizens** to obtain data for public use.
 - A good example of this is the **Right to Information (RTI) Act**, which has been diluted to a large extent over the past decade. Citizens’ attempts to obtain public data has even led to **many RTI activists losing their lives**.
- **Disregards Reliable Independent Surveys:** Public data has often been used to discredit independent credible surveys, rather than complement them. Such records are **often used to suit a political narrative**.
 - Data from the **Employee Provident Fund Organisation (EPFO)** and **E-Shram portal** have been used to argue that jobs are being generated, as against separate evidence from the **PLFS** of the **National Statistical Office (NSO)**.
- **Impact of Commercial Interests in Data:** Given that **more data means more money**, commercial interests will prompt the government to collect granular personal details through greater capture and increased retention periods.
 - Tying government policy determinations with a fiscal potential **may also lead to distortion of the aims of data collection** — the welfare of farmers, healthcare, unorganised labourers or even schoolchildren.
 - Over time, the **original objectives for which databases are built will get diluted** in favour of commercial interests.
- **Federalism:** The policy, even though it notes that State governments will be, “free to adopt portions

of the policy," **does not specify how such freedom will be achieved.**

- It becomes relevant, if specific standards are prescribed by the Central government for data sharing, or as a precondition to financial assistance.
- There is also the **absence of any comment on whether data gathered from States may be sold by the Central government** and whether the proceeds from it will be shared with the States.

What Steps Can Be Taken?

- **Maintaining Data Integrity:** While the policy proposes **greater openness and transparency in sharing public-sector data**, this can contribute to policy making only if data integrity is maintained and it can **independently be verified.**
 - As public data is a by-product of government administration, its quality is only as good as that of the administration.
 - To maintain the integrity of this data, it is **essential to open databases for public scrutiny and academic analysis.**
- **Role of Social Audit:** Social audits could **serve a purpose in maintaining data integrity.** Provisions for this are in-built in programmes such as the one that is run under the **Mahatma Gandhi National Rural Employment Guarantee Act.**
 - Its social audit has not only **raised the quality of data available** on this job programme's functioning, but also **helped improve the scheme itself.**
- **Independent Mechanism for Evaluation:** An essential part of our data policy should be to **protect it from the very institution that generates it** - the administrative machinery as well as the political leadership.
 - An independent mechanism of **evaluation and verification of public data is necessary** for it to prove meaningfully useful, **more so when such data is closely linked to people's access** to essential public services.
 - The policy will have little relevance unless safeguards are built in to protect privacy and the data is reliable enough for the purpose of holding the government accountable.
- **Data Protection Law:** As per the **Supreme Court's Puttaswamy judgement** on the **fundamental right to privacy**, the first ingredient to satisfy constitutionality is the existence of a legal, more often a legislative, basis. **Without a law, there is absence of defined limits to data sharing** that are enforceable and contain remedies.

- In this case, the promise of **privacy preservation through anonymization tools holds little promise** when it cannot be independently assessed by a body for data protection.
- Such scenarios call for immediate and effective implementation of the **Data Protection Law.**



The Prospect of Nuclear Energy

This editorial is based on "Shutdown This Misguided Energy Policy" which was published in The Hindu on 12/03/2022. It talks about the key challenges associated with the adoption of Nuclear Energy in India.

Tags: Science & Technology, GS Paper 1, Mineral & Energy Resources, GS Paper 3, Nuclear Technology

Energy is the most fundamental requirement of every society or nation as it progresses through the ladder of development.

In recent times, the world has been dealing with a power and energy crisis. While the factors that caused this emergency differ country to country, the **upshot has been a clamour to reduce dependence on fossil fuels** and look for viable alternatives.

In this context, **Nuclear Energy** has a lot to offer. On one side, it may be the **cheapest, greenest and safest source of energy** currently known to man. On the other, it has also been **responsible for some of the worst disasters** in the history of mankind.

What are India's Initiatives Regarding Nuclear Energy?

- India has consciously proceeded to explore the possibility of tapping nuclear energy for the purpose of power generation.
 - In this direction a **three-stage nuclear power programme** was formulated by **Homi Bhabha** in the 1950s.
- The **Atomic Energy Act, 1962** was framed and implemented with the set objectives of using two naturally occurring elements **Uranium** and **Thorium** as nuclear fuel in Indian Nuclear Power Reactors.
- In December, 2021, the Government of India informed Parliament about building **ten indigenous Pressurised Heavy Water Reactors (PHWRs)** to be set up in fleet mode and had **granted "in principle approval" for 28 additional reactors**, including 24 to be **imported from France, the U.S. and Russia.**

- Recently, the Centre has given in-principle (first step) approval for setting up of **six nuclear power reactors at Jaitapur in Maharashtra**.
 - Jaitapur would be the **world's most powerful nuclear power plant**. There would be six state-of-the-art **Evolutionary Power Reactors (EPRs)** with an installed capacity of 9.6 GWe that will produce low carbon electricity.
 - The six nuclear power reactors, which will have a capacity of 1,650 MW each, will be set up with **technical cooperation from France**.

Why Nuclear Energy?

- **Availability of Thorium:** India is the **leader of the new resource of nuclear fuel called Thorium**, which is considered to be the **nuclear fuel of the future**.
 - With the availability of Thorium, India has the **potential to be the first nation** to realise the dream of a fossil fuel-free nation.
- **Cuts Import Bills:** Nuclear energy will also **relieve the nation of about \$100 billion annually** which we spend on importing petroleum and coal.
- **Stable and Reliable Source:** The greenest sources of power are definitely solar and wind. But solar and wind power, despite all their advantages, are not stable and are dependent excessively on weather and sunshine conditions.
 - Nuclear power, on the other hand, **provides a relatively clean, high-density source of reliable energy** with an international presence.
- **Cheaper to Run:** Nuclear power plants are **cheaper to run than their coal or gas rivals**. It has been estimated that even factoring in costs such as managing radioactive fuel and disposal nuclear plants cost between **33 to 50% of a coal plant and 20 to 25% of a gas combined-cycle plant**.

What are the Challenges to Adoption of Nuclear Energy?

- **Capital Intensive:** Nuclear power plants are capital intensive and recent nuclear builds have suffered **major cost overruns**. An illustrative example is the V.C. Summer nuclear project in South Carolina (U.S.) where **costs rose so sharply that the project was abandoned — after an expenditure of over \$9 billion**.
- **Insufficient Nuclear Installed Capacity:** In 2008, the **Atomic Energy Commission** projected that India would have 650GW of installed capacity by 2050; **the current installed capacity is only 6.78 GW**.

- Such targets were based on the expectation that India would import many light-water reactors after the **India-U.S. civil nuclear deal**. But, the **deal has not led to the establishment of a single new nuclear plant**, over 13 years after it was concluded.
- **Lack of Public Funding:** Nuclear power has **never received the quantum of generous subsidy the fossil fuel received** in the past and renewable is receiving currently.
 - In absence of public funding, nuclear power will find it tough to compete against natural gas and renewables in the future.
- **Acquisition of Land:** Land acquisition and selection of location for Nuclear Power Plant (NPP) is also a **major problem in the country**.
 - NPP's like **Kudankulam in Tamil Nadu** and Kovvada in Andhra Pradesh have **met with several delays** due to the land acquisition related challenges.
- **Impact of Climate Change:** Climate change will **increase the risk of nuclear reactor accidents**. During the world's **increasingly hot summers**, several nuclear power plants have already had to be **temporarily shut down** or taken off the grid.
 - Further, nuclear power plants **depend on nearby water sources to cool their reactors**, and with many rivers drying up, those **sources of water are no longer guaranteed**.
 - The frequency of such extreme weather events is likely to increase in the future.
- **Deployment at Insufficient Scale:** It might not be the appropriate choice for mitigating **India's carbon emissions** since it **cannot be deployed at the necessary scale**.
- **Nuclear Waste:** Another side effect of nuclear power is the **amount of nuclear waste it produces**. Nuclear waste can have drastically **bad effects on life, causing cancerous growths**, for instance, or causing **genetic problems** for many generations of animals and plants.
 - In a densely populated country such as India, land is at a premium and **emergency health care is far from uniformly available**.

What Steps Can Be Taken?

- **Subsidy on Nuclear Electricity:** Electricity from the nuclear reactors would **cost at least ₹ 15 per unit** excluding transmission costs, whereas the recent low bids for solar power stand at ₹2.14 per unit and ₹2.34 for solar-wind hybrid projects.
 - If nuclear electricity is to be sold at a competitive rate, it would have to be **greatly subsidised by the Indian government**, which operates all nuclear plants through the Nuclear Power Corporation of India.

- **Addressing the Pre-Project Issues:** The government must address issues related to the pre-project activities such as **land acquisition at new sites, clearances from various ministries** especially from the environment ministry and **finding timely foreign collaborators**.
 - In addition, continuous efforts must be made to **bring down the capital cost of nuclear power plants**.
- **Addressing Safety Concerns:** Safety which is a major concern should be addressed on priority basis.
 - Complete phasing out of nuclear power generation for the fear of nuclear accident would be a wrong move.
 - If nuclear energy is generated **adhering to the highest standards of safety**, there is **less possibility of catastrophic accidents**.
 - In this regard, setting up a **Nuclear Safety Regulatory Authority** at the earliest would be helpful to the nuclear power programmes in the country.
- **Technological Support:** Reprocessing and enrichment capacity also require boost in India. For this **India needs advanced technology to fully utilise the spent fuel** and for enhancing its enrichment capacity.

Conclusion

India is blessed with the rare, and very important, nuclear fuel of the future – Thorium. It cannot afford to lose the opportunity to emerge as the energy capital of the world, which coupled with the largest youth power, will be India's answer to emerge as the leading economy of the world.



Relevance of Atmanirbharata

This editorial is based on "The world is in flux. Self-reliance is vital" which was published in The Hindustan Times on 13/03/2022. It talks about relevance of Atmanirbhar Bharat Abhiyaan or Self-reliant India campaign in reference to recent developments where a country has to protect itself from all the dangers.

Tags: Indian Economy, GS Paper - 2, Government Policies & Interventions, GS Paper - 3, Growth & Development

Three contemporary developments have challenged India's engagement with the world and its security concerns in the past 24 months.

- The first was the decision by China's to pick a line from a map in imagined history and send 100,000 troops and more to alter the current political equation in the Himalayas. This was a whimsical and perverse

exertion of power that resulted in a bloody clash and a still continuing face-off between Indian and Chinese troops.

- Next, in August 2021, the United States (US), finalised an unethical and tragic arrangement with a band of terrorists, and deserted Afghanistan overnight. Women rights, individual freedoms and the "values" that were propagated while waging the so-called liberal war against terror, were all discarded in favour of what was expedient.
- And now, Russian troops invaded a sovereign country to enforce a political writ driven solely by the desire to preserve Russia's influence over geographies that increasingly disagree with the politics and propositions of Russia. While Russia's fears of the purpose and method of the **North Atlantic Treaty Organization (NATO)**'s expansion must not be discounted, use of force and violation of a country's sovereignty cannot be acceptable as an expression of disagreement.
 - The invasion of Ukraine has put India in an unenviable position of choosing between what is right and what it believes is right for itself.

These three international events revitalised and put forth Atmanirbharata (self-reliance) at the centre stage.

What is the Potential of Atmanirbharata (Self-reliance)?

- **Atmanirbhar Bharat Abhiyaan or Self-reliant India campaign** is the vision of new India. In the year 2020, Prime Minister raised a clarion call to the nation giving a kick start to the Atmanirbhar Bharat Abhiyaan (Self-reliant India campaign) and announced the Special economic and comprehensive package of INR 20 lakh crores - equivalent to 10% of India's GDP.
- The aim is to make the country and its citizens independent and self-reliant in all senses. **Five pillars** of Atma Nirbhar Bharat – **Economy, Infrastructure, System, Vibrant Demography and Demand** have been outlined.
- It aims towards **cutting down import dependence by focussing on substitution** while **improving safety compliance and quality goods** to gain global market share.
- The Self-Reliance signifies **neither any exclusionary or isolationist strategies** but involves creation of a helping hand to the whole world.
- The Mission focuses on the importance of promoting "local" products.
- Along with Atma Nirbhar Bharat mission, the government took several bold reforms such as Supply

Chain Reforms for Agriculture, Rational Tax Systems, Simple & Clear Laws, Capable Human Resource and Strong Financial System which will help in achieving self-reliance in a faster way.



What are the Concerns Raised For Atma Nirbhar Bharat?

- **Curtail International Trade and Investment:** Certain aspects of the programme have the potential to curtail international trade and investment, such as increased tariffs, non-tariff restrictions on imports, and import substitution.
 - **Non-tariff Barrier is a trade restriction**, such as a quota, embargo or sanction, that countries use to further their political and economic goals.
 - Countries can use non tariff barriers in place of, or in conjunction with, standard tariff barriers (like Custom Duty).
- **Policy Issues:** Difficulties in India's **Intellectual Property** enforcement regime, gaps in pharma sector regulations, drug price controls, and norms related to **data localisation** and **governance**.
 - Data localisation (i.e. storing data within the boundaries of the country) may restrict the ability of local companies to compete in the global marketplace by limiting access to the global supply chain.
 - This isolation may result in reduced investment and access to capital and customers.
- **In Space Sector:** To **open the Space sector to private investors** was a significant step but there was, however, a 'lack of clarity' about several aspects related to the procedures.

- Indian National Space Promotion and Authorization Centre (IN-SPACe) provides a level playing field for private companies to use Indian space infrastructure.
- **In Defence Sector:** The import embargo on the 101 items of defence equipment is planned to be implemented over a period of four years until 2024.
 - Also changes in the **Defence Acquisition Procedure (DAP) 2020** are expected to ensure that no item in this list is imported beyond the cut-off date.
 - This may impact foreign investment in India.

What Steps Can Be Taken?

- **Build a Strategy for the Future:** A long term approach that considers regional supply chains and location decision-making is needed to succeed.
- **India Should Become Increasingly Open to Free and Fair Trade:** India should attract investors due to its strengths rather than by using tariffs as a tool to push international businesses to invest and make in India.
- **Focus on Developing and Supporting Innovators:** Focus on **STEM**, digital, creative and critical thinking skills that will build leaders and workers who can innovate and solve problems.
 - India should also develop an innovator-friendly intellectual property policy and enforcement regime.
- **Digital and Data:** With digital and data services increasingly important in global trade, there is an opportunity for India to fully integrate with other major democratic markets.
 - India should continue to harness and actively invest in the opportunities that **Artificial Intelligence, digital technology** and data present to achieve its growth potential.
- **Put Sustainability at the Center of India's Trade and Investment Strategy:** If shaped properly, trading arrangements can help support the poor and protect the environment.
 - Countries and trade blocs are cognisant of this fact and are increasingly integrating sustainability and human rights into their trade agreements and strategies.
- **Enhancing Demand:** The economic package for the country emerging out of the lockdown requires a stimulus enhancing demand across the economy.
 - The best way for this is to spend on greenfield infrastructure.
 - Infrastructure spending uniquely creates structures that raise productivity and extends spending power to the section of the population most affected by the lockdown, namely daily wage labourers.

- **Mobilising Finances:** For financing of the stimulus package, India's foreign reserves stand at an all-time high which could be strategically used to finance its needs.
 - The rest may have to come from privatisation, taxation, loans and more international aid.
- **Holistic Reforms:** Any stimulus package will fail to reflect the trickle-down effect, until and unless it is backed by reforms in various sectors.
 - Thus, the Atma nirbhar plan also encompasses the unfinished agenda of holistic reforms which may include reforms in Civil services, Education, Skill and Labour, etc.

Conclusion

The government's call for atma nirbharta (self-reliance) has acquired a new salience and ironically, achieving it requires astute global interlinkages and perhaps even more dense global networks for a country that houses a sixth of humanity.

Trusted connectivity, diversified sources of materials and components and resilient financial and trading arrangements are no longer buzzwords but a strategic imperative requiring all of India's consensus, including within its business community, lawmakers and all stakeholders.



The Disclosure from A Missile Misfiring

This editorial is based on "A Misfiring and Its Trail of Poor Strategic Stability" which was published in The Hindu on 16/03/2022. It talks about the major issue that the recent missile misfiring incident has highlighted.

Tags: International Relations, GS Paper 2, India and its Neighbourhood, Bilateral Groupings & Agreements, Effect of Policies & Politics of Countries on India's Interests, GS Paper 3, Defence Technology.

The recent **accidental firing of an Indian missile into Pakistan** which could have led to serious, **unintended escalation of tensions** between the two nuclear-armed countries, calls for serious introspection by the two about the perils of living under the shadow of **nuclear weapons**.

The incident **casts a shadow on the standards** of the storage, maintenance, the handling and even the engineering of high-technology weapon systems in India. But, more pertinently, the incident **highlights the sorry state of bilateral mechanisms for crisis management**

between the two nuclear adversaries where there is a missile flight time of barely a few minutes.

What was the Incident and its Response?

- Recently, the Government of India acknowledged that **"technical malfunction led to the accidental firing of a missile"** which landed 124 km inside Pakistan's territory. The incident happened in the course of routine maintenance.
 - It was speculated that it was a test of **one of India's top missiles, BrahMos**, jointly developed with Russia.
 - In this regard, **India has ordered a high-level Court of Inquiry**.
- Pakistan has alleged that the incident "indicates many loopholes and technical lapses of a serious nature in Indian handling of strategic weapons".
 - The **Chargé d'affaires** of the Indian High Commission in Islamabad was **called twice by Pakistan to convey its concerns**.
 - Islamabad termed the inquiry as ordered by India as insufficient and **demanding a joint probe**.
 - It has also **sought the involvement of the international community** to promote "strategic stability in the region".
- The Indian and Pakistani responses to the missile (mis)firing were the best possible outcome under the circumstances given that there is **little bilateral mechanism for crisis management**.

What are the Causes of the Strategic Unstability in the Region?

The strategic stability regime in South Asia (particularly the region comprising India-Pakistan) is hardly prepared for dealing with such accidents or for enhancing effective crisis management and deterrence stability. The causes are;

- **Non-Inclusion of Cruise Missiles in Agreement:** Although India and Pakistan signed a **'Pre-Notification of Flight Testing of Ballistic Missiles' agreement in October 2005**, it does not include cruise missiles.
 - Notably, the missile that was misfired, suspected to be the BrahMos, was a cruise missile.
- **Lack of Structure Bilateral Dialogues:** It has been quite long since the two sides have held their structured meetings on nuclear confidence building measures (CBMs) and conventional CBMs.
 - India and Pakistan have **not held either the 'Expert Level Talks on Nuclear Confidence Building Measures' or 'Expert Level Talks on Conventional Confidence Building Measures' for several years now**.

- Also, **neither of the countries have any high commissioners on the other side**; there is **no structured bilateral dialogue**.
- **Chinese Interventions:** What makes the regional strategic stability regime more unstable is the fact that the third state with nuclear weapons in the region, **China, has so far refused to engage in strategic stability discussions with India**.
- However, China has **not deterred from getting involved in the India-Pakistan conflict**, apart from being in a **military standoff with India**.

These elements, now with the **possibility of accidental firing of missiles**, make the region particularly weak from a strategic stability point of view.

What is the Pre-Notification of Flight Testing of Ballistic Missiles Agreement, 2005?

- Under this agreement, each country must provide the other an **advance notification on the flight test it intends to take** for any land or sea launched, surface-to-surface ballistic missile.
 - Before the test, the country **must issue Notice to Air Missions (NOTAM) or Navigational Warning (NAVAREA)** to alert aviation pilots and seafarers, respectively.
- Also, the testing country must **ensure that the launch site is not within 40 km**, and the **planned impact area is not within 75 km of either the International Boundary (IB) or the Line of Control (LoC)**.
 - The planned trajectory should not cross the IB or the LoC and **must maintain a horizontal distance of at least 40 km** from the border.
- The testing country must **notify the other nation “no less than three days in advance** of the commencement of a five day launch window within which it intends to undertake flight tests of any land or sea launched, surface-to-surface ballistic missile”.
- The pre-notification has to be **“conveyed through the respective Foreign Offices and the High Commissions”**.

What Steps Can Be Taken?

- **Revival of Bilateral Dialogue Mechanisms:** Provided the nature of the India-Pakistan relationship — adversarial, nuclear-armed, crisis prone, and suffering from trust deficit — there is an urgent need, especially in the wake of the recent incident, to revive the two dialogue mechanisms - **Expert Level Talks on Nuclear and Conventional CBMs**.
- **Updating Existing Mechanisms and Agreements:** India and Pakistan urgently require **faster mechanisms for communicating sensitive information during crisis**

periods and peacetime given how quickly the two sides are capable of transitioning from peacetime to a crisis.

- Also, it is important to **include cruise missiles in the pre-notification regime** as they are now a part of each side’s arsenal.
- **Establishment of Mechanism like NRRCs:** India and Pakistan should consider setting up mechanisms such as **Nuclear Risk Reduction Centres (NRRCs)**, as established between the U.S. and the Soviet Union during the **Cold War**.
 - The primary objective of NRRCs is **risk reduction by providing a structured mechanism for timely communication** of messages and **proper implementation of already agreed upon CBMs**.
 - Such a mechanism could act like the ‘**Permanent Indus Commission**’ which has resolved several disputes arising out of the **Indus Water Treaty**.
- **Centres For Information Clarification:** Some of the misperceptions and ambiguities in the strategic domain could be taken up by the **risk reduction centres for resolution or clarification**.
 - Such a body could **routinely exchange messages, provide timely clarifications, and review compliance to agreements**, among others.
 - In an age of social media and 24-hour news, honest mistakes or unforeseen accidents could spiral into a military standoff especially in the absence of timely clarifications.
- **Maintaining its Position of a Responsible Nuclear Power:** India’s **global image of being a responsible nuclear power** has been built over decades of restrained words and thoughtful action. **The recent incident frays this reputation**.
 - India became a member of the **Missile Technology Control Regime** in 2016, an acceptance by major powers of India’s status as a reliable defence partner that is capable of handling its strengths and contributing to global security.
 - India is developing more missile systems, including a **hypersonic variant**. The handling and the launch of any such missiles are highly regulated with checks and balances to avoid accidents.
 - **India must leave no scope for any doubts about its capacity** to handle nuclear and other military assets. Strict measures must be taken to **restore the confidence of the international community in India**.



The Wave of De-Dollarisation

This editorial is based on “Why ‘De-Dollarisation’ is Imminent” which was published in Indian Express on 17/03/2022. It talks about the efforts being made by the countries to reduce the prominence of USD in global commerce.

Tags: Economy, GS Paper 2, Effect of Policies & Politics of Countries on India’s Interests, GS Paper 3, Monetary Policy, Liberalisation

The weaponization of trade, the imposition of sanctions and the exclusion from **SWIFT (Society for Worldwide Interbank Financial Telecommunication)** by the US could trigger a **faster de-dollarisation** as countries displaying diplomatic and economic autonomy will be wary of using US-dominated global banking systems.

The **US dollar, which is the world’s reserve currency, can see a steady fall** in the current context as leading central banks may look to diversify their reserves away from it to other assets or **currencies like the Euro, Renminbi or gold.**

The notion of de-dollarisation sits well in the thought **experiment of a multipolar world** where each country will look to enjoy **economic autonomy in the sphere of monetary policy.**

What is and Why De-Dollarisation?

- De-dollarisation refers to **reducing the dollar’s dominance of global markets.** It is a process of substituting US dollar as the currency used for:
 - Trading oil and/ or other commodities
 - Buying US dollars for the **forex reserves**
 - Bilateral trade agreements
 - Dollar-denominated assets
- The dominant role of the dollar in the global economy **provides the US a disproportionate amount of influence** over other economies. The US has for long used imposition of sanctions as a tool to achieve foreign policy goals.
 - The de-dollarisation is driven by the desire to **insulate the Central Banks of the Countries from geopolitical risks**, where the status of the US dollar as a reserve currency can be used as an **offensive weapon.**

What are the Causes of Dollar’s Prominence?

- The US dollar sealed its position in the **early 1970s** with a **deal with the oil-rich Kingdom of Saudi Arabia** to conduct global energy trade in dollars.

- The status of the dollar was **enhanced by the collapse of the Bretton Woods system**; it essentially eliminated other developed market currencies from competing with the USD.
- Currently, about 60% of foreign exchange reserves of central banks and about **70% of global trade is conducted using USD.**
 - The psychological angle to considering the USD as a **“safe-haven” asset** is that people continue to view the currency as a **relatively risk-free** asset.
 - Additionally, sudden dumping of dollar assets by adversarial central banks will also **pose balance sheet risks to them** as it will **erode the value of their overall dollar-denominated holdings.**
- Apart from the Euro and gold, most other foreign currencies have some inherent risks associated with them.
 - For instance, with the historically “neutral” Switzerland joining the EU in imposing sanctions on Russia, it **eliminates the Swiss Franc from being an asset** that can work as a hedge against economic sanctions.

What are the Efforts for De-Dollarisation?

- Leading **geopolitical adversaries of the US — Russia and China** — have already started this process of de-dollarisation.
 - Efforts are underway for the possible introduction of a **new Russia-China payment system, bypassing SWIFT** and combining the **Russian SPFS (System for Transfer of Financial Messages)** with the **Chinese CIPS (Cross-Border Interbank Payment System).**
 - The **ongoing war in Ukraine** and the subsequent economic sanctions will trigger central banks to go back to their drawing boards to **reassess their dependency on the dollar.**
- Russia had started its three-pronged efforts towards de-dollarisation in 2014 **when sanctions were imposed on it for the annexation of Crimea.**
 - Russia **reduced its share of dollar-denominated assets to about 16%** in 2021.
 - It also **reduced its share of trade conducted in USD** by prioritising national currencies in bilateral trade.
 - The use of USD in **Russia’s exports to BRICS** crashed from about 95% in 2013 to **less than 10% in 2020.**
- China aims to use trading platforms and its **digital currency to promote de-dollarisation.** It has established **RMB trading centres in Hong Kong, Singapore and Europe.**

- In 2021, the People's Bank of China submitted a **"Global Sovereign Digital Currency Governance"** proposal at the Bank for International Settlements to influence global financial rules via its digital currency, the **e-Yuan**.
- The **International Monetary Fund (IMF)** has already added Yuan to its **SDR (Special Drawing Rights)** basket in 2016.
- However, the **lack of full RMB convertibility will hinder China's de-dollarisation ambition**.

What is India's Scenario in this Regard?

- India has also had to work out alternative arrangements, including a **barter arrangement, with certain sanctioned countries** in the past.
 - More recently, **India and Russia are said to be considering the use of the Chinese yuan** as the reference currency to facilitate oil trade between the two countries.
- **Issue:** Like Chinese renminbi, **Indian rupee is not yet fully convertible** at the exchange markets.
 - Non-convertible currency creates difficulties for participating in the international market as the **transactions take longer routes for processing**.
 - Non-convertibility implies an **uneasy access to capital, less liquidity in the financial market, and less business opportunities**.
- **Solution:** Similar to China and Russia, India can also look towards having a **digital currency in the near future**, and some signs for this are already visible.
 - India can also look towards having an **increased share of euros and gold in its foreign exchange reserves**.
 - India has several options for initiating its de-dollarization process. Starting from **Russia-India transactions, trade with Iran, EAEU, BRICS and SCO** members in national or digital currencies can also become a reality in near future.
- A **drop in the dollar's stature is inevitable** as major economic powers like China and India rise.
 - The **rise of Asia as an economic powerhouse** will raise the importance of currencies like the Yuan and the Indian rupee.
 - The frequent use of the US dollar as a potential weapon for achieving foreign policy objectives will no doubt accelerate the process of de-dollarisation.
 - Further, **currency convertibility is an important part of global commerce** as it opens trade with other countries and allows a government to pay for goods and services in a currency that may not be the buyer's own.

Conclusion

- The US dollar is still the favoured currency for trade because no other currency is liquid enough. Even if a currency does, there would be apprehensions in nations about that currency becoming a mirror of the US dollar.
- A mere change in regime along with having to bear the same manipulations albeit from a different country is not what the world wants. The only way forward would be to **diversify the currency market with no one currency claiming hegemony**.



Solar Energy Waste Management

This editorial is based on "Clean Energy Should use the Battery of A Circular Economy" which was published in The Hindu on 17/03/2022. It talks about the scenario of solar energy waste management and the significance of the circular economy in this regard.

Tags: Governance, GS Paper 2, Government Policies & Interventions, GS Paper 3, Environmental Pollution & Degradation, Growth & Development, Conservation

In the Budget speech, the Finance Minister of India emphasised the role of cleaner technologies such as **solar energy and batteries in India's future economic growth**.

A study by the **Council on Energy, Environment and Water (CEEW)** has estimated that **India would need over 5,630 GW of solar and 1,792 GW of wind energy to achieve its net-zero target in the year 2070**.

While India has set ambitious solar power installation targets, it **does not yet have a firm policy on managing waste that results from used solar panels** or from the manufacturing process.

A robust **renewables waste management and recycling ecosystem** could help people and India reduce environmental harm, provide energy security, and also create new jobs.

What are India's Achievements in Installed RE Capacity?

- India has completed its target of **achieving 40% of its installed electricity capacity from non-fossil energy sources** by 2030 in November 2021.
 - The country's installed **Renewable Energy (RE) capacity stands at 150.54 GW** (solar: 48.55 GW, wind: 40.03 GW, Small hydro Power: 4.83, Bio-

power: 10.62, Large Hydro: 46.51 GW) as on 30th Nov. 2021 while its nuclear energy based installed electricity capacity stands at 6.78 GW.

- The **installed solar energy capacity has increased by over 15 times**, and has now **surpassed 50 GW of cumulative installed solar capacity** (as on 28th February 2022). Its annual RE addition has been exceeding that of coal based thermal power since 2017.
 - India added a record 10 Gigawatt (GW) of solar energy to its cumulative installed capacity in 2021. This has been the **highest 12-month capacity addition**, recording nearly a **200% year-on-year growth**.

What is the Waste Generation Scenario?

- According to the **International Renewable Energy Agency (IRENA)**, the cumulative **waste generated by India's total installed solar capacity** could be as high as **325 kilotonnes by 2030**.
 - It has also estimated that the global value of recoverable materials from solar PV waste could **exceed USD15 billion**.
 - Currently, only the **European Union** has taken decisive steps in managing solar PV waste.
- IRENA estimated that the **global photovoltaic waste will touch 78 million tonnes by 2050**, with **India expected to be one of the top five** photovoltaic-waste creators.
- While **photovoltaics generate only about 3% of global electricity**, they **consume 40% of the world's tellurium**, 15% of the world's silver, a substantial chunk of semiconductor-grade quartz and lesser but still significant amounts of indium, zinc, tin and gallium.
- The **renewable energy recycling ecosystem**, beyond sustainability, could **offer quality employment opportunities** for the future generations as new jobs would be created across the entire value chain of waste management and recycling.
 - **Majority of India's recycling sector is informal** and workers have to work in unsafe environments without standardised wages.

What are the Concerns regarding Waste Management?

- In the absence of any regulation, **landfilling is the cheapest and most common practice** to manage renewable energy waste which is undoubtedly environmentally unsustainable.
- All clean energy technologies thrive on metals and non-metals with different levels of toxicity. If the

waste equipment is dumped in the open, then these **elements could leach into the environment and enter the food chain**.

- Burning the polymeric encapsulant layer in solar photovoltaic modules **releases toxic gases such as sulphur dioxide** and some volatile organic compounds.
- **Access to finance is a major roadblock** for players in the recycling ecosystem. There has to be a creation of innovative financing routes for waste management.
- Substandard components generate **considerable waste due to early life damage** that is often irreplaceable and the components often have to be discarded.
- India currently **considers solar waste a part of electronic waste** and does not account for it separately. Moreover, there is **no commercial raw material recovery facility** for solar e-waste operational in India

What is a Circular Economy?

- It is an economy where products are designed for durability, reuse and recyclability and thus almost everything gets **reused, remanufactured, and recycled into a raw material** or used as a source of energy.
 - It includes **3 R's (Reduce, Reuse and Recycle), Refurbishment, Recover, and Repairing** of materials.
- **Circular Economy** can lead to the emergence of more sustainable production and consumption patterns, thus providing opportunities for developed and developing countries to achieve economic growth and inclusive and sustainable industrial development (ISID) in line with the **2030 Agenda for Sustainable Development**.

Can Circular Economy be a Prudent Way Forward in this Regard?

- **Revising Existing e-Waste Management Rules:** These rules are based on **Extended Producer Responsibility (EPR)** that identifies component producers as responsible entities to manage their waste products.
 - The Indian renewable energy industry has a complex structure that comprises various manufacturers, assemblers, importers and distributors.
 - The revised regulations should clearly **define the responsibilities of various stakeholders** involved in the renewable energy value chain and **provide annual targets for the collection and the recycling of waste**.
- **R&D Investments:** The renewable energy industry should invest in the research and development of recycling technologies.

- Recycling is a multistep process that includes dismantling (mainly a manual process), disassembly (done mechanically, thermally or chemically) and extraction.
- Besides these traditional methods, investments in R&D could help **discover new ways of recycling that result in higher efficiency and a less environmentally damaging footprint.**
- **Industries should also explore technology transfers** with global recycling firms for establishing domestic waste recycling facilities.
- **Innovative Routes for Waste Management:** The central government should nudge public and private sector banks to **charge lower interest rates on loans** disbursed for setting up **renewable energy waste recycling facilities.**
- Assurance of a minimum waste quantum to run these facilities and **issuing performance-based green certificates** to recyclers **that could be traded to raise money for waste management** would also help ease the financial burden.
- A **market for recycled materials** could also be created through mandatory procurement by the renewable energy and other relevant manufacturing industries.
- **Handling Toxic Waste: Dumping and burning** of different components should be **banned** and there needs to be an **improvement in product design and quality.**
- Renewable energy component manufacturers should **find substitutes for toxic metals such as cadmium and lead** used in their products and **simplify product designs to reduce recycling steps.**
- Such improvements in process efficiencies could go a long way in curbing waste creation at the source and its subsequent impact on the environment.
- To **prevent premature end-of-life of components** and consequent waste creation, the Union and State governments should **set stringent quality control standards** for components used in their tenders.



Textile Sector in South Asia

This editorial is based on “Get these wrinkles out of the South Asian textile story” which was published in The Hindu on 21/03/2022. It talks about the prospects of the textile sector in South Asia and challenges and issues in the Indian textile sector.

Tags: Indian Economy, GS Paper - 3, Employment, Growth & Development, Inclusive Growth

South Asia became a major player in the global textiles and clothing market with the onset of the last decade of the 20th century. Bangladesh joined the league in the 1980s, owing to the outbreak of the civil war in Sri Lanka.

Supportive industrial policy was an instrumental factor in the 1990s, with zero duty on raw material and capital machinery, as access to global markets led to the industry’s boom. Bangladesh overtook India in exports in the past decade as Indian labour costs resulted in products becoming 20% more expensive.

In this context, it is necessary to look into the prospects and challenges the Indian textile industry is facing.

What is the Growth Story in South Asia?

- Lower production costs and free trade agreements with western buyers are what favour Bangladesh, which falls third in the line as a global exporter.
- The progress of India and Pakistan in readymade garments is recent when compared to their established presence in textiles. India holds a 4% share of the U.S. \$840 billion global textile and apparel market, and is in fifth position.
- India’s exports later witnessed a larger volume of business, following a 0.8% dip in 2019. Pakistan saw a 24.73% rise in textile exports (2021-22), bagging an amount of U.S.\$10.933 billion.
- India has been successful in developing backward links, with the aid of the **Amended Technical Upgradation Fund Scheme (TUFS)**, in the cotton and technical textiles’ industry. However, India is yet to move into man-made fibres as factories still operate in a seasonal fashion.
- Pakistan remains very focused on cotton products; it falls behind due to skilling and policy implementation issues. Bangladesh has been ahead of time in adopting technology. Bangladesh also concentrates on cotton products, specialising in the low-value and mid-market price segment. The country faces the challenge of high attrition and skilling which results in higher costs.
- Sri Lanka attained the most progress in ascending the value chain. Progress in training, quality control, product development and merchandising are attracting international brands to Sri Lanka.

Amended Technology Upgradation Fund Scheme (ATUFS)

- The Technology Upgradation Fund Scheme was introduced by the Government in 1999 to facilitate new and appropriate technology for making the textile industry globally competitive and to reduce the capital cost for the textile industry.

- In 2015, the government approved “Amended Technology Upgradation Fund Scheme (ATUFS)” for technology upgradation of the textiles industry.

What is the Significance of the Textiles Sector for India?

- Textiles & garments industry is a **labour intensive sector** that employs **45 million people in India**, second only to the agriculture sector in terms of employment.
- India’s textiles sector is one of the oldest industries in the Indian economy, and is a storehouse and carrier of traditional skills, heritage and culture.
- It contributes 2.3% to Indian **Gross Domestic Product**, 7% of Industrial Output, 12% to the export earnings of India and employs more than 21% of total employment.
- India is the 6th largest producer of **Technical Textiles** with 6% Global Share, the largest producer of cotton & jute in the world.
- India is also the **second largest producer of silk in the world**, and 95% of the world’s hand woven fabric comes from India.

What are the Challenges of the Textiles Sector in India and South Asia?

- **Highly fragmented:** The Indian textile industry is highly fragmented and is being dominated by the unorganised sector and small and medium industries.
- **Outdated Technology:** The Indian textile industry has its limitations of access to the latest technology (especially in small-scale industries) and failures to meet global standards in the highly competitive market.
- **Tax Structure Issues:** The tax structure **GST (Goods and Service Tax)** makes the garments expensive and uncompetitive in domestic as well as international markets. Another threat is rising labour wages and workers’ salaries.
- **Stagnant Exports:** The export from the sector has been stagnating and remained at the USD 40-billion level for the last six years.
- **Lack of Scale:** The apparel units in India have an average size of 100 machines, which is very less in comparison with Bangladesh, which has on an average of at least 500 machines per factory.
- **Lack of Foreign Investment:** Due to challenges given above, the foreign investors are not very enthusiastic about investing in the textile sector which is also one of the areas of concern.
 - Though the sector has witnessed a spurt in investment during the last five years, the industry attracted **Foreign Direct Investment (FDI)** of only USD 3.41 billion from April 2000 to December 2019.

- **Competition Within the Region:** Due to similar history, technology and labour force, there is competition within the region rather than supplementary nature.

What Needs to be Done?

- **Need for scale:** Scale is important to bring down the cost of production, improve productivity levels to match global benchmarks and, thereby, cater to large orders from markets like the US.
 - With the right scale and technology interventions, India can match the manufacturing costs of competing countries.
- **Need For Environment Friendly Manufacturing Process:** With growing awareness on social and environmental issues, global buyers are looking for more compliant, sustainable and large factories to place bulk orders; these are available in China and Vietnam. Such facilities need to be created in India too.
 - With a condition on incremental sales growth, the newly launched PLI scheme ensures investment from the enterprise to grow capacity on a continuous basis. India can surely build ten USD 1 billion companies in the next few years.
- **Specialisation:** India has built a strong ecosystem in cotton apparels, but is lagging in man-made fibre (MMF) apparel manufacturing. Global fashion is moving towards blends.
 - The US annually imports around Rs. 3-lakh crore worth of MMF apparels. In this mega market, India has a share of just 2.5%.
 - Hence, with a focussed approach, the sector can be aligned towards global fashion demands.
 - PLI incentivises the manufacturing of MMF apparel and fabrics. Instead of providing scattered incentives to so many products, it’s time to specialise in a few products which have huge market opportunities.
 - Integrated companies can invest in greenfield projects to make MMF apparel and compete with strong players like China and Vietnam in cost.
- **Competitiveness:** To compete with low-cost competitors, India needs to be ultra-efficient in pricing. With assured production incentives in the PLI scheme, entrepreneurs with growth aspirations will boldly invest in integrated smart factories. This can help achieve world-class productivity and manufacturing efficiency.
- **Attracting capital:** Only 10% of the Indian textile sector is listed on the stock exchange. The textile sector’s (excluding raw-material makers) market cap of around Rs. 2-lakh crore is hardly 1% of the BSE’s Rs. 250-lakh crore market cap.

- **Diversification** with respect to technology, the product basket and the client base are to be noted. Adaptability in meeting the demands of man-made textiles, other complex products and services are also important.
 - **Newer approaches** in the areas of compliance, transparency, occupational safety, sustainable production, etc. are inevitable changes in store for South Asia to sustain and grow business.
 - Reskilling and upskilling of the labour force should also be a priority for the region to stay aloft in the market. Finally, there is a need for governments' proactive support in infrastructure, capital, liquidity and incentivisation.



Making Groundwater 'Visible'

This editorial is based on "Groundwater: A Valuable 'invisible' Resource" which was published in Hindustan Times on 22/03/2022. It talks about how the invisible resource - groundwater can be made visible by groundwater management strategies.

Tags: Biodiversity & Environment, GS Paper 1, Water Resources, GS Paper 2, Government Policies & Interventions, GS Paper 3, Conservation, Irrigation

India has 16% of the world's population, but **only 4% of its freshwater resources**. Given the existing consumption patterns, including **rampant groundwater extraction**, estimates suggest that **by 2030, India will only have half of the water it needs**.

As the climate crisis escalates, its impacts are causing significant changes in the flow of rivers, and in some cases, a shift in their course. There are, therefore, credible concerns about the access and availability of water to meet future water demands of cities.

Unlike some natural resources such as minerals or oil, groundwater is renewable. **If managed sustainably**, it can continue to serve as a reliable source of water supply for our cities in the future.

What is India's Groundwater Consumption Scenario?

- India is by far the **largest user of groundwater in the world**, accounting for **25% of the global water withdrawals**; **~ 45% of the water supply in India's cities** is sourced from groundwater.
 - The **Central Ground Water Board (CGWB)** estimates that about 17% of the groundwater blocks across the country are overexploited, where the **rate of extraction is more than that of renewal**.

- According to the CGWB, with **230 BCM** (billion cubic metre) **of groundwater drawn out each year** for irrigating agricultural lands in India, many parts of the country are experiencing rapid depletion of groundwater.
 - The total estimated groundwater depletion in India is about 122–199 BCM.
- The **agriculture sector uses 89% of the groundwater** for irrigation while 11% is used by the domestic and industrial sectors. At the State level, in **Punjab, Haryana, Rajasthan and Delhi groundwater extraction is more than 100%**.

Why is Groundwater an 'Invisible' Resource?

- The theme for this year's **World Water Day** (March 22) is "**Groundwater: Making the Invisible, Visible**".
- Unlike surface water (rivers, lakes, ponds, etc.), groundwater is "invisible". A quick internet search will yield that thousands of images of rivers or lakes are victims of encroachment, scarcity, and pollution.
 - But **while groundwater faces the same challenges, there is hardly any visual evidence**.
- Due to this, **groundwater-related issues and crises often go unnoticed**, especially at smaller scales - it is only when extensive studies involving huge budgets are carried out that these come to the fore.

What are the Government Initiatives for Groundwater Management?

- **National Project on Aquifer Management: NAQUIM** aims to provide **comprehensive and realistic information on groundwater resources** in different hydro-geological settings in real time.
 - This can help prepare, implement, and **monitor the efficacy of various management interventions**, which, in turn, can help achieve drinking water security, improved irrigation facilities and sustainability in water resources development.
- **Master Plan for Artificial Recharge to Groundwater - 2020:** CGWB in consultation with the state governments has prepared **The Master Plan - 2020** which envisages construction of about **1.42 crore Rain water harvesting and artificial recharge structures** in the Country to harness 185 BCM.
 - In addition, the government has also launched the '**Catch the Rain**' campaign to promote rainwater harvesting.
- **Atal Bhujal Yojana: Atal Bhujal Yojana (ABHY)**, co-funded by **World Bank** funding, was launched for **sustainable management of ground water with community participation** in the identified over-exploited and water stressed areas.

What Can Be Done to Manage Groundwater Resources?

- **Tech-Innovations for Watering Schedules:** Several start-ups have developed **precision-irrigation solutions** that provide predictive insights to farmers on the **optimal watering for crops** based on seasons, soil type and crop growth phase.
 - Embedded with **Machine Learning**, or the **Internet of Things**, such innovations monitor soil conditions, weather changes, evaporation rates and plant water use to determine and adjust watering schedules.
 - These innovations, if deployed at scale, can become **prime movers for achieving accelerated efficiencies in water usage**.
- **Role of Industries:** Not just the government or agricultural communities, the industries too can amplify the work through action in three areas of influence – **direct operations, supply chain and wider basin health**.
 - Companies can **implement water monitoring and reporting processes** to identify and **eliminate water leaks** and **adopt water-saving technologies**.
 - They can encourage the **use of renewable energy**, put supplier standards in place and assign **water expert teams** to help suppliers implement efficient solutions.
- **Inclusive Strategy and Investment for Innovations:** The need of the hour is an inclusive strategy that considers both **site- and catchment-based measures** supported by the collection and analysis of complex data as well as **joint investments from various stakeholders, collective water governance** and **accountability mechanisms**.
 - Efforts need to be undertaken to **identify and benchmark changes** these innovations can bring over time.
 - **Strategic investment of capital in proven solutions** will amplify the results many times over. With the large-scale adoption of innovative solutions, we can **ensure that our country has a food and water secure future**.

How Can We Make Groundwater 'Visible'?

- **Sustainable Yield:** Cities extract way more groundwater than can be replenished naturally which is why cities like Delhi, Bengaluru, and Hyderabad have seen a rapid depletion in their groundwater levels.
 - The term **"sustainable yield" of groundwater** was coined to address such challenges in the late 1990s.
 - This is defined as the amount of **groundwater extraction that can be maintained indefinitely without causing unacceptable environmental, economic, and social consequences**.

- The sustainable yield of groundwater depends upon a number of site-specific factors; therefore, it is vital for the **cities to have a contextualised understanding of this parameter** to avoid irreversible damage.
- **Urban Water-Management-Strategy:** From an urban perspective, "making the invisible, visible" essentially involves having an **improved understanding of this "hidden" resource**, and **mainstreaming it within the overall water management strategy** of the city in a sustainable manner.
 - For starters, cities need to **map their groundwater resources to develop credible knowledge** about the quantity and quality of the resources available.
 - Given that most of our urban areas rely heavily on groundwater, having a **robust database of this resource** is key to informing sustainable strategies to **reduce the demand-supply gap**.
- **Citizen Engagement:** Citizen engagement is vital for success, more so because the "invisible" nature of the resource makes it easy for people to get away with indiscretions.
 - Citizens will need to step up and **share the onus of action**. And the first step to make this happen is to **engage them in two-way dialogues for building collective consciousness** on the need for **community ownership of groundwater management**.

Conclusion

Securing India's water future needs to evolve into a movement with everyone getting involved. We need to **move from being merely "users of water" to more active stewardship of water** and ensure that water consumption is not only **environmentally sustainable** or **economically beneficial** but is also **socially and culturally fair**.



Heat Extremes in India

This editorial is based on "India Needs an Emergency Plan for Heat Extremes" which was published in Hindustan Times on 22/03/2022. It talks about the impact of heat waves and suggests measures to overcome the same.

Tags: Biodiversity & Environment, GS Paper 1, Important Geophysical Phenomena, GS Paper 2, GS Paper 3, Climate Change, Environmental Pollution & Degradation

Recently, the parts of **Antarctica** recorded maximum temperatures that are **more than 40°C** warmer than average and areas of the **Arctic** **more than 30°C** warmer than average.

In many parts of India too, winter switched to summer, with not even a fleeting spring in between.

Heatwaves associated with **abnormally high temperatures over certain areas**, which could also be **fatal to humans and animals**, are also on a rise across the country, while there is a **declining trend in the occurrence of cold waves**.

What are Heat Waves?

- A heat wave is a period of abnormally high temperatures, more than the normal maximum temperature that **occurs during the summer season** in the **North-Western and South Central parts of India**.
 - It is a condition of air temperature which becomes fatal to the human body when exposed.
- The **India Meteorological Department (IMD)** requires that temperatures should reach **at least 40°C in the plains** and **at least 30°C in the hilly regions**, and should reflect an increase of at least 5°C-6°C above the normal temperature **to be classified as a heatwave**.
- The combination of **global warming and population growth** in already-warm cities in India is the primary driver of increased heat exposure.
 - The **Urban Heat Island** also elevates temperatures within cities, which will be amplified during the heatwaves.
 - UHIs occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat.

What is the Scenario of Heat Waves in India?

- **India**, along with **Bangladesh and Pakistan**, recorded the **greatest losses to work hours (295 billion hours) due to heat exposure** in 2020, according to the **Lancet Countdown on Health and Climate Change** released in 2021.
 - India has become **15% more vulnerable** to extremes of heat than in 1990.
 - Indian **senior citizens were among the most affected ones** due to heatwave exposure.
- More recently, most parts of western **Rajasthan, Maharashtra**, and parts of **Gujarat, Odisha** are reeling under **severe heat wave-like conditions**, with maximum **temperatures hovering well over 40°C**.
 - The foothills of the Western Himalayas recorded very high day and night temperatures - 7 to 10 degrees above normal.
 - Delhi recently recorded a 36.6°C, 6 degrees above normal.

- The IMD's long-term temperature trends indicate that the **climate crisis is having a pronounced impact** on increasing the frequency and severity of heatwaves in India.
 - Average temperatures across seasons have seen a **sharp upward trend in the country since 1991**.
 - The temperature rising trend is **more evenly pronounced during monsoon** (June to September) and **post-monsoon** (October to December) seasons.

What is the Impact of these Heat Waves?

- **Mortality and Morbidity:** The **Intergovernmental Panel on Climate Change (IPCC)** in the **Second Part of AR6 Report** flagged that heat extremes are causing **human deaths and morbidity**.
 - The increased heat will lead to an increase in diseases like **diabetes**, circulatory and **respiratory conditions**, as well as **mental health challenges**.
- **Crop Damage:** The fallout of these heat waves is far more complex - the concurrence of heat and drought events are causing **crop production losses and tree mortality**.
- **Less Food Production and High Prices:** The risks to health and food production will be made more severe from the **sudden food production losses** exacerbated by **heat-induced labour productivity losses**.
 - These interacting impacts will **increase food prices, reduce household incomes**, and lead to **malnutrition** and climate-related deaths, **especially in tropical regions**.
- **Labour Productivity Loss:** A higher urban population also implies heat-induced labour productivity loss, **resulting in economic impacts**.
 - Millions of **farmers and construction workers could have lost income** because on some days it's just too hot for them to work.
- **Wildfires and Droughts:** The Lancet report, 2021 showed that populations of **134 countries** experienced an **increase in exposure to wildfires** with **droughts becoming more widespread** than ever before.

What Steps Can Be Taken in this Regard?

- **Adopting A More Sensitive Approach:** The **impact of such excessive heat** needs to be **understood from the point of view of common people** — **daily labourers; farmers; traders; fishermen** etc.
 - Beyond numbers and graphs that capture the impact of the climate crisis, the **human experience of living in oppressive heat** needs to be understood by policymakers and measures should be taken accordingly.

- **Cooling Shelters:** The government should come out with a policy to deal with the suffering and disability caused by heat extremes in different parts of the country.
 - **Water kiosks, staggered outdoor work hours, cool roofs for buildings** and homes are certain things that should be put in place immediately.
 - A number of emergency **cooling shelters can be opened** so that people without domestic air conditioning units can escape the heat.
 - **Portable air-conditioning units**, along with fans and even ice are also useful.
- **Passive Cooling to Reduce Urban Heat Islands:** **Passive cooling technology**, a widely-used strategy to **create naturally ventilated buildings**, can be a vital alternative to address the urban heat island for residential and commercial buildings.
 - The IPCC report cites **ancient Indian building designs** that have used this technology, which could be adapted to modern facilities in the context of global warming.
- **Action Plans Similar to Ahmedabad:** As per the IPCC Report, Ahmedabad has shown the way to combat heat extremes by **heat-proofing buildings**.
 - After the heat action plan was implemented in 2013 in Ahmedabad, **heat-related mortality reduced by 30% to 40%** over the years. Similar plans like that of Ahmedabad can be implemented in vulnerable regions.
- **Replacing Dark Roofs:** A big reason that cities are so much hotter than rural areas is that they are covered by dark roofs, roads and parking lots that absorb and retain heat.
 - One of the long term solutions can be **replacing the dark surfaces with lighter and more reflective materials**; it will result in a comparatively cooler environment.



Foundational Literacy and Numeracy

This editorial is based on "Is the Push for Foundational Numeracy and Literacy Pro-Poor?" which was published in Hindustan Times on 24/03/2022. It talks about the issues with the concept of formulating learning as only the mastery of piecemeal basic literacy and numeracy.

Tags: Governance, GS Paper 2, Education, Government Policies & Interventions

The **National Education Policy (NEP), 2020** prioritises the attainment of **foundational literacy and numeracy (FLN)** for all children as an "urgent national mission". Subsequent guidelines for the same were laid out in the Ministry of Education's **National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN-Bharat)** programme in 2021.

Although the initiative is an objectively good reform, its framing and operationalisation entail certain issues that need scrutiny.

Reading proficiency or arithmetic skills are very important. However, formulating learning as only the mastery of piecemeal reading and arithmetic skills entails a simultaneous **overlooking of and lack of imagination around other holistic components** of learning.

What is Foundational Literacy and Numeracy (FLN)?

- FLN is broadly conceptualised as a **child's ability to read basic texts and solve basic maths problems** (such as addition and subtraction).
 - Foundational Literacy and Numeracy is one of the major themes of the **NEP 2020**.
- In 2021, the NIPUN-Bharat programme was launched with a vision to ensure **universal literacy and numeracy for Class 3 children by 2026-27**.
 - It envisaged a **five-tier implementation mechanism**, set up at the National- State- District- Block- School level in all States and UTs, under the aegis of the **Centrally Sponsored Scheme of Samagra Shiksha**.
- **Arguments in the favour** of FLN say that the ability to read and write, and perform basic operations with numbers i.e., FLN, is a **necessary foundation and an indispensable prerequisite** for all future schooling and lifelong learning.
 - The Foundational Learning study will enable to **establish benchmarks in reading with comprehension** in different Indian languages for children at Grade 3 level.
 - It will **assess the ability to read age-appropriate texts** (known as well as unknown) at a certain pace, accurately, and with comprehension and also the foundational numeracy skills.

What are the Issues Associated with FLN?

- **Encourages Rote-Learning:** Since long, rote-learning has been seen as the core problem in the Indian education system - **de-contextualised repetition of facts, reciting without questioning**, and a **general lack of critical thinking** are the impediments to holistic forms of learning.

- A monitoring system that judges performance based on FLN mastery will likely lead to states and schools **intensifying rote-learning to avoid bad results.**
- It is exactly this fear of failing in standardised assessments that perpetuates rote-learning and paves the way for **“teaching to the test”** — where teaching, resources, and time are all redirected away from learning towards **mere assessment mastery.**
- **A False Framing:** The word foundational implies that certain aspects of numeracy and literacy must come first before any other learning can happen. A good education system ensures numeracy and literacy, but without making them its single or primary purpose.
 - A **single-minded focus on these basics** not only creates a risk of decontextualized and rote learning but also implies that richer learning and critical thinking only come afterwards.
 - **Reading without questioning and calculating without understanding** its relevance are **not quite the foundations for any possible critical thinking** but might even lead away from it.
- **Creates a Division:** Despite claims of how FLN is a goal for all children, its prioritisation is almost **exclusively meant to be for children from rural and marginalised backgrounds**, thus creating **two separate tracks** within Indian education —
 - One with children in elite and high-fee private schools getting to focus on rich and holistic content and the other with marginalised children in low-fee private/public schools, who will not be able to go much beyond these foundational skills.
 - This presents significant long-term implications with **some children being highly skilled and more suited** for elite professions, and **others relegated to being just literate** and thus **facing a limited pool of low-earning professions** to be eligible for.

What is the Way Ahead?

- **Parallel Approach:** The current education system, the policymakers as well as the people must **overcome this misconceived sequential understanding** of “basics first and critical thinking afterwards” and find a **new approach where basic learning and critical thinking run parallel.**
 - The children need not be made to spend several years mastering FLN to pass a test, they need to be **prepared to achieve contemporary educational goals** such as critical thinking, curiosity, or empowerment.

- **Teacher Training:** The **District Institutes of Education and Training (DIETs)** often have **high vacancies, insufficient funds, and severe constraints** impeding them from acting responsive to local needs.
 - This core function of an education system requires a **strong public sector, sufficient human resources, and a proper infrastructure.**
 - Policymakers should also consider **increasing budgetary allocations for teacher training** institutions and reformulate their mission and mandate to **ensure increased discretion and an empowered faculty.**
- **Revised Learning Approach:** Education systems in many countries, in an attempt to boost learning quality, have moved away from teaching reading and mathematics in incremental, skill-based ways.
 - **Culturally responsive teaching**, which strives to **make learning relevant to the lived realities of children**, and critical mathematics education, which teaches maths as a tool to critically read the world, are among several approaches widely sought after by schools worldwide.
 - These approaches include mastering basic reading and maths skills as **part of richer, contextual learning rather than a prerequisite.**



The Right Approach for India

This editorial is based on “Time for India to Redefine its Relationship with Russia” which was published in The Hindu on 26/03/2022. It talks about consequences of the Russia-Ukraine Conflict and the right approach for India in this regard.

Tags: International Relations, GS Paper 2, Bilateral Groupings & Agreements, Effect of Policies & Politics of Countries on India's Interests

Russia's actions on Ukraine have decisively shaped international opinion and the Indian foreign policy is going to be affected in a profound manner. The most important question facing Indian diplomacy is how to navigate India's great power relations in the future.

The Russia-Ukraine war, as of now, has resulted in no ceasefire but a number of sanctions being imposed on Russia whose impacts will be visible not only for Russia but for the West as well.

In the world where China is already looking forward to challenging the United States and expanding its influence, if the China-Russia relationship strengthens further, **India may be forced to recalibrate its relationship with Russia and sidle up further to Quad.**

How the Conflict has Brought Changes in the Global Order?

- Russia's attack on Ukraine has **put India in a foreign policy conundrum** that will not disappear soon because Russia's action has changed the global order.
 - The Western world has imposed **unprecedented sanctions against Russia** and **banned energy imports** which will cause **collateral damage for both the Russian and western economies** leading to high inflation.
- The conflict and the consequent sanctions have raised **concerns over the impact on global finance, energy supplies, and transportation.**
 - Many European countries depend upon Russia for their energy needs to a large extent. If the conflict and sanctions continue, **energy supplies to Europe at peak wintertime may be blocked by Russia** as had happened earlier in 2006-07 and 2009.
 - There are also apprehensions if these sanctions are going to **constrain India's ability to import Russian oil**, which hasn't been the case as of now.
- **Russia closed its airspace to 36 countries.** Also, many shipping planes will now need to take a different route, **adding to fuel costs.**
 - Russia and Ukraine both are **large exporters of wheat, corn, and minerals** such as nickel, palladium, and aluminium, which are essential for manufacturing industries, including mobiles and automobiles.
 - A fall in the supply of these items from Russia and Ukraine will lead to **further price pressure.**

What has been India's Stand on Russia - Ukraine Conflict?

- Initially, India **abstained on a US-sponsored United Nations Security Council (UNSC)** resolution that deplores in the strongest terms Russia's aggression against Ukraine.
- India **again abstained from voting at the UNSC** on the **Russia drafted resolution** on the Humanitarian situation in Ukraine which demanded that calling for a negotiated ceasefire for enabling safe, rapid, voluntary and unhindered evacuation of civilians.
 - Unlike during the past abstentions relating to Ukraine, it was the first time that India **sided with the West** in this conflict (**even if by an abstention**).
- India **abstained on a vote at the UN Human Rights Council** in Geneva. The Council moved the resolution to set up an international commission of enquiry into **Russia's actions in Ukraine.**

- India, China and 33 other nations recently **abstained from a United Nations General Assembly resolution** that censured Russia for its military actions in Ukraine.
 - Other abstaining nations include Pakistan, Bangladesh and Sri Lanka, besides Central Asian and some African countries.
- India also **abstained from the International Atomic Energy Agency (IAEA)** resolution that was related to safety at four nuclear power stations and a number of nuclear waste sites including **Chernobyl**, as the Russians seized control of them.

What is the Strategic Challenge for India?

- Amid a series of sanctions imposed on Russia, its isolation from the West, collapse of the Ruble and the dire state of the Russian economy, what must worry India is the fact that **Russia will now become increasingly dependent on Chinese support to defend its policies.**
 - Russia has sought Chinese help to bail out the economy, hit by sanctions and cancelled oil purchases.
 - According to the US, it has also sought military hardware from China.
- India's real strategic challenge is surfacing in the **Indo-Pacific with the rise of China**, as Beijing has consistently sought to expand its zone of military, economic and political influence through the **Belt and Road Initiative (BRI).**
- Though India would like the U.S. to continue to focus on China, it is **not possible for Washington to ignore Russia's aggression** along **NATO's** periphery.

Why India needs to Maintain a Balanced Approach?

- For India, staying non-aligned represents the least geopolitical risk -**
- The cost of joining the West with full gusto risks alienating India's most important military partner, **Russia, which accounts for 62% of India's arms imports** since 2010.
 - Staying overtly silent on Russia also risks **jeopardising India's links with the US and Quad**, which seek a rules-based order in the Indo-Pacific.
- Alliance with Russia:**
- In the Cold War period, India saw the Soviet Union as a **trustworthy partner against Western hegemony.**
 - Following the disintegration of the USSR, India joined Russia and China (and Brazil and South Africa) **against the unipolarity of the U.S.**

- India maintained its partnership with Russia, an important arms supplier.
 - In present times, strong India-Russia ties have also **ensured that Delhi has not been entirely left out of the conversation on Afghanistan**, and in **Central Asia**, while also providing some leverage with the US.
- Alliance with the West:**
- The **US, the EU, and UK are all vital partners**, and India's relations with each of them, and the Western world in general, go far beyond the sum of their parts.
 - Everyone in and around the government must think seriously about India's relations with Russia as it has drifted much closer to China.
 - In the halls of global diplomacy, nations have interests which go beyond friendships.
 - While China holds its grip over Russia, the **U.S. is most likely to emerge as the country that will bolster India's future as a great power.**

India must make it clear to coercing countries that their **"with us or against us" formulations are hardly constructive.**

What is the Need of the Hour for India?

- **Self-Reliance in Arms:** In order to deal with the **Chinese expansionism**, adventurism on its own borders, and a South Asian region suddenly **vacated by America's military presence in Afghanistan**, **India needs both the US and Russia** to fend off a Chinese strategic and geo-economic threat in Asia.
 - However, it is important to realise that when there is conflict between the two major powers, they have to fight their battles alone. Hence, **self-reliance is the key.**
 - Only when **India attains true "atmanirbharta" in arms**, it will be able to look the world in the eye.
- **Balanced Approach:** If the **India-Russia partnership is critical on land** in Asia, the **QUAD** is imperative when it comes to countering Chinese maritime expansionism in the **Indian Ocean region.**
 - The imperative to counter China remains a cornerstone of Indian foreign policy, everything-including Delhi's position on Russian action in Ukraine- flows from that.
- **Realising West's Interests in India:** Within India's foreign policy establishment, there is ongoing debate on what India might gain or lose by its neutrality and the consequences of siding with the West.
 - There is also the thinking that the **West cannot afford to cut away from India at this point**, as it **needs India's markets**, and India's heft as a democracy as it seeks partners to contain China.



Self-Reliance in Food

This editorial is based on "Budgeting for a well-fed, self-reliant India" which was published in The Indian Express on 28/03/2022. It talks about the need for India to be self-reliant not just in missiles (defence equipment) but also in meals (food).

Tags: Agriculture, GS Paper - 3, Agricultural Marketing, Agricultural Pricing, Agricultural Resources, Government Policies & Interventions

In the backdrop of the ongoing war between Russia and Ukraine, Prime Minister has emphasised the need for India to be Atmanirbhar (self-reliant) in defence equipment. However, we need to be **self-reliant not just in missiles (defence equipment) but also in meals (food).**

As the old proverb goes, no army can march on an empty stomach. "Jai jawan, jai kisan" (salutation to the soldier and salutation to the farmer) was the slogan given by Late Lal Bahadur Shastri, and Atal Bihari Vajpayee added "jai vigyan" (salutation to the scientist) to that. Focusing on science and scientists is critical for attaining self-reliance in meals to missiles.

What is the Meaning of India

Becoming Self-Reliant in Food ?

- Self-reliance in food does not mean that we have to produce everything ourselves at home, irrespective of the cost. Its true meaning lies in specialising in commodities in which we have a **comparative advantage**, exporting them, and importing those in which we don't have a significant comparative advantage.
- This is not an either/or situation — it is about the degree of self-reliance a country wants to have following the principles of comparative advantage. If some protection is needed for new areas to develop (infant industry argument), that may be okay. But one should not aspire to be self-sufficient behind high tariff walls. That would only breed inefficient and high-cost structures that cannot compete globally.
- **What is it that gives a country an edge over others in attaining comparative advantage?**
 - In the area of agriculture and food, researches reveal that it is the efforts and resources that a country puts in agri-research and development (agri-R&D), its extension from lab to land, investing in irrigation to boost yields, efficiency in marketing and processing the produce, and taking it from farmers' fields to consumers' table or export destinations.

What are the Challenges to Self-Reliance in Food?

- **High Dependence on Edible Oil Import:** India has achieved self-reliance in agriculture by producing a reasonably large amount of food, and also being a net exporter of agri-produce. The high dependence on imports for edible oils — hovering around 55 to 60% of consumption — however, remains a concern. India's potential to emerge as a significant exporter of agri-produce remains untapped.
- **Low-Value Exports:** Further, most processing in India can be classified as primary processing, which has lower value-addition compared to secondary processing.
 - Due to this, despite India being one of the largest producers of agricultural commodities in the world, agricultural exports as a share of GDP are fairly low in India relative to the rest of the world.
 - The same proportion is around 4% for Brazil, 7% for Argentina, 9% for Thailand, while for India it is just 2%.
- **Lack of Effective Decentralised:** The real promise of a decentralised system — of experimentation, of learning from each other, and the adoption of best-practices and policies — has largely failed to materialise.
 - Instead, Indian agriculture since Independence has remained highly fragmented.
- **Low-Value Exports:** Further, most processing in India can be classified as primary processing, which has lower value-addition compared to secondary processing.
 - Due to this, despite India being one of the largest producers of agricultural commodities in the world, agricultural exports as a share of GDP are fairly low in India relative to the rest of the world.
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What is to be Done to Make India Self-reliant in Food?

- **Focus on agri-R&D:** There is ample literature to show that agri-R&D raises total factor productivity and makes agriculture more competitive globally. Sometimes, the basic R&D to develop “miracle seeds” is done outside the country, but those seeds can be imported and adapted to local conditions with in-country R&D and scaled up for adoption at farmers' fields. The **Green Revolution** was such a case.
 - The **Economic Survey (2021-22)** explicitly highlighted the correlation between spending on agri-R&D and

agricultural growth. Many research also shows that every rupee spent on agri-R&D yields much better returns (11.2), compared to returns on every rupee spent on say fertiliser subsidy (0.88), power subsidy (0.79), etc.

- Yet, the competitive populism in Indian democracy leads to suboptimal choices in the allocation of scarce resources. More on safety nets like food subsidy and **MGNREGA** or on income support and subsidies for farmers, but very little for agri-R&D
- **Increase the Investment in Agri Sector:** If India wants to be fully self-reliant in food, it is generally agreed that it **must invest at least 1% of its agri-GDP in agri-R&D**. But the budgets of both the Union government and the states put together reveal that this expenditure on agri-R&D and education hovers around 0.6% of agri-GDP, with a roughly equal share of the Centre and all states put together.
 - This is way below the minimum cut off point of 1% and government policy must urgently work towards raising this substantially.
- **Private Sector Involvement:** In addition to this, the government should come out with policies that incentivise private companies to expand their R&D programmes and invest more financial resources on development projects, which have the potential to overcome the challenges of the current agrarian setup of India.
 - There are some global and local companies like Bayer, Syngenta, MAHYCO, Jain Irrigation, and Mahindra and Mahindra that spend a considerable amount of their turnover on R&D programmes and developing high-tech inputs.
 - The USP of these companies is that they develop technology that increases productivity while addressing the current challenges of limited net sown area, depleting water resources, vulnerability to climate change, and the need to produce nutrient-rich food.
- India's budget allocations in the agri-food space should thrive on **creating “more from less”**. The financing should focus on altering the current atmosphere of a high incidence of hunger and malnutrition, keep a check on the mismanagement of natural resources and mitigate climate change issues.
- There is a need to work on **building long-term sustainable solutions** that have an aggressive approach to implementing relevant policies and developing new ones.



BIMSTEC from an Ecological Point of View

This editorial is based on “A Subregional Grouping That Must Get Back On Course” which was published in The Hindu on 29/03/2022. It talks about the ecological concerns arising in the Bay of Bengal region.

Tags: International Relations, GS Paper 2, India and its Neighbourhood, Groupings & Agreements Involving India and/or Affecting India's Interests, Regional Groupings, Important International Institutions, International Treaties & Agreements

For Prelims: BIMSTEC, SAARC, Bangkok Declaration, Bay of Bengal Maritime Dialogue (BOBMD), Sustainable Fishing, Blue Economy, Illegal - Unreported - Unregulated (IUU) Fishing.

For Mains: India's Relations with BIMSTEC countries, Regional and Global Groupings - BIMSTEC, Environmental and Ecological Concerns in Bay of Bengal Region, Challenges of Fishing in the Region - Unsustainable Fishing, IUU Fishing, Fishermen's Issues.

The **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** is a grouping of seven countries that emerged as the “preferred platform” for regional cooperation in **South Asia** after the **South Asian Association of Regional Cooperation (SAARC)** failed to ensure mutual cooperation among the member states.

BIMSTEC connects the ecologies of the **Great Himalayas and the Bay of Bengal**. However, from the past years, the BIMSTEC countries are suffering from several climate and ecology related challenges which, due to lack of coordination among the members, are constantly going unaddressed.

The **upcoming summit is an opportunity for BIMSTEC** leaders to go beyond generalised statements and **take concrete steps to address critical challenges** confronting the region.

What is BIMSTEC?

- BIMSTEC is a **sub-regional organisation** that came into being in **1997** through the **Bangkok Declaration**.
- It includes the littoral states of **India, Bangladesh, Sri Lanka, Myanmar** (Thailand is a member too) and the land-locked states of **Nepal and Bhutan**.
 - Initially, it was formed with four Member States with the acronym **'BIST-EC'** (Bangladesh, India, Sri-Lanka and Thailand Economic Cooperation) and became **'BIMST-EC'** after the inclusion of Myanmar.
- BIMSTEC has identified 14 pillars for special focus - trade and investment, transport and communication,

energy, tourism, technology, **fisheries**, agriculture, public health, poverty alleviation, **counter terrorism and transnational crime, environment and disaster management**, people-to-people contact, cultural cooperation and **climate change**.

What is BOBMD?

- A **Bay of Bengal Maritime Dialogue (BOBMD)** organised recently by the **Centre for Humanitarian Dialogue** and the **Pathfinder Foundation** brought together government officials, maritime experts, and representatives of prominent think tanks from Sri Lanka, India, Bangladesh, Myanmar, Thailand and Indonesia.
- Participants called for stepped up efforts in areas such as;
 - Environmental protection
 - Scientific research
 - Curtailing **Illegal, Unreported, and Unregulated (IUU) fishing**; and
 - The development of SOPs that could **govern interaction between fishing vessels of one country** with maritime law enforcement agencies of another.

What are the Key Issues Highlighted by BOBMD?

- **Climate Concerns:** As per BOBMD, the Bay of Bengal is home to a large network of mangrove forests of around 15,792 square kilometres and coral reefs of around 8,471 sq.km.
 - The two, however, are receding; the **annual loss of mangrove areas** is estimated at **0.4% to 1.7% and coral reefs at 0.7%**.
 - It is predicted that the **sea level will increase 0.5 metres in the next 50 years**.
 - Moreover, there have been **13 cyclonic storms in the last five years**.
- **Challenges to Fishing:** The Bay is an important source of natural resources for a coastal population of approximately 185 million people.
 - Around 4,15,000 fishing boats operate in the Bay and it is estimated that **33% of fish stocks are fished unsustainably**
 - According to the **Food and Agriculture Organisation (FAO)**, the Bay of Bengal is one of **IUU fishing hotspots in the Asia-Pacific**.
- **Threats to Marine Lives:** Other pressing challenges include:
 - Emergence of a **dead zone with zero oxygen** where no fish survive

- **Leaching of plastic** from rivers as well as the Indian Ocean
- **Destruction of natural protection against floods** such as mangroves
- Sea erosion
- Growing **population pressure and industrial growth** in the coastal areas and consequently, huge quantities of **untreated waste flow**.
- **Security Concerns:** Threats such as **terrorism, piracy** and tensions between countries caused by the **arrests of fishermen** who cross maritime boundaries are additional problems.
 - There also exists the problem of **fishermen crossing into the territorial waters** of neighbouring countries affecting India, Sri Lanka, Bangladesh and Myanmar (and also Pakistan on the west coast).
- **Limited Cooperation Among Countries:** At present, there is limited cooperation among countries of the region in **marine research**.
 - Most BIMSTEC countries have premier institutions and excellent scientists but their **interaction with the West is far more than within the region**.
 - The use of modern technology and improved fishing practices can go a long way in restoring the health of the Bay.

What Can Be The Way Forward?

- **Harnessing the Blue Economy Potential:** The **blue economy** potential of the Bay of Bengal is huge; there are many opportunities to **develop maritime trade, shipping, aquaculture and tourism** which, however, require coordinated and **concerted action by governments, scientists and other experts**.
 - The upcoming BIMSTEC Summit must create a new regional mechanism for coordinated activities on maritime issues of a transboundary nature.
 - It must initiate urgent measures to **strengthen fisheries management**, promote sustainable fishing methods, **establish protected areas** and develop frameworks to prevent and **manage - pollution, agricultural waste as well as oil spills**.
- **Protection of Marine Environment:** **Marine environmental protection must become a priority area** for cooperation in the Bay of Bengal. Enforcement must be strengthened and information shared on best practices.
 - **Regional protocols** need to be developed and **guidelines & standards on pollution control** be established.
 - There is a need for **greater scientific research on the impact of climate change** in general and on fisheries in particular.

- Decision-making for such issues must be based on science and reliable data, information and tools.
- **Sustainable Fishing:** Home-grown solutions need to be created based on capabilities of local institutions and for **mutual learning through regional success stories**.
 - There is also a need to create **regional frameworks for data collection**. **Participatory approaches** must be evolved for near-real-time stock assessment and the creation of an **regional open fisheries data alliance**.
 - The **Bay of Bengal Programme (BOBP)**, an inter-governmental organisation based in Chennai, is one similar initiative that is working to promote sustainable fishing.
 - A **Bay Of Bengal Large Marine Ecosystem (BOBLME)** project is also being launched by the **FAO** with funding from the Global Environmental Facility (GEF) and others.
- **Prohibiting IUU Fishing:** The upcoming BIMSTEC Summit shall mandate officials to come up with measures to curtail unsustainable as well as IUU fishing. **IUU fishing can be restricted by:**
 - Setting up an **international vessel tracking system** and making it mandatory for vessels to be **equipped with automatic identification system (AIS) trackers**.
 - Establishing a **regional fishing vessel registry system** and publishing **vessel licence lists** to help identify illegal vessels.
 - Increasing **monitoring, control and surveillance** in IUU fishing hotspots
 - Establishing **regional guidelines** on how to deter and prevent IUU practices.
 - Improving the implementation of **joint regional patrols**, and regional fishing moratoriums and **outreach programmes targeted at fisherfolk**.
 - Also, the laws and policies in littoral states must be harmonised and the **humanitarian treatment of fishermen** must be ensured during any encounter with maritime law enforcement agencies.

Conclusion

The challenges that confront the Bay of Bengal region brook no more delay. **BIMSTEC must arise, awake and act before it is too late**. The summit must set in process regular meetings of officials, supported by scientists and experts, to **tackle illegal and unsustainable fishing** as well as prevent the further environmental degradation of the Bay of Bengal.



A Social Contract for Data

This editorial is based on “*Forging a Social Contract for Data*” which was published in *The Hindu* on 26/03/2022. It talks about the need for a new social contract for data to bring to fruition the visions of the draft India Data Accessibility and Use Policy.

Tags: Governance, GS Paper 2, Government Policies & Interventions, GS Paper 3, Cyber Security, IT & Computers

The Ministry of Electronics and Information Technology (MeitY)'s **draft India Data Accessibility and Use Policy 2022** is a continuation of earlier efforts to encourage better utilisation of large-scale data collected by the government machinery.

However, in the absence of adequate public safeguards provided through a comprehensive data protection framework, the policy suffers from several setbacks.

A **new social contract for data** is the need of the hour whereby - the **social commons of data are inappropriate** commons that belong to all citizens; the government must ensure that **data use is promoted for public good only**; and **democratisation of data value** is ensured through accountable institutional mechanisms for data governance.

What is the Draft Data Accessibility and Use Policy?

- **Aim:** The **Draft Policy** aims at providing a **robust scaffolding for harnessing public sector data** for informed decision-making, citizen-centric delivery of public services, and economy-wide digital innovation.
 - It seeks to harness **data-based intelligence for governance and economic development**.
- **Overcoming the Bottlenecks:** It seeks to maximise **access to and use of quality non-personal data (NPD)** available with the public sector, overcoming a number of historical bottlenecks:
 - **Slow progress on the OGD (Open Government Data) platform**
 - **Fragmentation of data sets** into departmental silos
 - **Absence of data anonymization tools**
 - **Insufficient attention** to the development of data stewardship models
 - **Lack of data quality standards**, licensing, and valuation frameworks to support data-sharing
- **Need:** Such policies exist in many countries and an efficient use of such data will go a long way in improving services.

- Despite the demands of academia and other stakeholders, **large volumes of such data have remained unutilized**.

What are the Setbacks?

- **Unclear Mechanisms:** This **GovTech 3.0** approach (of unlocking the valuable resource of public sector - data) does **upgrade the OGD vision** of the **National Data Sharing and Accessibility Policy (NDSAP), 2012**.
 - However, it **does not say much on the norms, rules, and mechanisms** to bring to fruition its vision of data-supported social transformation.
- **Data Misuse/Privacy Concerns:** The core objective of the policy is ensuring greater citizen awareness, participation, and engagement with open data.
 - This poses **ethical and procedural dilemmas** to balance privacy/risk of data misuse with **transparency-accountability considerations**.
 - The unfinished task of the NDSAP in **bringing coherence** between restrictions on the availability of sensitive personal information in the public domain and India's **Right to Information (RTI) Act**, therefore, **has been lost sight of**.
- **Adherence to Anonymization - Insufficient:** The Draft Policy highlights that approved data inventories will be federated into a government-wide, searchable database.
 - Now, even though the draft policy envisages adherence to **anonymization standards**, it is **not a sufficient safeguard against privacy risks**.
 - Even in the case of anonymised citizen data sets (that is no longer personal data), **downstream processing can pose serious risks to group privacy**.
 - Considering that India has **no personal data protection law**, the **convergent data processing** proposed through the Draft Policy **becomes especially problematic**.
- **Negligence of Trusteeship Paradigm:** Notwithstanding the recommendations of the **2020 Report of the MeitY Committee of Experts (CoE) on Non-Personal Data Governance** which advised shifting to the trusteeship paradigm, the draft policy adheres to the NDSAP paradigm of treating **government agencies as 'owners' of the data sets** they have collected and compiled.
 - The lack of a data trusteeship framework **gives government agencies unilateral privileges** to determine the terms of data licensing.

- They are also empowered to classify their data holdings into “open, restricted or non-shareable” **without any mechanisms for public consultation and citizen accountability.**

What Can be the Way Forward?

- **Trusteeship Approach:** Taking on board a trusteeship-based approach, the proposed Draft Policy must **pay attention to data quality**, and ensure that licensing frameworks and any associated costs **do not pose an impediment to data accessibility** for non-commercial purposes.
 - The policy must also focus on **protecting public sector data from being captured by large firms**, especially transnational Big Tech, for economic innovation.
- **Common Data Spaces and Voluntary Data Sharing:** In the current context, where the most valuable data resources are held by the private sector, it is increasingly evident to policymakers that **socioeconomic innovation** depends on the state’s ability to **catalyse wide-ranging data-sharing from both public and private sector actors across various sectors.**
 - The **European Union**, for instance, has focused on the **creation of common, interoperable data spaces** to encourage **voluntary data-sharing** in specific domains such as health, energy and agriculture.
 - These common data spaces provide the governance framework for **secure and trust-based access and use**, in full **compliance with personal data protection**, and **updated consumer protection and competition laws.**
- **Recommendation of MeitY’s CoE Report:** The Report on Non-Personal Data Governance (2020) proposed the **data stewardship model for high-value data sets** in cases of mandatory public access **in exceptions such as public emergencies.**
 - The model proposes the **creation of a Non-Personal Data Authority** or NPDA to which a government/not-for-profit organisation may **request for creating a sector-specific high-value data set**, demonstrating the specific public interest purpose.
 - The radical idea of high-value datasets as a social knowledge commons over which **private data collectors have no de facto claim** is vital to balance public use and private innovation.



India's Response to Global Food Crisis

This editorial is based on “India’s food response as ‘Vasudhaiva Kutumbakam’” which was published in The Hindu on 31/03/2022. It talks about how India, in line with its vision of Vasudhaiva Kutumbakam, has assisted in managing the global food crisis.

Tags: International Relations, GS Paper 2, Government Policies & Interventions, Health, Issues Relating to Poverty & Hunger, Important International Institutions, Effect of Policies & Politics of Countries on India’s Interests, GS Paper 3, Food Security

Global hunger is on the rise, driven by the climate crisis, the Covid-19 pandemic shocks, conflicts, poverty, and inequality. **Millions are living in hunger** and many more do not have access to adequate food.

Amid the global food crisis, **India has emerged as the friend in need** for a number of food-insecure countries fulfilling its **notion of Vasudhaiva Kutumbakam**. In the past decades, India has **transformed from requiring assistance to providing aid** to several countries.

What is the Global Hunger Scenario?

- In 2019, **650 million people around the world** suffered from **chronic hunger** — 43 million more than in 2014.
 - Since the onset of the pandemic, the number of people on the brink of starvation has doubled from 135 million people (pre-Covid) a year ago to 270 million.
- **More people are living in hunger than in 2015** when the member states of the **United Nations**, including India, agreed to **Sustainable Development Goals (SDGs)** that provide a shared blueprint for peace and prosperity for people and the planet, now and into the future.
- The global burden of **malnutrition** remains enormous, with almost **150 million children stunted**, nearly **50 million wasted**, and every other child (and two billion adults) suffering from **micronutrient deficiencies.**
 - The number of people in need of urgent food assistance — estimated at 270 million in 2021 — will grow significantly due to the **crisis in Afghanistan** and the **ongoing war in Ukraine.**

What is India’s Concept of ‘Vasudhaiva Kutumbakam’?

- The concept of *Vasudhaiva Kutumbakam* (meaning ‘**Earth is One Family**’) from India’s traditional philosophical outlook that has gained huge relevance

over the past 75 years since being cited in the **United Nations General Assembly (UNGA)** to underline the collective nature of the crises and a matching response that is needed.

- The concept describes how **different nations form one collective** and cannot escape the **common connection of concern and humanity**.
- In his 2014 UNGA address, the Prime Minister of India described the country's outlook towards the world as one family underlining its relevance not just for **global peace, cooperation, environment protection** but also for **humanitarian response including rising global hunger** and leaving no one behind.

How India has Fulfilled this Vision in terms of Food Crisis?

- **India's recent and ongoing humanitarian food assistance to the people of Afghanistan**, through the **UN World Food Programme (UN WFP)** is an example of its commitment and commendable steps towards humanitarian crises.
 - India, as per its commitment, is sending **50,000 Metric Tonnes (MT) of food** assistance in the form of **wheat** to Afghanistan, through Pakistan.
 - Considering that half the population of Afghanistan (22.8 million people) is projected to be acutely food insecure in 2022 including 8.7 million at risk of famine-like conditions, this assistance was extremely important.
- In the past two years, India has also **provided aid to several countries in Africa and the Middle East/ West Asia** to overcome natural calamities and the Covid-19 pandemic.

Where does India Stand in terms of Food Sufficiency?

- Since the **Green Revolution**, India has made enormous progress in food production with an inspiring journey towards **self-sufficiency in food production**.
 - In 2020, India produced over 300 million tonnes of cereals and had built up a food stock of 100 million tonnes.
 - In 2021, India exported a record 20 million tonnes of rice and wheat.
- The **UN Food Systems Summit 2021** also highlighted India's long journey from a country with chronic food shortage to being a surplus food producer which offers several **valuable lessons for other developing countries** in Asia, Africa, and Latin America.

- The period between 1991 to 2015, saw the **diversification of agriculture beyond field crops** and brought greater focus on the **horticulture, dairy, animal husbandry, and fishery sectors**.

How India Envisaged to Ensure Food Security within the Country?

- One of India's greatest contributions to equity in food is its **National Food Security Act (NFSA) 2013** that anchors the **Targeted Public Distribution System (TPDS)**, the **Mid-Day meals (MDM)**, and the **Integrated Child Development Services (ICDS)**.
 - Today, India's food safety nets collectively reach over a billion people.
- Food safety nets and inclusion are linked with public procurement and buffer stock policy.
 - **TPDS** with a robust stock of food grains became a **lifeline for the marginalised and vulnerable families** during the global food crisis of 2008-2012, and more recently during the Covid-19 pandemic fallout.
- The **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** introduced in 2020 to provide **relief to 800 million beneficiaries covered under the NFSA** from Covid-19 induced economic hardships has been extended by another six months up to September 2022.

What about India's own Hunger Scenario?

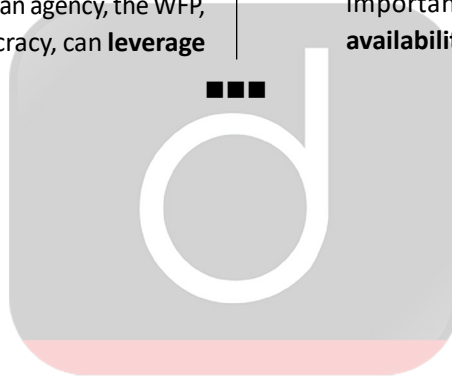
- **Food and Agriculture Report, 2018** stated that **India houses 195.9 million** of the 821 million undernourished people in the world, accounting for approximately **24% of the world's hungry**.
 - Prevalence of **undernourishment** in India is 14.8%, **higher than both the global and Asian average**.
- It had been reported in 2017 by the **National Health Survey** that approximately **19 crore people** in the country were **compelled to sleep on an empty stomach every night**.
- Moreover, the most alarming figure revealed is that approximately **4500 children die every day under the age of five years** in the country **due to hunger and malnutrition**, amounting to over three lakh deaths every year, owing to hunger, of children alone.
- India slipped to **101st position** in the **Global Hunger Index (GHI) 2021** of 116 countries, from its 2020 position of **94th**.

What Can Be the Way Forward?

- **Towards Global Peace: Humanitarian food assistance** and partnerships that help create robust **policy innovations by way of food safety nets** and resilient livelihoods, will contribute towards global peace.
 - India's support to its neighbours and other countries that struggle with food emergencies and food insecurity must continue for its growth trajectory as well as to maintain good ties with other countries.
- **India - WFP Partnership:** India has made major progress in addressing hunger and malnutrition, but a lot needs to be done to deliver the **goal of Zero Hunger** and **food equity globally**.
 - For over five decades the WFP has been partnering with India and seen its transition from being a recipient to a donor.
 - As the world's largest humanitarian agency, the WFP, and India, as the largest democracy, can **leverage**

this partnership to contribute to addressing food emergencies and strengthening humanitarian response, embodying the **spirit of 'leave no one behind'** and **Vasudhaiva Kutumbakam**.

- **Eradicating Hunger from the Country:** Although India's efforts in assisting other countries are commendable, it is also important to take a look at India's own problems of hunger.
 - The government needs to **ensure early disbursement of funds and optimum utilisation** of funds in schemes linked to nutrition.
 - The sharp increase in food insecurity points to an urgent need for the government to **establish systems for regular monitoring of the food security situation** in the country.
 - Also, the proper **implementation of schemes regarding health, water, sanitation** etc. is equally important as **nutrition goes beyond just the availability of food**.



Drishti Mains Questions

1. Discuss the opportunities presented by entering into the virtual world of Metaverse and highlight the key issues associated with Metaverse.
2. 'The India-related findings of the IPCC's Sixth Assessment Report are sobering. The Himalayan ecosystem and coastal zones are the major climate change hotspots in India'. Discuss.
3. Discuss the concerns associated with the spread of antimicrobial resistance and suggest measures to prevent it.
4. Discuss the significance of the Green Hydrogen Policy in achieving India's target of net zero emissions by 2070.
5. "India is making determined strides towards realising the Sustainable Development Goals, however, the target is far from being achieved unless the poor working conditions of the rag-pickers in India is addressed". Comment.
6. Discuss the key challenges faced by the students in India to pursue higher education within the country and suggest the steps that can be taken to develop a better ecosystem for higher education within India.
7. "Increasing Female LFPR in India is crucial not just to achieve economic growth but also to promote inclusive growth and achieve the Sustainable Development Goals". Comment.
8. "Taxation is one of the most cost-effective measures to reduce demand for tobacco products". Discuss.
9. In the light of the Ukraine crisis and Indian Medical students' miserable condition, discuss the need to reform medical education in India.
10. Discuss why the Old Age Homes (OAHs) for the elderly are becoming a norm and what measures can be taken to improve the conditions of these care homes?
11. "Any data accessibility-and-use policy is incomplete without adequate public safeguards provided through a comprehensive data protection framework". Analyse this statement in the context of Draft India Data Accessibility and Use Policy 2022.
12. "India is blessed with the rare, and very important, nuclear fuel of the future. Complete phasing out of nuclear power generation for the fear of nuclear accident would be a wrong move". Discuss.
13. The government's call for atma nirbharta (self-reliance) has acquired a new salience in recent years. Discuss the statement in light of the recent international developments.
14. "The recent missile misfiring incident casts a shadow on the standards of the maintenance, and handling of high-technology weapon systems in India. But, more pertinently, it highlights the sorry state of bilateral mechanisms for crisis management between the two nuclear adversaries". Comment.
15. "The frequent use of the US dollar by the USA as a potential weapon for achieving its foreign policy objectives will no doubt accelerate the process of de-dollarisation". Comment.
16. "The call for a creation of a circular economy is significant since an efficient waste management ecosystem would be necessary to manage the enormous waste generated by renewable energy projects in the coming decades". Discuss.
17. Bangladesh overtook India in textile exports in the past decade as Indian labour costs resulted in products becoming 20% more expensive. Discuss the challenges and way forward for the Indian apparel sector in order to compete on a global level.
18. Discuss why groundwater is an invisible resource available to us and suggest measures to address the issues of groundwater depletion.

Drishti Mains Questions

19. “Reducing the health impacts of extreme heat is an urgent priority and should include immediate changes to infrastructure, urban environment, and individual behaviour to prevent heat-related deaths”. Discuss.
20. Discuss the key issues associated with the concept of Foundational Literacy and Numeracy as envisaged under National Education Policy.
21. Discuss how the Russia-Ukraine conflict has impacted global geopolitics and what India shall do to preserve its interests.
22. There is a need to be self-reliant not just in missiles but also in meals. Discuss.
23. Environmental and ecological concerns arising in the Bay of Bengal region call for the BIMSTEC to adopt a more serious and regular engagement of the member countries. Comment.
24. “The government must ensure that data use is promoted for public good only”. Analyse the statements in the context of Draft India Data Accessibility and Use Policy 2022.
25. Discuss how India, in line with its vision of Vasudhaiva Kutumbakam, has assisted in managing the global food crisis.

