Monthly Editorial Consolidation

1st September to 30th September 2022

Content

Our Heritage, Our Responsibility

This editorial is based on "CAG report on abysmal state of heritage conservation" which was published in Indian Express on 01/09/2022. It talks about the status of Heritage Conservation in India and related issues.

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

India has one of the largest geo-political expanses and one of the **greatest volume and diversity in heritage**. This vast heritage repository of India is recognized globally as a **significant part of its unique cultural identity.**

Indian Heritage is valuable and informative in terms of **socio-cultural, socio-political, socio-economical and even technological activities** of a specific society or group of individuals or an individual from the past.

There are 40 **World Heritage Sites in India**, including 32 cultural sites, 7 natural sites, and 1 Mixed site. Also, approximately **3,691 monuments** in the custody of **Archaeological Survey of India (ASI)** are declared as monuments of national importance.

However, a number of heritage structures do not come under any formal system due to which the potential of **India's unsurmountable heritage remains largely untapped.**

What are the Constitutional and Legislative Provisions Related to Indian Heritage?

➢ The **Constitution of India** has divided the jurisdiction over the **monuments, cultural heritage, and archaeological sites** as follows:
  ○ **Union:** Monuments and sites of historical and archaeological significance, as designated by law by Parliament.
  ○ **State:** Ancient and Historical Monuments other than those declared by Parliament to be of national importance.
  ○ **Concurrent:** Both the Union and States have concurrent jurisdiction over archaeological sites and remains other than those declared of national importance by law.
➢ **Directive Principles of State Policy**: **Article 49** puts obligation on the State **to protect every monument or place or object of artistic or historic interest,** declared by or under law made by Parliament to be of **national importance.**
➢ **Fundamental Duty**: **Article 51A of Constitution** states that it shall be the duty of every citizen of India to **value and preserve the rich heritage of our culture.**

➢ **Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act) 1958:** It is an act of the Parliament of India that provides for the **preservation of ancient and historical monuments and archaeological sites** and remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects.

What are the Main Types of Heritage?

➢ **Cultural Heritage**: It includes the **physical**, or tangible cultural heritage, such as artworks. These are generally split into two groups of movable and immovable heritage.
  ○ **Immovable heritage** includes **buildings, historic places and monuments.**
  ○ **Moveable heritage** includes **books, documents, moveable artworks, music** and other artefacts that are considered worthy of preservation for the future.
➢ **Natural Heritage:** It encompasses the countryside and natural environment, including **flora and fauna**.
  ○ **Natural Heritage** can also include cultural landscapes (**natural features that may have cultural attributes).**
➢ **Intangible Heritage**: It consists of **non-physical aspects** of a particular culture, more often maintained by **social customs** during a specific period in history.
  ○ These include **social values and traditions, customs and practices, aesthetic and spiritual beliefs, artistic expression, language** and other aspects of human activity.
  ○ Naturally, **intangible cultural heritage is more difficult to preserve than physical objects.**

How Rich Heritage Influences India's Cultural Identity?

➢ **StoryTellers of India's Glory:** Heritage is the legacy of physical artefacts and intangible attributes of society that are **inherited from past generations, maintained in the present, and preserved for the benefit of future generations.**
  ○ As the **storytellers of India's past,** heritage emerged with **spiritual, religious, social or political significance in the society.**
  ○ Rich heritage and culture is an irreplaceable source of inspiration for its citizens, largely defining **India's global cultural identity.**
➢ **Reflection of Unity in Diversity:** India is a museum of **different types, communities, customs, traditions, religions, cultures, beliefs, languages, castes and social system.**

○ But even after having so much of external diversity, in Indian culture there is **Unity in Diversity.**

➢ **Tolerating Nature:** Indian society gave every culture the opportunity of prospering that is reflected in its **diverse heritage**. It does not try to suppress diversity in favour of uniformity.

➢ **Adaptable to Change:** Indian culture has a **unique property of adjustment.** Indian family, caste, religion and institutions have changed themselves with time along with maintaining their **intangible heritage.**

○ Due to adaptability and coordination of Indian culture, **it's continuity, utility and activity is still present.**

What are the Major UNESCO World Natural Heritage Sites in India?

➢ **Kaziranga National Park:** Home for the rare one-horned rhinoceros,

➢ **Sundarbans**: Largest contiguous mangrove forest in the world.

➢ **Valley of Flowers National Park**: Known for its Endemic alpine flowers

➢ **The Western Ghats**: Famous for its rich biodiversity and Endemism

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What are the Issues Related to Heritage Management in India?

➢ **Lack of Centralised Database for Heritage Sites:** India lacks a complete national level database with state wise distribution of heritage structure.

○ However, **Indian National Trust for Art & Cultural Heritage (INTACH)** has inventoried about 60,000 buildings in around 150 cities which is still only the **tip of the iceberg** as there are **estimated more than 4000 heritage towns and cities in the country.**

➢ **Outdated Mechanism of Excavation and Exploration:** Due to the prevalence of outdated mechanisms, **Geographic Information System** and **Remote Sensing are rarely used in exploration**.

○ Also, local bodies involved in urban heritage projects are often not equipped enough to handle heritage conservation.

➢ **Lack of Centre-State Coordination:** Despite the presence of some of the best conservation and heritage management institutions in India like Indian National Trust for Art & Cultural Heritage (INTACH) , a **multidisciplinary approach to practising heritage conservation is lacking** due to lack of coordination between the **centre and the state.**

➢ **Prevailing Developmental Activities over Heritage Conservation**: In India, many sites with **rich deposits** of **archaeological remains have been destroyed** due to developmental activities.

○ Also, lack of provision to conduct a **Cultural Resource Management** before developmental projects are taken up on the site.

What are the Related International Conventions to which India is Signatory?

➢ Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, 1977

➢ **Convention for the Safeguarding of the Intangible Cultural Heritage, 2005**

➢ Convention on the Protection and Promotion of the Diversity of Cultural Expressions, 2006

➢ **United Nations World Heritage Committee** : India has been elected as a member of the committee for the term 2021-25.

What Should be the Way Forward?

➢ **Creating National Database of Heritage Sites:** By utilising the collaborative effort initiated by **Indian Space Research Organisation (ISRO)** and the **Ministry of Culture**, it is possible to collate all **GIS** and **Non-GIS archaeological databases** into a **Single National Archaeological Database of Heritage Sites of India.**

○ A GIS based centralised database should be mandatory for all exploration and excavation activities.

➢ **Use of Latest Technologies:** ASI adopted the **Excavation Policy in 2015.** There is a need to update this policy keeping in view the changing scenarios with advancement in technology.

○ New technology like **Photogrammetry** & **3D Laser scanning**, **LiDAR** and **Satellite Remote Sensing Surveys** should be used for documentation, surveys, excavation and conservation works.

○ Collaboration with **Foreign Universities for introduction of latest techniques** in exploration and excavations should also be undertaken.

➢ **Value Based and Scientific Approach**: It is essential that a holistic conservation plan through a multidisciplinary team is prepared following a **value based and scientific approach** before undertaking any conservation works.

○ Need for partnerships with various institutions and organisations for **specialised conservation works** is required to fill in the specific **expertise gap in ASI.**

➢ **Integrating Heritage-City Planning**: **Heritage Impact Assessment** of all major infrastructure projects should also be taken into account.

○ Heritage Projects need to be synced with the planning of the city and merge with **typical historic character** in different areas of the city.

➤ **Heritage Tourism and Education:** By promoting **heritage tourism,** India can successfully preserve cultural and historic resources while **boosting local economies** by generating jobs, new businesses and **generating revenue to the governments.**

○ There is a need to **create awareness about the heritage resource** and **spread a quest for heritage preservation** among the local population and the visitors.

➤ **Innovative Measures to Increase Engagement:** Monuments that do not attract a large number of visitors and those which have no associated cultural/ religious sensitivity should be used as **venues for cultural programmes** with the **twin objectives:**

○ Promoting the associated intangible heritage

○ Increasing visitor numbers to such sites.

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INS Vikrant: India's Indigenous Move

This editorial is based on "A welcome addition to the naval quiver" which was published in Hindustan Times on 01/09/2022. It talks about the commissioning of India's first indigenously designed and built aircraft carrier, Vikrant.

Tags: Internal Security, GS Paper- 3, Indigenization of Technology, Security Challenges & their Management in Border Areas

From the first indigenous **warship INS Ajay in 1960**, to the first indigenous frigate **INS Nilgiri** in 1968, the commissioning of the first **indigenously designed and built aircraft carrier, INS Vikrant,** is a significant punctuation in India's pursuit of self-reliance (**Aatmanirbhar Bharat).**

At **45,000 tonnes,** Vikrant is the **largest naval ship to be designed and built in India,** and with this accomplishment, the country joins the band of **nations** that have demonstrated such capability with major countries like **United States (US), the United Kingdom (UK), France, Russia, Italy, and China.**

While the **absorption of indigenisation** has matured, a large gap still exists in the development of **critical technologies, Hi-Tech components, weapons and advanced manufacturing processes.**

It is imperative to identify relevant **demand-side functional domains** and technologies to channel indigenous efforts towards attaining **sustainable self-reliance in cutting-edge defence technologies.**

## What is the Significance of INS Vikrant in India's Maritime Security?

➤ **Vikrant** (which means courageous) is named after **India's first aircraft carrier,** bought from the UK and **commissioned in 1961.**

○ The first INS Vikrant was a major symbol of national pride and played an important role in several military operations including the **1971 Indo-Pak War** before being **decommissioned in 1997.** Now India's first homemade aircraft carrier will carry the name of her illustrious predecessor.

➤ After its induction, the warship will be a key component of the Indian Navy's push to establish itself as a **blue water force,** one with the ability to project its power on distant seas.

○ It is especially important amid **India's bid to be a net security provider in the Indian Ocean region** where it faces China, whose navy is focused on aircraft carriers and has already inducted two vessels.

➤ With the commissioning of **INS Vikrant,** India will have two operational aircraft carriers (the other one is **INS Vikramaditya**) , which will bolster the maritime security of the nation.

What are the Other Aircraft Carriers Across the World?

➤ USA: USS Gerald R Ford Class

➤ China: Fujian

➤ United Kingdom: Queen Elizabeth Class

➤ Russia: Admiral Kuznetsov

➤ France: Charles De Gaulle

➤ Italy: Cavour

What are the Challenges of Indigenisation for Indian Navy?

➤ **Dependence on Import For Subsystems and Components**: Any warship has three components, from design to final operational induction (FLOAT, MOVE, FIGHT).

○ Indian Navy has been able to achieve abou**t 90% indigenisation in the 'FLOAT' category**, followed by about **60% in 'MOVE' category** depending upon the type of propulsion.

○ However, **in the 'FIGHT' category** we have achieved **only about 30% indigenisation. Imports make up the remainder.**
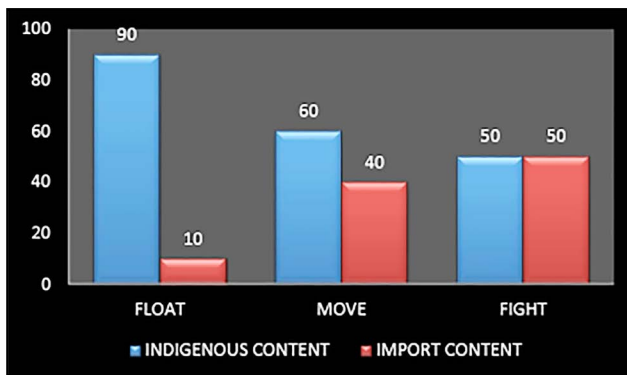
➢ **Growing Chinese Influence in the Indian Ocean:** Building on its antipiracy missions, **China** has emerged as a strong partner for the islands and littoral countries of the Indian Ocean including its **recent vessel deployment** in **Hambantota Port, Sri Lanka.**

➢ **Cost and Time Overruns:** The Navy suffers from cost and time overruns throughout most production projects, for example, **INS Vikramaditya** was inducted into service more than 10 years after it was purchased.

➢ **Outdated Submarines:** A submarine fleet is considered indispensable to support the Navy's aircraft carriers, among other duties.

  ○ Currently, the **Navy employs 15 conventional submarines**, each of which requires **breaking surfaces to charge its batteries**, making them **prone to detection** every time they are launched.

What are the Related Initiatives Towards Expanding India's Defence Infrastructure?

➢ **Development cum Production Partner Initiative**

➢ **Defence India Startup Challenge**

➢ **SRIJAN Portal**

➢ Increased the **Foreign Direct Investment (FDI)** limit from 49% to 74%

➢ **Innovations for Defence Excellence (iDEX)**

➢ **Positive Indigenisation List(Defence Procurement Policy)**

➢ **Project 75I**

What Should be the Way Forward?

➢ **Technological Advancement:** Development of core military technologies indigenously will significantly enhance naval capabilities.

  ○ Although the Indian Navy possesses design capabilities and to some extent the production base, **considerable performance enhancements are required** like:

    ● **Unmanned Underwater Vehicles**

    ● **Multi-function Radars**

    ● **Bio-Technical Weapons**

    ● **Bio-Fuels** for Ships and Aircraft

  ● Enhancing Underwater Domain Awareness (UDA) by the use of **Artificial Intelligence/ Machine Learning.**

➢ **Collaborative Approach Towards Self Reliance:** The entire industrial might of the country, whether it is the public sector, the **Defence Public Sector Units (DPSUs),** the large private industries or **Medium, Small and Micro Enterprises (MSMEs), needs to partner** to achieve the goal of self reliance of the **Indian Navy.**

  ○ Aside from providing technical expertise and sharing their extensive manufacturing experience, they should also be **considered as equal stakeholders in the development** of world-class defence infrastructure to serve the needs of Indian Navy's **in order to make the concept of Self Reliance and proposed indigenous capability a reality.**

➢ **Combat Readiness:** Commitment to self-reliance through indigenous development, is a subject of the larger goal of **combat readiness.**

  ○ To **remain combat-ready until indigenous equipment is available,** we must continue the acquisition programme to meet our current operational needs.

➢ **Tapping the World Defence Market:** There is also a need to give adequate attention to the promotion of exports of **Indian Defence products.**

  ○ Export authorisation procedures should be **simplified and streamlined through an online mechanism** with targeted outreach programmes**.**

➢ **Improving Shipyard Infrastructure**: While we have produced quality warships and aircraft carriers, our **shipyards** need to constantly strive to transform with the **aim to achieve global standards in quality, productivity and build periods**, so that we get the maximum output value and there is no need to look overseas.

➢ **Guarding for a Peaceful Indian Ocean:** With a **multilateral, multipronged approach** to preserve and enhance its strategic interests in the Indian Ocean and to shape the strategic environment, **India is establishing itself as a global maritime power** with firm belief of facing regional challenges and becoming a **guarantor of regional peace and stability.**

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India's Cyber Ecosystem

This editorial is based on "India's cyber infrastructure needs more than patches" which was published in The Hindu on 03/09/2022. It talks about India's Cyber Ecosystem and gaps existing in its cyber infrastructure.

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

If the ancestors of human beings were to wake up today after their long sleep of centuries,

they would be amazed to see the **revolutionised and digitalised world** of contemporary times.

The advent of **digitalisation** has affected every sphere of human lives to a to a considerable extent. However, **information technology** use has been proving to be a **double-edged sword** as **cyber crime** and **threats** have increased dramatically.

As India is moving towards more and more digitalization in all spheres, cyberspace has become a serious concern of **National Security**. According to the **National Crime Records Bureau (NCRB)** data, **India reported 52,974 cases of cybercrime in 2021,** an increase of over **5 per cent from 2020** (50,035 cases) and over **15 per cent from 2019** (44,735 cases).

Though the Government of India has taken steps for ensuring **Cyber-Security** that include the setting up of the **Indian Cyber Crime Coordination Centre (I4C)** under the **Ministry of Home Affairs** to deal with all types of cybercrime, **much needs to be done to plug the infrastructural deficit.**

What is Cyber Security?

➢ **Cyber security** or information technology security are the techniques of **protecting computers, networks, programs and data** from unauthorised access or attacks that are aimed for exploitation of **cyber-physical systems and critical information infrastructure.**

   ○ **Cyber-physical systems** integrate sensing, computation, control and networking into physical objects and infrastructure, connecting them to the Internet and to each other.

      ● **Examples:** Industrial control systems, water systems, **robotics systems,** smart grid etc.

   ○ **Critical Information Infrastructure:** The **Information Technology Act of 2000** defines **Critical Information Infrastructure** as a computer resource, the incapacitation or destruction of which shall have debilitating impact on **national security, economy, public health or safety.**

➢ **Cyber Threats**:

   ○ **Malware**, Viruses, **Trojans**, **Spywares**, **Backdoors**, which allow remote access.

   ○ **DDoS (Distributed Denial of Service)**, which **floods servers** and networks and makes them unusable.

   ○ **DNS (Domain Named System)** poisoning attacks which compromises the DNS and **redirect websites to malicious sites**.

➢ **Major Areas covered in Cyber Security are:**

   ○ **Application Security:** To **protect applications** from threats that can come through flaws in the application design

   ○ **Information Security**: To **protect information** from unauthorised access to avoid identity theft and to protect privacy.

   ○ **Disaster Recovery:** It is a process that includes **performing risk assessment,** establishing priorities, developing recovery strategies in case of a **cyber disaster.**

   ○ **Network Security:** includes activities to protect the **usability, reliability, integrity** and safety of the network.

      ● Effective network security targets a variety of threats and **stops them from entering or spreading on the network.**

**What is Cyber-Crime Vs
Cyber-Terrorism Vs Cyber-War?**

➢ **Cyber-Crimes:** Cyber crime is **unlawful acts wherein the computer is either a tool or a target or both.**

   ○ Cyber crimes can involve **criminal activities** that are traditional in nature, such as **theft, fraud, forgery, defamation and mischief etc.**

➢ **Cyberwars:** **Cyberwar** is an **organised effort by a nation state to conduct operations in cyberspace against foreign nations.**

   ○ Included in this category is the **Internet's use for intelligence** gathering purposes.

➢ **Cyber-Terrorism:** Cyberterrorism is the **convergence of cyberspace and terrorism.**

   ○ It refers to unlawful attacks and threats of attacks against computers, networks and the information stored therein when done to **intimidate or coerce a government or its people** in furtherance of **political or social objectives.**

What are the Challenges Related to Cyber Security in India?

➢ **Profit-Friendly Infrastructure Mindset:** Post **liberalisation**, the **Information Technology (IT), electricity** and **telecom sector** has witnessed large investments by the private sector. However, their inadequate focus on cyber attack preparedness and recovery in regulatory frameworks is a cause of concern.

   ○ All **operators are focused on profits**, and do not want to invest in infrastructure that will not generate profits.

➢ **Absence of Separate Procedural Code:** There is **no separate procedural code** for the investigation of cyber or computer-related offences.

➤ **Trans-National Nature of Cyber Attacks:** Most cyber crimes are trans-national in nature. The **collection of evidence from foreign territories** is not only a difficult but also a tardy process.

➤ **Expanding Digital Ecosystem:** In the last couple of years, India has traversed on the path of **digitalising its various economic factors** and has carved a niche for itself successfully.

  ○ Latest technologies like **5G** and the **Internet of Things (IoT)** will increase the coverage of the internet-connected ecosystem.

  ○ With the advent of digitalisation, **paramount consumer and citizen data** will be stored in digital format and transactions are likely to be carried out online which makes **India a breeding ground for potential hackers** and cyber-criminals.

➤ **Limited Expertise and Authority:** Offences related to **crypto-currency** remain **under-reported** as the capacity to solve such crimes remains limited.

  ○ Although most **State cyber labs** are capable of analysing hard disks and mobile phones, they are yet to be recognized a**s 'Examiners of Electronic Evidence'** (by the central government). Until then, **they cannot provide expert opinions on electronic data.**

What are the Current Provisions for Cyber-Security in India?

➤ **Indian National Security Council:** To shape the ecosystem related to cyber policy.

➤ **National Cyber Security Strategy:** To focus on security in the early stages of design in all digitisation initiatives.

➤ **Computer Emergency Response Team (CERT-In):** For alerts regarding cybersecurity breaches and issues.

➤ **Indian Cyber Crime Coordination Centre (I4C):** To handle several issues regarding cybercrime in a comprehensive and coordinated manner.

➤ **Cyber Swachhta Kendra:** To create a secure cyberspace by detecting botnet infections in India

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What Should be the Modern Day Solutions For Modern Day Problems of Cyber-Threats?

➤ **Centre-State Nexus Towards Secure Cyberspace:** With **police and public order being in the State List,** the primary objective to check crime and create the necessary cyberinfrastructure lies with States.

  ○ At the same time, with the **IT Act and major laws being central legislations**, the central government should look forward to evolving **uniform statutory procedures for the law enforcement agencies.**

○ Centre and States must not only work in tandem and **frame statutory guidelines to facilitate investigation of cybercrime** but also need to commit sufficient funds to develop much-awaited and required **cyber infrastructure.**

➤ **Upgrading Cyber Labs**: Cyber forensic laboratories should be upgraded with the advent of new technologies.

  ○ **National Cyber Forensic Lab** and the **Cyber Prevention, Awareness and Detection Centre (CyPAD)** initiative of the Delhi Police, is a good step in this direction.

➤ **Capacity Building:** It is essential to build up sufficient capacity to deal with cybercrime. It could be done either by **setting up a separate cyberpolice station** in each district or range, or **having technically qualified staff in every police station.**

➤ **Reforming the Justice Delivery System**: As electronic evidence differs greatly from evidence of traditional crimes when it comes to breach of privacy, it is essential to **develop standard and uniform procedures to deal with electronic evidenc**e to ensure **time-bound justice** in order to maintain the safety of Indians as well as the infrastructure.

➤ **Developing Cyber-Defence Mechanism:** A holistic approach for dealing with cyber conflict is necessary, whether it's conducting **cyber search operations** or **extending the scope of countermeasures against cyber attacks.**

  ○ A **clear public posture on cyber defence** and warfare **boosts citizen confidence** thus enabling a more **engaging, stable and secure** cyber ecosystem.

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Significance of Life Skills

This editorial is based on "Life skills: The missing link between education and employment" which was published in Hindustan Times on 01/09/2022. It talks about the role of Life Skills in bridging the gap between Education and Employment.

Tags: Ethics, GS Paper - 2, Human Resource, Government Policies & Interventions, GS Paper - 3, Skill Development, Growth & Development, GS Paper-4

The **National Education Policy (NEP) 2020** was a landmark initiative for the Indian education system, calling for deep sector reform and a systemic overhaul. The policy **recommended incorporating life skills as part of the curriculum**, taking into account the view that education must go beyond academic outcomes to focus on the holistic development of our future generations.

Coincidentally, this came at a time when the world was in the grips of **Covid-19** — a period marked by health crises upending and exacerbating learning loss across the board.

The findings of a 2019 **UNICEF** Report states that **more than half the youth of South Asia will have neither the education nor the skills** needed to be employable in 2030, highlighting the dire reality of our future.

The problem with **India is not only unemployment, but also unemployability.** There are **650 million Indians under the age of 25,** the largest youth population in the world, which presents a unique situation: Almost 22% of the incremental global workforce over the next three decades will come from India. With the right interventions, this **demographic dividend** can easily be converted into a sustainable opportunity.

What do we understand by Life Skills?

➢ **About:**
- ○ Life skills are a **set of abilities, attitudes and socio-emotional competencies** that enable individuals to learn, make informed decisions and exercise rights to lead a healthy and productive life and subsequently become agents of change.
- ○ Life skills promote mental well-being and competence in young people as they face the realities of life.
- ○ These skills **support the development of foundational skills** such as literacy, numeracy, digital skills and can also be utilized in several areas, such as gender equality in education, environmental education, peace education or education for development, livelihood and income generation, and for positive health promotion among others.
- ○ **Life skills empower young people to take positive action** to participate in their communities, engage in continuous learning, protect themselves and promote health and positive social relationships.

What is the Need for Life Skills in the Indian Context?

➢ **Adapting to the Situation:**
- ○ **Time management skills for kids, student self-awareness, interpersonal relationship skills** give the ability to adapt to situations, persevere and constantly reevaluate, reassess and restructure life.
➢ Allow Students to Comprehend and Address Situations:
- ○ Critical thinking skills allow **students to comprehend and address situations** based on the available information and facts.

- ○ Critical thinking **involves organizing and processing facts,** information and other data to outline a problem and develop effective resolutions.

➢ **Creative Thinking Skills:**
- ○ Having the ability to think creatively allows us to reconsider things from a fresh perspective and from new angles.
- ○ It's an **innovative thought process which results in surprising deductions** and new ways of doing things.
- ○ Creative thinking can be aided by lateral thinking or brainstorming to create ideas.

➢ **Fragile Knowledge Society:**
- ○ Knowledge is the core of a productive society, however the **ability to learn and apply critical thinking skills to solving problems (both defined as "skills") is more important than the accumulation of knowledge.**
- ○ **This ability supports the individuals to invent and innovate,** leading to social and economic growth.
- ○ In India, **children and adolescents have low levels of understanding and conceptual clarity** around learning, analytical skills and knowledge of human rights, including gender equality.
  - ● **National Achievement Survey (NAS)**, **State Learning Achievement Surveys (SLAS)**, **Annual Status of Education Report (ASER)** and **Programme for International Student Assessment (PISA)** are large scale assessments that have consistently pointed to the poor learning levels of children in language and mathematics even after eight years of education.

➢ **Depleting Human Capital:**
- ○ A fragile knowledge society has **ramifications on the ability of its members in understanding and applying learning to** gain opportunities and build a productive society.
- ○ This is driving inequalities in health, education and life chances and is most pronounced in some states and pockets of India.
- ○ The country is **experiencing abject poverty and underdevelopment** in several geographical concentrations, where young people do not have necessary skills for productive employment and livelihoods and lack key competencies aligned with the changing demands of the dynamic market and lack workforce readiness.
- ○ This is **driving inequalities in health, education and life chances** and is most pronounced in some states and pockets of India.

➢ **Inequity:**

○ Post-independence, **patterns of inequality and exclusion continue to exist in India, largely due to deep rooted** social (e.g. caste, tribal, minorities and gender) and class structures that perpetuate and limit opportunities for people, systematically blocking them from availing of the rights, opportunities and resources that are usually available to all members of society.

○ Within these groups, girls are further discriminated due to their sex. The degree to which the inequity exists varies between regions and geographies.

What should be the Way Forward?

➢ **Creating a Common Vocabulary:**

○ Without an agreed-upon vocabulary and assessment framework, it is not possible to effectively scale up life skills delivery in India.

○ The most meaningful way to enable this is to **create a common vocabulary at the national level.**

● If the 2005 **National Curriculum Framework (NCF)** helped create a baseline for academic competencies, the new frameworks envisioned by **NEP 2020 are expected to do the same for life skills education.** The groundwork for this has already begun.

● The Life Skills Collaborative, a consortium of over 30 organisations with multi-sector expertise, working in tandem with state governments and educational institutions, has spent the last 18 months coming up with a glossary of key life skills terms and a framework for life skills training.

➢ **Creating Assessment Tools:**

○ A **robust assessment tool would enable us to assess the impact of each framework of life skills training** and organise our efforts toward implementing the most effective framework.

● For instance, the **"Future Readiness" assessment tool deployed across the 15 different pilots** under Young Warrior NXT was designed to provide comparable evaluations and learning across three key metrics – enrolment, engagement and learner feedback.

● It would inform sustainability and future scalability, which becomes particularly important when dealing with large systemic shifts in education departments that span millions of students.

➢ **Curating Content on Life Skills:**

○ **Making age-appropriate, relevant and contextual learning content available** to all is the cornerstone to building life skills for the 21st century.

○ **Multiple e-learning solutions that aggregate high-quality learning content on the most basic of academic subjects** have indeed revolutionised education.

○ A similar solution to curate content on life skills could greatly benefit stakeholders invested in transacting life skills at scale. This would not only enable young people to take charge of their own learning, but also offer opportunities for collaboration with learning experts in the space and building on existing efforts in the ecosystem.

➢ **Using our Existing Systems:**

○ Finally, to deliver life skills at scale, **existing school systems and vocational training infrastructure must be leveraged.**

● There are **over 10 million teachers and over 1.5 million schools in India** – a significant asset base and delivery channel that can be tapped into.

● However, it is important to note that **teachers are already overburdened** and the pressure of post-Covid catch-up is putting more stress on the system.

○ Hence, **it is essential that we adequately aid, support and guide the teachers with pedagogical frameworks**, lesson plans and assessment tools to enable the delivery of life skills training within the mainstream curriculum.

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Road to Smart and Precise Agriculture

This editorial is based on "Precision farming needs to be promoted to get more output with less exploitation of natural resources" which was published in The Indian Express on 03/09/2022. It talks about the status of Agriculture in India and sustainable measures for its development.

Tags: Agriculture, GS Paper -1, Agricultural Resources, GS Paper – 2, Government Policies & Interventions, GS Paper - 3, E-Technology in the Aid of Farmers

The **Green Revolution in India** that started in the **1960s** enabled the nation to make great strides in **domestic food production** and significantly contributed to progress in agriculture and allied sectors. It transformed India **from a food-deficit nation to a food-surplus, export-oriented country.**

In India, **70% of rural households still depend primarily on agriculture** for their livelihood, with 82% of farmers being small and marginal.

However, now India is facing second-generation problems, especially related to sustainability, nutrition, the **adoption of new agricultural technologies** and income levels of the population dependent on farming.

What is the Significance of Agriculture in the Indian Economy?

➢ **Food Security and Induced Growth of Industrial Sector**: Flourishing Agricultural production in India is the main factor behind the food security of the large Indian population.

  ❍ Agriculture supplies raw materials to various agro-based industries like **sugar, jute, cotton textile and vanaspati industries. Food processing** industries are similarly dependent on agriculture.

  ❍ Increase in rural purchasing power is very necessary for industrial development as two-thirds of the Indian population live in villages.

    ● After the **green revolution the purchasing power of the large farmers increased due to their enhanced income.**

➢ **Source of Government Revenue:** Agriculture is one of the major sources of revenue to **both the central and State government** of the country. The government is getting a substantial income from **rising land revenue.**

  ❍ Some other sectors like railways, roadways are also deriving a good part of their income from the movement of agricultural goods.

➢ **Contribution to International Trade:** Agriculture plays an important role in international trade. **Jute, tea, coffee and spices are the country's well known conventional exports**.

What are the Current Challenges Confronting Indian Agriculture?

➢ **Degrading Soil Health**: Due to wind and water erosion, deforestation, and **urbanisation,** removal of natural vegetation, converting forests to farms is degrading soil health to a large extent.

  ❍ The analysis of the **Soil Health Card Scheme** shows alarmingly **low levels of soil organic carbon (SOC) across India** (an important indicator of soil health).

➢ **Shrinking Farm Size**: Labour productivity is constrained owing to land sizes. The **average farm size in India has been consistently becoming smaller**, hampering labour productivity, and limiting economies of scale.

  ❍ Farm size of the majority of the rural household has declined to unviable levels inducing **farmers to leave land and look for better job opportunities in cities.**

➢ **Per Drop More Crop:** At the national level, only **52% of India's gross cropped area (GCA) is under irrigation coverage.**

  ❍ Despite significant strides since independence, a large proportion of farms in India still depend on the **monsoon** for irrigation, limiting their ability to increase cropping intensity.

➢ **Lack of Convenient Access to Credit:** A convenient line of credit is not available to small and marginal farms. As per the **NABARD 2018 survey, farmers with smaller plot sizes took a greater share of loans from the non-institutional lenders** than did farmers with larger plot sizes (> 2 hectares)

  ❍ This indicates that more **small and marginal farmers rely on (expensive) informal sources of credit than large ones.**

➢ **Crop Insecurity:** Despite the rapid **commercialisation of Indian agriculture**, most farmers, especially small and marginal farmers, tend to **place cereals at the centre of their cropping system** (because of **Minimum Support Price**) and neglect **crop diversification.**

➢ **Ineffective Percolation of Policies:** Land leasing laws in India have taken forms that discourage formal leasing contracts between the owner and the tenant.

  ❍ There are a **large number of unofficial tenancies in the country.** Due to the lack of identification of tenants, benefits intended for tenant farmers such as **disaster relief** and **direct benefit transfers** are at risk of being distributed to the land owner who appears to be the cultivator on official records.

What are the Recent Government Initiatives for the Development of the Agriculture Sector?
➢   **E-NAM Portal**
➢   **Paramparagat Krishi Vikas Yojana (PKVY)**
➢   **Pradhan Mantri Fasal Bima Yojana (PMFBY)**
➢   **Micro Irrigation Fund (MIF)**
➢   **AgriStack**

What Should be the Way Forward?

➢ **Blending Traditional and Frontier Technologies:** Traditional technologies in the field of **rainwater harvesting** and **recycling of organic waste** for plant nutrient, pest management, etc. have been found to be very useful and relevant.

  ❍ In order to bring a **synergistic impac**t, traditional technologies should be blended with the modern frontier technologies like **tissue culture, genetic engineering,** to achieve higher productivity.

➤ **Input Intensive to Knowledge Intensive Agriculture:** India is known for its **diversity of farming practices.** It is important **to get diverse points of view engaged in a national-level dialogue** to find suitable solutions for the future.

  ○ Also, the **Advanced world is moving towards precision farming** using sensors and other scientific tools for exact practices and application of inputs.

    ● A **smart and precise move towards high-tech farming in India** will reduce average cost, raise farmers' income, and address many other challenges of scale.

➤ **Investing in Research and Innovation:** In order to **offset the impact of climate change on agriculture** and work towards **sustainable agriculture,** an increase in research and innovation in the agricultural sector is necessary.

  ○ For instance, th**e livestock sector contributes the greatest amount of carbon emissions within the agriculture sector in India**, therefore, assessing their impacts is crucial to finding sustainable solutions.

  ○ Innovative Technologies like **GIS (Geographical Information System)** and **AIML (Artificial Intelligence and Machine Learning)** are all bursting out to provide the basis for a revolutionary epoch in agriculture.

➤ **Towards Biosecurity:** Since, **India is susceptible to pest and weed attacks**, there is a need for a strategic and integrated approach to deal with the risks posed to animal and plant life and their health along with food safety of consumers.

  ○ **M S Swaminathan,** chairman of the **National Farmers Commission**, had also recommended establishing a **National Agricultural Biosecurity Program**.

➤ **Upgrading Agricultural Surplus Management:** An infrastructure upgrade and development program are needed for **post-harvest handling, seed, fertiliser and agrochemical quality regulation.**

  ○ Additionally, it is necessary to promote **grading and standardisation of procurement centres.**

➤ **Harvesting Rich Returns Through Market Integration**: There is a need to streamline domestic markets and put in place the infrastructure and institutions to **connect local markets with national and global markets.**

  ○ To facilitate smooth integration between domestic and world markets, and to manage trade liberalisation more effectively, India needs a **nodal institution that can monitor world and domestic price movements** closely and take timely and appropriate measures to avoid major shocks.

■■■

India Japan Ties

This editorial is based on "Japan is recasting its national security vision in face of an aggressive China. India must inject strategic content into ties during 2+2 dialogue" which was published in The Indian Express on 06/09/2022. It talks about the upcoming 2+2 dialogue between India and Japan and traces the path ahead.

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

The friendship between **India and Japan** has a long history rooted in spiritual affinity and strong cultural and civilizational ties. **Indian culture, filtered through Buddhism**, has had a great impact on Japanese culture, and this is the source of the Japanese people's sense of closeness to India.

Bilateral ties have been singularly free of any kind of dispute – **ideological or territorial. India -Japan peace treaty** was one of the first peace treaties Japan signed after **World War II.**

Even though India and Japan have exchanged defense ideas for almost two decades and declared a shared interest in **keeping the Indo-Pacific open and free, as partners in the Quadrilateral Security Dialogue** along with the US and Australia, their bilateral cooperation is still lacking. **US-China interference in the Indo-Pacific** prevented both sides from implementing their desired strategic objectives.

What is the State of India's Relations with Japan?

➤ **Defense Ties**: **India-Japan Defence and Security partnership** has evolved over the years from bilateral and multilateral exercises including **Dharma Guardian** and **Malabar** respectively. And welcoming the participation of Japan for the first time in exercise **MILAN.**

  ○ **Tri-Service Exchanges** between Japan and India have been institutionalized completing the triad. Coast Guards have had regular annual exchanges since 2006. Including, **Japan and India Vision 2025 Special Strategic and Global Partnership -** working together for peace and prosperity of the indo-pacific region and the world.

➤ **Economic Ties**: A test of the reliability of Japan as a friend was witnessed in **1991** when Japan was among the few countries that **bailed India out of the balance of payment crisis.**

  ○ In recent years, the economic relationship between Japan and India has steadily expanded and deepened. The volume of trade between the

two countries has increased. **Japan was the 12th largest trading partner for India in 2020.**

○ Also, direct investment from Japan to India has increased, and Japan was the **4th largest investor in India in FY2020.**

➤ **Health-Care**: In view of the similarities and synergies between the goals and objectives of **India's AYUSHMAN Bharat Programme and Japan's AHWIN**, both sides had been consulting with each other to identify projects to build the narrative of AHWIN for AYUSHMAN Bharat.

➤ **Investment and ODA:** India has been the largest recipient of the Japanese **Official Development Assistance(ODA)** Loan for the past decades. **Delhi Metro** is one of the most successful examples of Japanese cooperation through the utilization of ODA.

○ India's **Western Dedicated Freight Corridor (DFC)** project is funded by a soft loan provided by Japan International Cooperation Agency under **Special terms for economic partnership (STEP).**

○ Besides, Japan and India had committed to build a **High-Speed Railways in India by introducing Japan's Shinkansen System.**

○ **India Japan Nuclear Deal 2016** will help India build the six nuclear reactors in southern India, increasing nuclear energy capacity ten-fold by 2032.

What are the Roadblock to Strengthen India-Japan Ties?

➤ **Rising China's Dominance:** China does not shy away from making efforts to block the rise of India and Japan, including by stepping up military pressure on them and **opposing their UN Security Council's permanent membership.**

➤ **Influence of China-America Rivalry:** The intensification of Chinese-American rivalry contributes to **disturbance of regional security in the Indo-Pacific.**

○ The region is militarised and an **arms race is taking place**, military exercises and manoeuvres are systematically occurring in disputed waters that ultimately **affects peace and prosperity for the region**, especially for countries like India and Japan.

➤ **Domestic Issues in Japan**: Japan is in the midst of a massive domestic debate over the **revision of its national security and defence strategies**, which has resulted in the assimilation of Japan's former Prime Minister **Shinzo Abe**.

> **What is Vostok 2022?**
>
> ➤ **About:** The **Vostok 2022 is a multilateral strategic and command exercise** scheduled to take place at seven firing ranges in the **Russian Far East and the Sea of Japan,** with over 50,000 troops and more than 5,000 weapons units taking part.

> ○ It will involve troops from several **ex-Soviet nations, China, India, Laos, Mongolia, Nicaragua and Syria.**
>
> ➤ **Japan's Objection:** Japan has objected to Russia's plan to hold the maritime component of Vostok-2022 close to Northern Territories- **Southern Kuril Islands,** claimed by both Japan and Russia.
>
> ➤ **Stand of India:** India abstained from sending its warships as part of the exercise, as it decided to stay **away from the maritime component of Vostok-2022** in order to avoid hurting the sensitivity of Japan.
>
> ○ However, India kept a balanced stand as the **Indian Army's contingent of the Gorkha Regiment is participating in the military drills.**

What Should be the Way Forward?

➤ **Curbing the Hegemony in India-Pacific**: India and Japan are required to transform their military strategy and build on the common interest in **preventing the rise of a securing hegemony in the Indo-Pacific (US and China).**

➤ **Putting Hands Together for Digital Empowerment:** With a view to enhancing digital infrastructure through promotion of joint projects for digital transformation, India and Japan can shake hands for digital infrastructure cooperation in various fields like **5G, Open RAN, Telecom Network Security, submarine cable systems,** and **Quantum Communications.**

➤ **Strengthening India's Act East Policy: India has always placed the 'Indo-Pacific' at the heart of its engagement** with the countries of Southeast and East Asia. For deriving effective solutions to contemporary challenges, **India's Act East Policy** must be strengthened.

○ Japan also endeavours to cooperate in supporting strategic connectivity linking **South Asia to Southeast Asia** through the synergy between **"Act East" policy and "Partnership for Quality Infrastructure."**

➤ **Knowledge Exchange for Disaster Risk Reduction:** India can benefit from Japan's **disaster management** experience in developing disaster risk reduction policies and measures in disaster-prone areas.

➤ **Towards Multipolar Asia:** By reshaping their Asian strategic landscape, India and Japan has the potential to catalyse their emergence as world powers, and **march towards a open and secure Indo-Pacific.**

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India: Nation on a Move

This editorial is based on "For a stronger economy: We need economic reforms beyond liberalisation" which was published in The Indian Express on 07/09/2022. It talks about the growth of Indian economy after liberalisation and areas where India has a comparative advantage for development.

Tags: Indian Economy, GS Paper - 3, Growth & Development, Mobilisation of Resources. Monetary Policy, Fiscal Policy

Despite all the disruptions caused by the global pandemic, India's **balance of payments remained in surplus** throughout the last 2 years.

According to figures from the **International Monetary Fund (IMF),** India passed the United Kingdom (UK) to become the **5th largest economy in the world** in the last quarter of 2021.

IMF and **World Bank** endeavour to ensure that other countries can benefit from India's development, especially their main financiers, the large capital exporters. But the IMF-WB holy trinity of **structural land, labour and other market-opening reforms harms India's domestic market** and, beyond a point, runs into severe resistance that imposes large political costs.

After **1991,** India began to loosen its economic restrictions and an **increased level of liberalisation led to growth in the country's private sector.** Since then, the growth journey that our country has made has been a **tale of ups and downs, opportunities utilised, and lessons learnt.**

Although, liberalisation has created new opportunities, **India's transformation into a global economic force has yet to fully benefit all its citizens.**

What are the Potential Areas that Provide Comparative Edge to India?

➤ **Inward Looking Liberalised Economy:** The **Indian economy is largely an inward looking and domestic demand driven economy.**

  ○ Further, India is no more a closed but rather a liberalised economy with the aim of further enhancing its competitive advantages that will place India right **on the track to becoming a middle-income country by 2047.**

➤ **Demographic Dividend:** India entered the **demographic dividend** opportunity window in 2005-06 and will remain there till 2055-56. Almost **65 percent of Indians are of working age**, making India the potential workforce for over half of Asia in the future.

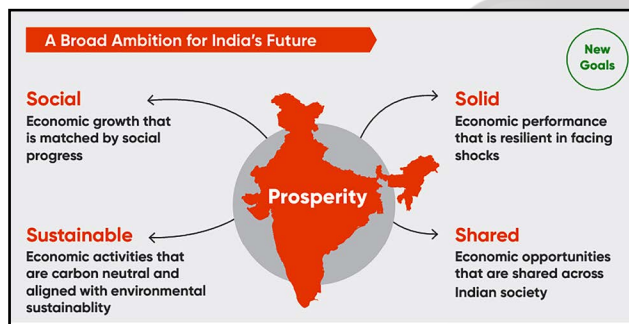➤ **Front Runner in Agriculture: Agriculture,** with its allied sectors, is unquestionably the **largest livelihood provider in India**, more so in the vast rural areas. Further, in India, **cropping patterns have shifted in favour of cash crops** such as sugarcane and rubber.

  ○ According to the **Economic Survey 2021-22**, agriculture and the allied sector proved to be the most resilient to the Covid-19 shock as it registered a growth of **3.6% in 2020-21** and improved to **3.9% in 2021-22.**

  ○ Also, **Food processing** is emerging as a 'Sunrise Industry'.

➤ **Well Placed to Benefit from IT and Business Services Outsourcing:** India has long been recognized as a tech-savvy country. Indian IT giants such as **Infosys, WIPRO and TCS** have made their mark on the global platform.

  ○ Low-cost advantage, large pool of English-speaking skilled manpower and latest technology solutions makes **India the most attractive outsourcing hub.**

➤ **Preferred Travel Destination**: With the **vast cultural and natural resources**, India continues to charm **international tourists with its rich history and remarkable diversity.**

  ○ In the post-pandemic era, **travel and tourism are reviving as the world's pent-up travel desire rekindles**, which presents India with the opportunity to grow its tourism industry in order to provide warm hospitality and generate employment.

What are the Roadblocks in Achieving Sustainable Economic Growth?

➤ **Contemporary Geopolitical Issues:** Emerging markets (including India) bear the brunt of the geopolitical risk in more ways than one including **supply chain constraints** widening the gap between demand and supply.

  ○ For instance, **the Russia- Ukraine War** has resulted in global shortages forcing **India to pay more for the import of crude oil** and fertilisers.

➤ **Jobless Growth in Recent Past:** According to **CMIE (Centre for Monitoring Indian Economy),** the unemployment rate in India is around 7-8%.This is because job growth has not kept pace with GDP growth.

  ○ **Only 40% of the labour force that is capable of working is actually working** or looking for work, in which women have a lower participation rate.

➤ **Widening Trade Deficit:** India's **export trend has declined,** with India's **trade deficit** reaching a record **31 billion dollars in July 2022** due to recessionary trends in developed economies (like the US) and higher commodity prices.

  ○ The capital outflows and the **rising current account deficit** is putting **pressure on the Indian rupee.**

➢ **Menace of Climate Change:** Crossing of paths between **economic progress and climate change** is unavoidable for developing countries like India as **many aspects of the economic development are interlaced with the wellbeing of the environment** in the absence of which economic growth is adversely impacted.

  ○ Agricultural production, water resources, human health, and ecosystems are influenced significantly by the **Indian Summer Monsoon (ISM)**. However, the ISM has experienced erratic patterns recently that have resulted in **devastating floods and heat waves.**

➢ **Widening Rich-Poor Gap:** As per the **'World Inequality Report 2022'**, top 10% of India's population hold 57% of the total **national income** while the bottom 50% share has gone down to 13%.

  ○ India's inequality is **driven by limited upward mobility** due to **unequal opportunity.**

A Broad Ambition for India's Future   New Goals

Social
Economic growth that is matched by social progress

Solid
Economic performance that is resilient in facing shocks

Prosperity

Sustainable
Economic activities that are carbon neutral and aligned with environmental sustainablity

Shared
Economic opportunities that are shared across Indian society

What Should be the Way Forward?

➢ **Setting up Economic Development Goals:** India's performance depends not only on how well it addresses the challenges of today but also in its **preparedness for future challenges.**

  ○ India needs to ensure that its **policy choices are robust and forward looking** with modern technological solutions. For this, an effective strategy for India needs to be based on a **transparent articulation of the country's economic development goals.**

   ● These goals should outline an ambition that is **bold, energising, and reflective of the aspirations of the country.**

➢ **Integration of Social and Economic Development:** Economic growth that does not achieve social development fractures society and ultimately erodes the very foundations of prosperity.

  ○ Thus, there needs to focus on enabling the **creation of competitive jobs** for those currently outside of the active labour market **blended with adequate social security measures.**

➢ **Manufacturing in India, for India:** There is a need to strengthen the **Make in India** initiative with special emphasis on the **'zero defect zero effect'**.

  ○ There is also a need for reform in the **banking sector** that can **help boost small-scale manufacturing instead of only large-scale.**

➢ **Providing Ease of Doing Business:** For attracting more foreign investment, laying down the **specific opportunities in different sectors and a healthy business environment** that provides ease to do business is very important.

➢ **Empowering Indian Youth:** To harness the demographic dividend in the near future, **skill development needs to be integrated with conventional schooling in India.**

  ○ India can draw on examples like Peru, that provides with the **Innova Schools** an interesting model for providing **cost-effective quality education to students**.

➢ **Unlocking the Potential of Indian Women**: Closing the **gender gap** in education and financial and **digital inclusion** of women and breaking down the **glass ceiling** should be the priorities.

➢ **Strengthening Special Economic Zones:** More **special economic zones** are needed to enhance foreign investment, increase exports, and support regional development.

  ○ **Baba Kalyani Committee on SEZs** has recommended that **MSME investments in SEZs be promoted by linking them to MSME schemes** and allowing sector-specific SEZs.

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Decoding Urban Flooding

This editorial is based on "Number Theory: Behind the systemic roots of urban flooding in India" which was published in Hindustan Times on 07/09/2022. It talks about Urban Flooding in India and related challenges.

Tags: Biodiversity & Environment, GS Paper - 3, Disaster Management, Environmental Pollution & Degradation

As India reaches the tipping point of **transitioning from a mostly rural to an urban society, Urbanisation is intrinsic to development** and often serves as a major driver of economic growth. By **2030**, 40.76% of the country's population is expected to reside in urban areas.

However, Urban planning machinery has not evolved at the pace of urbanisation and technological advancements. **Unplanned development** and **climate change** are driving many tragic events, including **urban flooding,** requiring serious attention.

In the **2020 floods in Hyderabad**, thousands of houses were submerged. The **2015 Chennai flood** is a stark reminder of how rapid urbanisation is making cities prone to urban floods. And most recently, **Bengaluru has been the site of many such flooding incidents** during this **monsoon** season.

What is Urban Flooding?

➢ Urban flooding is the **inundation of land or property in a built environment**, particularly in **more densely populated areas (like cities)**, caused by rainfall overwhelming the capacity of drainage systems.

➢ Unlike **rural floods (Heavy rain over a flat or low-lying area)**, urban flooding is not only caused by just higher precipitation but also unplanned urbanisation (**catchment**s) that:
  ○ increases the flood **peaks from 1.8 to 8 times**
  ○ increases the flood **volumes by up to 6 times.**

What are the Causes of Urban Flooding in India?

➢ **Encroachments on Drainage Channels:** In Indian cities and towns, due to **increased land prices** and **less availability of land** in the city centre. New developments are coming up in low-lying areas, usually as **encroachments** over lakes, **wetlands** and **riverbeds.**
  ○ Ideally, the natural drains should have been widened (**similar to road widening for increased traffic**) to accommodate the higher flows of stormwater.
    ● But on the contrary, **there have been large scale encroachments without widening the natural drains**. Consequently, the capacity of the natural drains has decreased, **resulting in flooding.**

➢ **Climate Change**: Exacerbated by changing climate, resulting in extreme events. The **climate change has caused an increase in the frequency of short duration heavy rainfall** leading to higher water run-off.
  ○ **NASA** studies indicate that the **urban heat island effect also results in increased rainfall over urban areas that in turn leads to flooding.**
    ● Whenever the rain bearing clouds pass over the urban heat island, **the hot air pushes the clouds up, resulting in highly localised rainfall** which may sometimes be of high intensity.

➢ **Unplanned Tourism Activities:** Water bodies have been used as an attraction for **tourism** development for decades. Water plants that reduce the **runoff speed** are being removed from rivers and lakes for maintaining tourism activity.

○ Throwing **non-bio degradable matter** into the rivers and lakes during religious and cultural activities reduces the water quality. In the event of floods, the **suspended particles and pollutants** overflow into the cities posing health risks.
  ● **Example:** Ashtamudi Lake in Kollam, Kerala polluted from **oil spillage** from boats.

➢ **Uninformed Release of Water from Dams:** Unplanned and **sudden release of water from dams** and lakes lead to floods in an urban area, without giving the public enough time to respond.
  ○ **Example: Chennai Floods 2015** due to release of water from Chembarambakkam Lake.

➢ **Illegal Mining Activities:** Illegal **mining** of **river sand and quartzite** for use in building construction **deplete the natural bed of the rivers and lakes.**
  ○ It causes **soil erosion** and **reduces the water retention capacity** of the waterbody increasing the speed and scale of water flow.
  ○ **Example:** Jaisamand Lake- Jodhpur, Cauvery river- Tamil Nadu.

What are the Impacts of Urban Flooding?

➢ **Loss of Life and Property**: Urban floods are often associated with loss of life and physical injury either directly due to the effect of floods or indirectly due to **infections by water-borne diseases spreading during the inundated period**.
  ○ Urban flooding has localised impacts like structural damage to buildings, property, crops. Besides, it causes disruptions of **water supply, sewerage, power and transmission lines, communication**, traffic- road and railways and other infrastructure.

➢ **Ecological Impacts:** Trees and plants are washed away during extreme flood events and **riverbank erosion** is caused by high-speed flood water.

➢ **Impact on Animal and Human Health**: Stagnation of **stormwater** in the localities, and **contamination of consumable water** leads to various health problems resulting in plagues/epidemics.
  ○ The **sewage and solid waste** washing into houses and neighbourhoods also causes a variety of diseases to spread.

➢ **Psychological Impacts:** Loss of shelter and relatives creates emotional turmoil in the mental health of the stranded. The **recovery process in case of such incidents is a tiresome process** and time consuming that often leads to long lasting **psychological trauma.**

What Should be the Way Forward?

➢ **Developing Blue Green Infrastructure: Blue Green Infrastructure** is an effective way of providing a

sustainable natural solution to urban and climatic challenges.

○ **Water management and robust infrastructure development** should be emphasised equally, in order to create more pleasant, less stressful living environments.

○ Also, ensuring every building in the city shall have **Rainwater Harvesting** as an integral component of the building utility

● **Blue** indicates water bodies such as rivers and tanks

● **Green** indicates trees, parks, and gardens.

➢ **Flood vulnerability Mapping: Identification of the vulnerable areas** can be done by analysing topography and historical data of inundations at city level.

○ Maintaining **a record of all the water bodies and wetlands at city and village levels** is equally important for **flood- avoidance, tolerance and resilience.**

➢ **Effective Water-Shed Management: Construction of flood walls,** raised platforms along flood prone river basins, timely cleaning and **deepening of drainage channels** should be **taken up along the whole river basin instead of just the urban areas.**

○ **Bioswales** can be made along roadsides so that rainwater from the road flows towards them and percolates into the ground.

○ Also, **catchment areas** of water bodies need to be maintained well and should be **free from encroachment and pollution**, thus keeping the course of water free from obstructions.

➢ **Disaster Resilient Public Utility**: Public facilities like **hospitals and schools** and basic services such as **food, water, health and sanitation** should be made disaster resilient.

○ They should be located or relocated such that they are able to function without hindrance during inundations.

➢ **Sensitization and Rehabilitation:** Awareness should be created about flood preparedness and mitigation measures along with **response drills**.

○ **Educating residents** on the risks involved in illegal constructions along drains and water bodies is necessary. The government should also consider **relocation of the poor to other areas.**

➢ **Institutional Arrangements** - It is essential to form a **unified flood control implementing agency** at city level, which will include **city administrative officials, doctors, police, firefighters, NGOs**, and other emergency services providers.

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India Bangladesh Relations

This editorial is based on "Golden chapter continues" which was published in The Indian Express on 09/09/2022. It talks about the bilateral ties between India and Bangladesh and related issues.

Tags: International Relations, GS Paper - 2, India and its Neighbourhood, Bilateral Groupings & Agreements, Groupings & Agreements Involving India and/or Affecting India's Interests

Three sides of Bangladesh's land border are shared with India, and one side runs along the **Bay of Bengal.** India and Bangladesh share 4096.7 km. of border, which is the **longest land boundary that India shares** with any of its neighbours.

India was the first country to recognize Bangladesh as a separate and independent state and established diplomatic relations with the country immediately after its independence in **December 1971** as a friendly **South Asian neighbour**.

Bangladesh occupies a key place in **India's Neighbourhood First policy.** India's links with Bangladesh are civilisational, cultural, social and economic. There is much that unites the two countries- a **shared history and common heritage**, linguistic and cultural ties, **passion for music, literature and the arts.** Also, **Rabindranath Tagore**, created the **National Anthems** of both India and Bangladesh.

However, there still remain major issues such as **river water disputes (Teesta River water sharing)**, aiding **illegal immigrants**, and drug trades remain between **India and Bangladesh**, that must be addressed.

How is India's Relation with Bangladesh?

➢ **Economic Ties:** The geographical proximity of India to Bangladesh has made it one of its biggest trading partners. **Bangladesh is the 6th largest trade partner of India.**

- India has provided **duty free quota free access to Banglades**h on all tariff lines except **tobacco and alcohol** under **South Asian Free Trade Area (SAFTA)** since 2011.
- The bilateral trade between two countries has jumped to **USD 18.2 billion in 2021-22** as compared to USD 10.8 billion in 2020-21.
- **6 Border Haats**(4 in Meghalaya and 2 in Tripura), have been approved by the Indian and Bangladesh governments.

> **Sharing of River Waters:** India and Bangladesh share **54** common rivers. The **Ganga Waters Treaty** signed in 1996 for sharing of waters of river Ganga during lean season (January 1-May 31).

- Most recently, the **Kushiyara Pact** was signed that will benefit people in **Southern Assam** and the **Sylhet region in Bangladesh**.

> **Connectivity:** India and Bangladesh share **4096.7 Km. of border,** which touches **Assam, Tripura, Mizoram, Meghalaya and West Bengal. Transit and trade through inland waterways** have been governed by a long standing and time-tested protocol between Bangladesh and India.

- **Agartala-Akhaura Rail-Link** will be the first rail route between **Northeast India and Bangladesh.**

> **Power and Energy Sector Cooperation:** Energy sector cooperation between India and Bangladesh has also seen considerable progress in the last few years.

- The **India-Bangladesh Friendship Pipeline Project**, signed in **2018** , will **connect Siliguri** in West Bengal in India and **Parbatipur** in Dinajpur district of Bangladesh.
- India and Bangladesh have also signed the **Framework of Understanding (FOU) on Cooperation in the Hydrocarbon Sector.**

> **Tourism:** According to the **Ministry of Tourism**, Bangladesh accounted for the **largest share of foreign tourist arrivals in India in 2020**, including tens of thousands of people who come to the country for **medical treatment.**

What are the International Forums Where India and Bangladesh are Common Members?

> **South Asian Association for Regional Cooperation(SAARC)**
> **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation(BIMSTEC)**
> **Indian Ocean Rim Association for Regional Cooperation(IORA)**

What are the Current Major Issues Between India and Bangladesh?

> **Teesta River Water Dispute:** Teesta river **flows from India to the Bay of Bengal through Bangladesh.** Almost half a dozen districts in West Bengal are dependent on this river. It is also a major source of **irrigation to the paddy growing greater Rangpur region of Bangladesh**.

- Bangladesh complains that it does not get a fair share of the water. Since water is a state subject in India, the bottleneck lies in the **non-consensus between the state government of Bengal and central government**
- Meanwhile**, no treaty has been signed yet to resolve the Teesta water-sharing** dispute between the two nations.

> **Illegal Migration**: Illegal immigration from Bangladesh to India, which includes both **refugees and economic migrants**, continues unabated.

- Large influx of such migrants across the boundary has posed serious socio-economic-political problems for the people of Indian states bordering Bangladesh with **serious implications for its resources and national security.**
  - The issue was further complicated when the **Rohingya refugees originally from Myanmar** started infiltrating into India through Bangladesh.
- Also, the **National Register of Citizens (NRC),** that is expected to deter future migrants from Bangladesh from entering India illegally has also triggered a major concern in Bangladesh.

> **Drug Smuggling & Trafficking**: There have been many incidences of cross border **drug smuggling & trafficking.** Humans (especially **children & women**) are trafficked & **various animal & bird species are poached through these borders.**

> **Terrorism:** The borders are susceptible to terrorist infiltration. A number of outfits are trying to spread their tentacles across India, such as **Jamaat-ul Mujahideen Bangladesh (JMB).**

- JMB is **listed as a terror group** by Bangladesh, India, Malaysia and the United Kingdom.
- Recently, The **National Investigation Agency** has filed a charge-sheet against 6 members of the JMB in a **special court in Bhopal.**

> **Growing Chinese Influence in Bangladesh:** At present, **Bangladesh is an active partner in the Belt and Road Initiative (BRI)** (India is not a part of BRI).

○ Also, Bangladesh imports **Chinese military equipment**, including submarines, in the defense sector that is major concern for India's National Security.

What Should be the Way Forward?

➢ **Addressing Teesta River Water Dispute:** To establish a consensus towards demarcating the extent of teesta river water sharing and **reaching a mutual agreement**, both the Bengal government and the central government should work together with **mutual understanding** and **signal cooperative federalism.**

➢ **Better Connectivity:** There is a need to enhance connectivity in the region through strengthening cooperation in **coastal connectivity, road, rail and inland waterways.**

➢ **Energy Security**: As the global **energy crisis** continues to rise, it is imperative that India and Bangladesh cooperate in making use of **clean and green energy** in order to make **South Asia Energy self-sufficient.**

   ○ **India Bangladesh Friendship Pipeline:** This project is being undertaken through ground and **once completed will help in the movement of high speed diesel** to Northern Bangladesh from India.

   ○ Bangladesh has **acknowledged Indian Oil Corporation Limited** as a registered government to government supply of refined petroleum products.

➢ **Shifting Focus Towards Comprehensive Economic Partnership Agreement (CEPA):** Bangladesh will graduate from a **Less Developed Country (LDC)** to a developing country by **2026** and will no longer be entitled to trade and other benefits that are accorded to LDCs under international and regional trading agreements.

   ○ Through the **Comprehensive Economic Partnership Agreement (CEPA)**, **Bangladesh will be able to manage this transition** and preserve its trade privileges. It will also **strengthen economic ties between India and Bangladesh.**

➢ **Countering China's Influence:** Assisting Bangladesh with **Nuclear technology, Artificial intelligence**, Modern farming techniques, and flood data exchange will further strengthen India's relationship with Bangladesh and help India in countering China's influence to a greater extent.

➢ **Tackling the Refugee Crisis:** India and Bangladesh can take the lead in encouraging other countries in the **South Asia Association for Regional Cooperation (SAARC)** to develop a SAARC declaration on refugees, laying down a **specific procedures for determining status of refugee and economic migrants.**

■■■

Food Security in India

This editorial is based on "The wheat of the matter: Disruption of supply chains due to Ukraine war has implications for India's food security" which was published in The Indian Express on 08/09/2022. It talks about Food Security in India and related challenges.

Tags: Agriculture, GS Paper - 3, Food Security

India has experienced remarkable **economic growth** in recent years and remains one of the **fastest growing economies** in the world. However, **poverty and food insecurity in India** are still areas of concern in spite of many strides. Food is considered as a basic amenity essential for the sustenance, development and growth of an individual.

India has ranked **101 among the 116 countries** on the **Global Hunger Index, 2021**. According to the **Food and Agriculture Organisation**, the **Food Price Index** has increased by 30% in the year 2021-22.

Although the Government of India has been actively addressing food security at households for a long time through the **Public Distribution System** and the **National Food Security Act (NFSA) 2013,** there are still concerns related to Food Security in India amidst **increasing population, climate change** and **global supply chain disruption (Russia-Ukraine War)** that need to be addressed.

What is Food Security?

➢ The concept of **Food Security** is multifaceted. Food is as essential for living as air is for breathing. But **food security means something more than getting two square meals.** It has following dimensions:

   ○ **Availability**: It means food production within the country, food imports and the stock stored in government granaries.

   ○ **Accessibility**: It means food is within reach of every person without any discrimination.

   ○ **Affordability**: It implies that having enough money to buy sufficient, safe and nutritious food to meet one's dietary needs.

➢ Thus, **Food security** is ensured in a country only when **sufficient food is available** for everyone, if everyone has the **means to purchase food** of acceptable quality, and if there are **no barriers to access**.

What is the Current Framework for Food Security in India?

➢ **Constitutional Provision:** Though the Indian Constitution **does not have any explicit provision regarding right to food,** the fundamental right to life

enshrined in **Article 21 of the Constitution** can be interpreted to include the **right to live with human dignity,** which may include the right to food and other basic necessities.

➢ **Buffer Stock: Food Corporation of India (FCI)** has the prime responsibility of **procuring the food grains** at **minimum support price** (MSP) and **stored in its warehouses** at different locations and from there it is supplied to the state governments in terms of requirement.

➢ **Public Distribution System:** Over the years, **Public Distribution System** has become an important part of Government's policy for **management of the food economy in the country.** PDS is **supplemental in nature** and is not intended to make available the entire requirement of any of the commodity.

○ Under the PDS, presently the commodities namely **wheat, rice, sugar and kerosene** are being **allocated to the States/UTs for distribution**.

○ **Some States/UTs** also distribute additional items of mass consumption through the PDS outlets such as **pulses, edible oils, iodized salt, spices,** etc.

➢ **National Food Security Act, 2013 (NFSA):** It marks a paradigm shift in the approach to food security **from welfare to rights based approach.**

○ **NFSA** covers **75% of the rural population and 50% of the urban population under:**

• **Antyodaya Anna Yojana:** It constitute the **poorest of-the-poor**, are entitled to receive **35 kg** of foodgrains per household per month.

• **Priority Households (PHH**): Households covered under PHH category are entitled to receive **5 kg** of foodgrains per person per month.

○ The **eldest woman of the household of age 18 years** or above is **mandated to be the head of the household** for the purpose of issuing ration cards.

○ In addition, the act lays down special **provisions for children between the ages of 6 months and 14 years** old, which allows them to receive a nutritious meal for free through a widespread network of **Integrated Child Development Services (ICDS)** centres, known as **Anganwadi Centres.**

What are the Challenges Related to Food Security in India?

➢ **Deteriorating Soil Health:** A key element of food production is healthy soil because **nearly 95% of global food production depends on soil.**

○ **Soil degradation** due to **excessive or inappropriate use of agrochemicals,** deforestation and natural calamities is a significant **challenge to sustainable**

food production. About **one-third of the earth's soil is already degraded.**

➢ **Invasive Weed Threats:** In the past 15 years, India has faced more than **10 major invasive pest and weed attacks**.

○ **Fall Armyworm (Pest)** destroyed almost the entire maize crop in the country in 2018. **India had to import maize in 2019** due to the damage caused by the pest in 2018.

○ In 2020, **locust attack** was reported in districts of **Rajasthan and Gujarat.**

➢ **Lack of Efficient Management Framework: India lacks strict management framwork for food security.** Public Distribution System faces challenges like leakages and **diversion of food-grains**, inclusion/exclusion errors, **fake and bogus ration cards**, and weak grievance redressal and social audit mechanism.

➢ **Faults in Procurement:** Farmers have diverted land **from producing coarse grains to the production of rice and wheat** due to a minimum support price.

○ Further, there is a tremendous wastage of around **Rs.50,000 crore annually** by both improper accounting and inadequate **storage facilities**

➢ **Climate Change:** The **monsoon** accounts for around 70% of India's annual rainfall and irrigates 60% of its net sown area. **Changing precipitation patterns and growing frequency and intensity of extreme weather** events such as **heatwaves,** floods are already reducing agricultural productivity in India, posing a **serious threat to food security.**

○ To increase domestic availability amid low Kharif Crop productivity this year (2022), the **Government of India has banned the export of broken rice.**

➢ **Supply Chain Disruption Due to Unstable Global Order:** At a time when the **Covid-19 Pandemic** had already impacted food supply around the world in 2020, **Russia-Ukraine War in 2022** has **disrupted the global supply chain** and resulted in food scarcity and **food inflation**.

○ **Russia and Ukraine** represent **27% of the world market for wheat**, 26 countries, mainly in Africa, West Asia and Asia, depend on Russia and Ukraine for more than 50% of their wheat imports.

What Should be the Way Forward?

➢ **Moving Towards Sustainable Farming : For ensuring Food Security in** India , improvement in productivity through greater use of **biotechnology, intensifying watershed management, use of nano-urea** and **access to micro-irrigation facilities** and **bridging crop yield gaps across States** through collective approach should be at priority.

○ There is also a need to look forward towards establishing **Special Agriculture Zones through ICT based crop monitoring.**

➤ **Towards Precision Agriculture:** There is need to increase the use **information technology (IT) in agriculture** to ensure that crops and soil receive exactly what they need for optimum health and productivity.

  ○ By adopting **precision agriculture** with **high-tech farming practices,** farmers' incomes will increase, input cost of production will be reduced, and many other issues of scale will be addressed.

➤ **Revitalising Aadhaar Seeding of Ration Cards:** To **speed up the process of Aadhaar linking to ration cards**, ground monitoring measures must be taken that will ensure no valid beneficiary is left out of their share of food grains that can give thrust to the aim of zero hunger **(Sustainable Development Goal- 2).**

➤ **Direct Benefit Transfer (DBT) Through JAM:** There is a need to **streamline food and fertiliser subsidies into direct benefit transfers** to accounts of identified beneficiaries through the **JAM trinity platform (Jan Dhan, Aadhaar, and Mobile)** that will r**educe huge physical movement of foodgrains**, **provide greater autonomy to beneficiaries to choose their consumption basket** and **promote financial inclusion.**

➤ **Ensuring Transparency in Food Stock Holdings :** Using **IT to improve communication channels with farmers** can help them to get a better deal for their produce while **improving storage houses with the latest technology** is equally important to deal with natural disasters.

  ○ Further, **foodgrain banks** can be deployed at block/village level, from which **people may get subsidised food grains against food coupons (** that can be provided to Aadhar linked beneficiaries).

➤ **Addressing Issues With an Umbrella Approach:** By **looking at diverse issues from a common lens,** such as inequality, food diversity, indigenous rights, and environmental justice, India can look forward to a **sustainable green economy.**

■■■

India Beyond Earth

This editorial is based on "Time for a joint space exercise" which was published in The Hindu on 08/09/2022. It talks about the militarisation and weaponization of Outer Space and related challenges.

The recent years have seen not only **scientific and astronomical success** in investigating outer space, but also a remarkable growth in its utilisation of space for a wide range of civilian and military purposes.

There is a growing synergistic approach between space and the military. The projection of the military now is not restricted to land and sea. Countries like the **United States, China and Russia** are consistently **trying to dominate the outer space** by **weaponising and militarising the outer space** to establish their supremacy over the other.

The **Outer Space Treaty** prohibits countries from placing into orbit around the Earth "**any objects carrying nuclear weapons or any other kinds of weapons of mass destruction".**

Unchecked and unregulated weaponization and militarisation of space in future can pose serious **threat not only to international peace** but also to the **critical civilian space-based infrastructure services** such as **communication**, **navigation, broadcasting**, and **remote sensing.**

What is Understood by Militarisation of Outer Space?

➤ **About:**

  ○ The militarisation of space involves the **placement and development of weaponry and military technology** in outer space, in order to develop **space warfare** capabilities.

  ○ **Space warfare** is combat that takes place in outer space, i.e. outside the atmosphere. It includes:

    ● **Ground-to-space warfare**: Attacking satellites from the Earth

    ● **Space-to-space warfare**: **Satellites** attacking satellites.

    ● However, It does **not technically include space-to-ground warfare,** where orbital objects attack ground.

➤ **Global Scenario of Space Militarisation:**

  ○ **France:** Conducted its first space military exercise, **ASTERX** in 2021.

  ○ **China:** While building its **Tiangong Space Station in low Earth orbit**, China is also looking forward to establish its **permanent presence on the Moon** by 2024 in **Cis-Lunar space** (region beyond **geosynchronous orbit**).

  ○ **United States:** US has created a new department of the US military named **Space Force** to strengthen its war-fighting capabilities.

What is the Outer Space Treaty 1967?

➢ The Outer Space Treaty, formally the **Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space**, including the Moon and Other Celestial Bodies is a treaty that lays the foundation of **international space law.**

   ❍ **India** is a party to the **Outer Space Treaty.**

➢ The treaty **prohibits countries from placing <u>nuclear weapons</u>** or any other weapons of mass destruction **into orbit around the Earth**.

   ❍ Furthermore, it also **restricts the use of such weapons on celestial bodies,** such as the **moon**, or in outer space, all parties to the treaty agree to use them exclusively for peaceful purposes.

What is India's Stand on Militarisation of Space?

➢ **Changing Polarity in Current Scenarios:** In India, historically, space has remained the sole jurisdiction of its civilian space agency, the **Indian Space Research Organisation (ISRO)**. India has always maintained a **pacifist** approach towards **space security, opposing the weaponization and militarisation of space.**

   ❍ For the last decade, India's **approach to outer space has been shifting** and is now increasingly driven by national security concerns. Rather than opting for a morally-driven policy, **India is focusing on peaceful uses of outer space.**

      ● Though India **has still not abandoned its policy of non-weaponization**, it has felt that its inaction and ignoring of contemporary developments in outer space could leave it vulnerable to a range of **threats to its space assets.**

➢ **Recent Developments:** In **2019,** India conducted its first ever simulated space warfare exercise (**IndSpaceX**) with an eye on Chinese threats and successfully **tested** an **anti-satellite weapon (Mission Shakti)** in the same year.

   ❍ Also, the launch of the **tri-service Defence Space Agency (DSA)** has permanently taken the military away from the shadows of civil space.

      ● India has also set up the **Defence Space Research Agency (DSRA)** to help develop **space-based weapons for the DSA**. Space is as much recognised as a military domain as **land, water, air and cyber.**

   ❍ In **2020,** the Government of India approved the creation of **IN-SPACe**- an independent nodal agency under the **Department of Space** to encourage **private participation** in the space domain.

What are the Challenges Threatening Outer Space?

➢ **Growing China's Influence:** The **Chinese space industry is evolving rapidly compared to others**. It has established a strong presence in the space domain by successfully launching its own **navigation system**, **BeiDou**.

   ❍ It is very likely that **China's Belt Road Initiative (BRI)** members will contribute to or join the Chinese space sector, solidifying China's global position.

➢ **Rising Space Debris:** Increasing outer space expeditions is increasing space debris. It can i**mpact the ongoing and future space missions** because of the high speeds at which objects orbit Earth, **a collision with even a small piece of space debris can damage a spacecraft.**

   ❍ **Space Debris** can also lead to **ozone depletion**.

➢ **Growing Spy-Based Satellites**: Space is becoming a **battleground for dominance** among major powers. About a fifth of all satellites in space belong to the military and are used for spying, which is posing a **serious risk to global peace and security.**

➢ **Arm Race Widening Global Trust Deficit:** The ensuing arms race for **weaponization of outer space** can create an environment of **uncertainty, suspicion, competition and aggressiveness** across the globe which may lead to war.

   ❍ It would also put at risk the entire range of satellites as well as those involved in scientific explorations and communication services.

➢ **Possibility of Monopolising Orbital Slots:** Any **country that deploys a military satellite is reluctant to disclose its orbital slot and radio frequency,** fearing that such information could be used by an adversary to track the satellite, with the possibility of **shooting it down or jamming its signal**, thus there is a significant possibility that orbital slots will become monopolised in the future.

➢ **Rising Commercialisation of Outer Space:** The commercialisation of outer space is increasing through **private satellite expeditions** for transmitting **Internet services** and **space tourism** (Jeff Bezos).

   ❍ **Axiom Space** launched its first **fully private commercial mission to space** in **2022** onboard **SpaceX's Crew Dragon Capsule**.

What Should be the Way Forward?

➢ **Capacity Building for Spare Warfare:** With space becoming a fourth battlefield, India needs to **enhance its space capabilities** through adequate research and development.

   ❍ **KALI (Kilo Ampere Linear Injector)** is being designed as a **potential response to any incoming**

missiles whose objective would be to disrupt the country's peace.

- ❍ Also, the time is ripe for **India-US Joint Space Military Exercise** that will push India's defence partnership into a new orbit.
  - India and U.S. are going to conduct the **18th edition of Yudh Abhyas** in **Auli, Uttrakhand** in October 2022.

➢ **Attracting Global Market for Space Exploration**: India can take advantage of the local market conditions (**talent pool, low labour costs, engineering services**) to replicate the **cost-competitive world-class products and services for the space market**.

- ❍ Successes such as the **most cost-effective and the only first-time success mission to Mars (Mangalyaan)** can act as a **brand-building exercise** integrating India into the **global supply chain.**

➢ **Developing Space Asset Security Infrastructure:** India needs **reliable and accurate tracking capabilities** in order to effectively defend its space assets, including debris and spacecraft.

- ❍ It is therefore imperative that this crucial capability be developed indigenously, since accurate tracking is a vital part of almost **every conceivable space action.**
- ❍ **Project NETRA**, an **early warning system in space to detect debris** and other hazards to Indian satellites is a good step in this direction.

➢ **Global Governance of Global Common:** Outer space **is a common heritage and asset owned equally by every human being.** Modern global economies rely heavily on **space assets.**

- ❍ **Global Positioning System, Telecom Networks, and Early Warning Systems** and **weather forecasts** are important tools for governance across the globe.
- ❍ An unregulated militarisation will deteriorate these facilities, so it is **important to scrutinise this issue at global multilateral forums** and **develop legally binding instruments to prevent an arms race** and fill any legal gaps in the existing system.

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Inching Closer to Global Pandemic Treaty

This editorial is based on "The outline of an essential global pandemic treaty" which was published in The Hindu on 10/09/2022. It talks about the rising widespread health inequity and the need for a Global Pandemic Treaty.

In contrast to the earlier scenario where infectious disease outbreaks were confined to a few countries, the world has now become more prone to witness pandemics.

COVID-19 would count as one of the most severe pandemics the world has seen in the last 100 years. It has highlighted the **flaws in global health protection** and **pandemic governance** and provided a better understanding of the fact that **nobody is safe until everybody is safe.**

More recently, **Monkey Pox** which was endemic to Africa was declared a **Public Health Emergency of International Concern (PHIEC).** The frequency of such threats call for increased cooperation among countries for **sharing information and resources** needed for a **concerted global response.**

What is the Difference Between Pandemic and Epidemic?

➢ As defined by the **World Health Organisation**, a **pandemic** occurs when a new **disease** for which **people do not have immunity** spreads around the world beyond expectations.

- ❍ However, an **epidemic** occurs when an outbreak occurs among a population or region, and is **less severe than a pandemic** because it affects a **limited area.**

➢ **Example:**

- ❍ **Pandemic: Spanish Flu**, Covid Pandemic
- ❍ Epidemic: Yellow fever, Polio

What is the Existing Framework for Global Health Cooperation?

➢ The **International Health Regulations** (adopted in **1969** and last revised in **2005**), is an instrument of international law that is **legally-binding on 196 countries including India.**

➢ It aims for **international collaboration to prevent, protect against, control, and provide a public health response** to the international spread of disease.

- ❍ It provides an overarching legal framework that defines **countries' rights and obligations in handling public health events and emergencies** that have the **potential to cross borders.**

➢ IHR empowers the **World Health Organisation (WHO)** to act as the **main global surveillance system.**

➢ The Regulations also **outline the criteria** to determine whether or not a particular event constitutes a **PHEIC.**

What are the Challenges Posing Risk to the Health Sector Globally?

➤ **Inefficient Health Infrastructure**: **Public health data and infrastructure** are fragmented and lacking any global standard causing a major concern regarding **quality and reliability of existing healthcare systems.**

   ○ Besides that, a **large part of hospital expenditures are used to correct preventable medical mistakes** or **infections that people catch in hospitals**. Additionally, medical staff are in short supply.

   ○ India has **1 government doctor per 10,189 people** (the WHO recommends a ratio of 1:1,000), indicating a **shortage of 6,00,000 doctors.**

➤ **Climate Change Hazard:** Climate change threatens the essential ingredients of good health - **clean air, safe drinking water, nutritious food supply and safe shelter**.

   ○ Climate change exacerbates **extreme weather events** like drought and **floods**, which increase **food insecurity**, **malnutrition rates**, and help **spread infectious diseases**.

➤ **Rising Commercialisation:** Though **commercialization of healthcare** promises better infrastructure, medical facilities, and technological advancement, **due to high profit motive charges,** poor and middle-class people cannot afford it. This **contradicts the very purpose of having a better healthcare system.**

   ○ Further, doctors collaborate with pharmaceutical companies with a profit motive to **prescribe branded medicines that are more expensive than generic versions** despite the same formula, which hampers **access to timely healthcare.**

➤ **Risk of Bioweapons:** Technological advancement has increased the threat of biological weapons being used for **bioterrorism** or **biological warfare.**

   ○ According to **WHO**, **biological and toxin weapons** are either microorganisms like **viruses, bacteria or fungi,** or toxic substances produced by living organisms that are produced and **released deliberately to cause disease** and death in humans, animals or plants.

➤ **Antimicrobial Resistance (AMR): Antimicrobial Resistance** is reducing the effectiveness of medicines, making infections and diseases difficult or impossible to treat.

   ○ **WHO** has declared that **AMR is one of the top 10 global public health threats** facing humanity.

➤ **Lack of Global Solidarity:** A glimpse of weakened global solidarity was observed when high income countries were **not sharing vaccines, drugs and diagnostics in an equitable manner** at the time of pandemic.

   ○ The consequences of such inequities were evident in the emergence of **virus variants**.

   ○ A large portion of the globe lagged behind in vaccine development because of **patent rights**.

      ● The **Doha Declaration of World Trade Organisation** provides for relaxation of patent rights in case of a public health emergency.

      ● However, the WTO has not yet agreed to a **proposal from South Africa and India to waive patent rights on Covid-related technologies**.

What Should be the Way Forward?

➤ **A Global Pandemic Treaty:** In recognition of the need to further strengthen international cooperation, **WHO** has now commenced the process for the development and adoption of a **new international treaty** with an aim to ensure **better preparedness and equitable response for future pandemics**, and to advance the principles of **equity, solidarity and health for all.**

   ○ This treaty would be developed through the deliberations of an **International Negotiating Body (INB),** with the stated intention of **concluding the process by May 2024.**

➤ **One Health Approach:** There is a need for **coordinated, collaborative, multidisciplinary and cross-sectoral approach** to address potential or existing risks that originate at the **animal-human-ecosystems interface.**

   ○ By **optimising** the health of people, animals and the environment to effectively detect the **outbreaks of zoonotic diseases** and rising **environmental hazards,** they can be prevented to a greater extent.

   ○ There is also a need to **regulate the use of antibiotics**, to reduce the danger of antimicrobial resistance.

➤ **Genetic Surveillance:** Genetic surveillance can be a way forward to **understand the evolution of different disease carriers across** the globe, specially viruses.

   ○ **Genetic surveillance** of pathogens provides insights by following a **molecular approach for contact tracing** and understanding the transmission of the pathogen across the globe.

➤ **Supply Chain Resilience:** There is a need to optimise the highly fragmented **healthcare supply chain** across the globe to **ensure that adequate supplies exist** at the **local, regional and national** levels during times of crisis.

   ○ Also, there is a greater need for effective utilisation data among health care **providers, manufacturers and distributors across the globe.**

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Road to Human Development

This editorial is based on "The solution to India's stunted improvement on the Human Development Index: Improving access to quality education" which was published in The Indian Express on 14/09/2022. It talks about the inequalities in India in different dimensions of development and Human Development Report 2021-22.

> **Tags:** Governance, GS Paper - 2, Human Resource, Issues Related to Women, Gender, Growth & Development

The **idea of humanity lies at the core of human development.** Human development goes beyond the notion of economic growth with **wealth maximisation of the economy.** The concept of human development is more about **expansion of freedom, enhancement of capabilities, providing equal opportunities to all**, and ensuring a long, healthy and prosperous life.

Towards **2030**, India is expected to reach a total population of **1.5 billion**, becoming the world's most populous country. While India has multiplied its economy by many folds, it has not made much progress on HDI. The **Human Development Report 2021-2022** has signalled an alarming situation for India. In the global ranking of HDI, among 191 countries **India slipped to 132 in 2022**. (**129** in 2019 and **131** in 2020)

What is the Human Development Report?

➢ **Amartya Sen** and **Mahbub Ul Haq**, conceptualised the human-centric approach to development in the first **Human Development Report** published by the **United Nations Development Programme** in **1990**.

➢ **Indices Covered in Human Development Report:**
  ○ **Human Development Index(HDI)**
  ○ Inequality-Adjusted HDI
  ○ Planetary Pressures-Adjusted HDI
  ○ Gender Development Index
  ○ Gender Inequality Index
  ○ Multidimensional Poverty Index

➢ Dimensions and Indicators of Human Development Index:
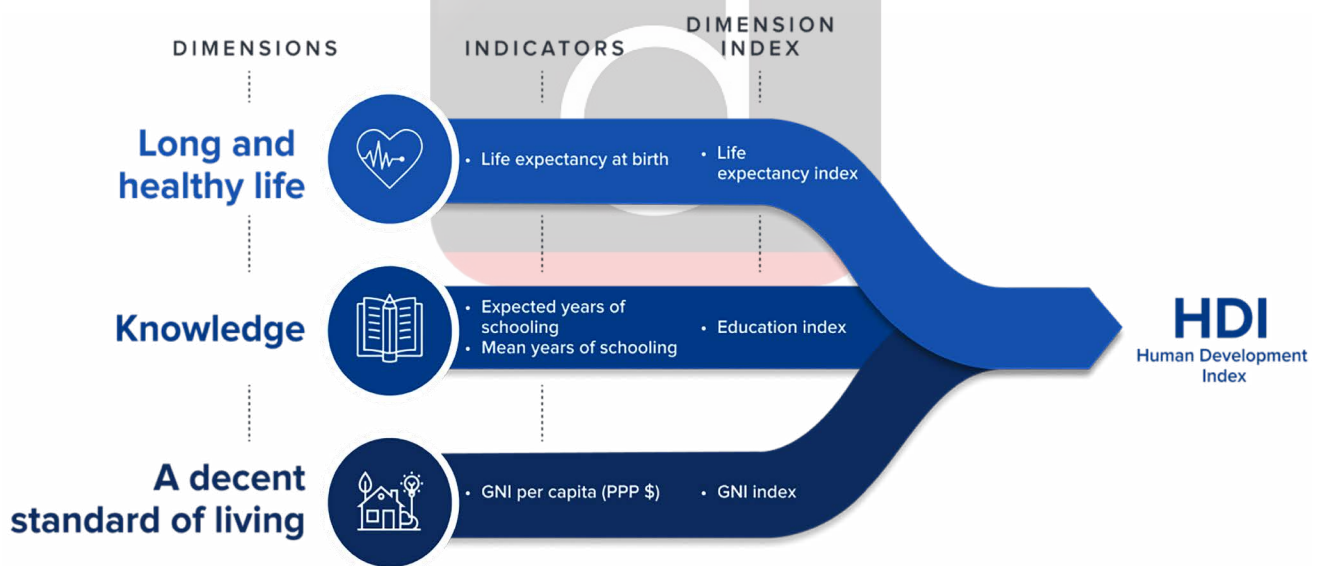
What are the Criticism for Evaluation of the Human Development Index?

➢ **Tradeoff Between the Components: HDI** implicitly assumes **trade-offs between its components when these measurements may not always be equally valuable.** Countries can achieve the same HDI through different combinations of life expectancy and GNI per capita.

➢ **Slow to Reflect Recent Policies**: The **United Nations** itself even admits that the **HDI is not a comprehensive measure of human development**. HDI reflects long-term changes (e.g. life expectancy) and is slow to reflect recent policy changes and improvements to the lives of a nation's citizens.

What are the Challenges For India Regarding Human Development?

➢ **Gender Inequality:** Prevalence of **gender stereotypes** and **lack of upward mobility** of women (due to **glass ceiling**) has traditionally sidelined women from development. The Covid-19 pandemic has also exacerbated gender inequality.
  ○ In terms of women's economic participation and opportunity, the **Periodic Labour Force Survey's 2020-21** report states that the labour force participation rate among Indian **women is just 23.15%**, in contrast to **57.75 % in men.**
  ○ The World Economic Forum's **Global Gender Gap Report** 2022 ranks India 135 out of 146 countries.

➢ **Low Gross Enrolment:** Every year, a large number of students dropout of school in India that **hinders their economic and social well-being** and creates a **non-innovative environment.**

❍ The reason for this, reported by the **National Sample Survey Office,** is **not only the financial constraints and engagement of children in domestic or economic activities** but their increasing **lack of interest** in education.

● According to the **District Information System for Education**, students' disinterest towards education is due to the **lack of educational and vocational counselling** at the school level.

➢ **Lack of Effective Education Infrastructure:** A **great deal of the quality of education is determined by infrastructure,** such as classrooms, water and sanitation facilities, **digital learning** facilities, and **sports facilities.**

❍ However, India l**ags behind in providing quality education uniformly** across the country because of insufficient funding, regional disparities, and a **lack of strict regulatory mechanisms**.

➢ **Inadequate Health-Care Facility:** Although, healthcare system is improved, there are considerable **quality differences between rural and urban areas**, between **public and private providers** and investment in the healthcare sector is not uniform.(**as health is a state subject)**

❍ **Low and middle income population** of India faces **out-of-pocket (OOP) expenditure on health**, preventing their upward mobility and pulling them into **poverty**.

➢ **Malnutrition:** Due to poverty, inequality, improper child care and food insecurity, India faces the problem of **malnutrition** that costs India around **10 billion dollars annually** retarding improvements in human development and further **reduction of child mortality.**

❍ India ranks **101**st out of the 116 countries in the **Global Hunger Index 2021.**

➢ **Lack of Social Security:** Around **88% of India's labour force** are employed as **daily wage labourers without contracts**, landless farm labourers and gig workers. The majority of these informal workers and their families have **no access to social security.**

❍ Informal workers in rural and urban areas were massively affected due to the **Covid-19 Pandemic**, because of the seasonality of their employment and **lack of formal employee-employer relationship.**

What are the Recent Governement Initatives Related to Human Development?

➢ **PM Kaushal Vikas Yojna**

➢ **SHREYAS Scheme**

➢ **Startup India**

➢ **New Education Policy, 2020**

➢ **Pradhan Mantri Jeevan Jyoti Bima Yojana(PMJJBY)**

➢ **Women in Engineering, Science, and Technology (WEST) Initiative**

➢ **Ayushman Bharat Scheme**

What Should be the Way Forward?

➢ **Nexus Between Economic, Social and Economic Development**: **Economic growth, social and environmental development are tightly correlated** and play a major role to improve the **basic living conditions in India.**

❍ Socio-economic and environmental problems cannot be addressed in isolation anymore. Therefore, it is necessary to **nest economic, social and environmental aspects** in **homocentric planning** through **nature-based solutions**.

➢ **Reach, Range and Reason Based Policies: Amartya Sen** contended that to achieve development's objective the government policies must focus on the **3 R's:**

❍ Reach (reach of the reason to be achieved)

❍ Range (ways and means to be used)

❍ Reason (priority to pursue).

➢ **Social-Economic Inclusion:** There is a need for concentrated efforts to **streamline the marginalised section of the society** who are currently not free to expand their choices and achieve a decent standard of living.

❍ Equality of opportunity (**Article 14 of Indian Constitution**) must be ensured closing the gender gap and moving toward **participatory democracy** that will take the country **on the path of achieving National Development Goals** and **Sustainable Development Goals.**

➢ **Investment, Insurance and Innovation in Social Infrastructure**: A **universal education and health** care system can be a **broad umbrella effort to solve a plethora of issues** in the country to sustain and improve its quality of life and deal with major emerging challenges such as urbanisation, housing shortages, power, water and **disaster management.**

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Growing Water Stress in India

This editorial is based on "India's growing water crisis, the seen and the unseen" which was published in The Hindu on 15/09/2022. It talks about the growing water stress in India and related issues.

According to the United Nations World Water Development Report of 2022, global concern is growing over the **rapid withdrawal of fresh water** from streams, lakes, aquifers, and human-made reservoirs, as well as the impending water stress and **scarcity** experienced around the world. Moreover, this situation has also been **aggravated by changing climatic trends**, frequent natural disasters and sudden quakes of **pandemics**.

Promoting sustainable economic growth is paramount in India's transition towards a 5 trillion dollar economy. Water is one such vital resource in this endeavour. India, accounting for around **17% of the world population,** has been endowed with just **4% of the world's fresh water resources**, which clearly highlights the need for its judicious use and efficient **water risk management.**

What is Water Stress and Water Risk?

➢ **Water stress** occurs when the **demand for water exceeds the available amount during a certain period** or when **poor quality restricts its use.**
  - ○ Components of Water Stress:
    - Availability
    - Quality
    - Accessibility
➢ **Water risk** refers to the possibility of an entity experiencing a **water-related challenge** (e.g., water scarcity, **water stress, flooding, infrastructure decay, drought**) due to deteriorating **water health** and inefficient **water governance.**

What is Falkenmark Indicator or Water Stress Index?

➢ It relates the **total freshwater resources with the total population** in a country and indicates the pressure that population puts on water resources, including the needs for natural ecosystems.

➢ In a country, if the amount of **renewable water** per person is:
  - ○ below **1,700 m³**, the country is said to be experiencing **water stress.**
  - ○ below **1,000 m³**, it is said to be experiencing **water scarcity**.
  - ○ below **500 m³,** it is experiencing **absolute water scarcity**.

What is the Status of Water Management in India?

➢ **Current Status: India extracts most groundwater in the world**, more than the 2nd and 3rd largest extractors (**China and the United States**) together. However,

- Only 8% of the extracted groundwater in India is used for drinking.
- 80% goes to irrigation
- Remaining **12% goes to industrial uses.**
  - ○ The **Composite Water Management Index** by **NITI Aayog** has sounded a note of caution about the **water crisis in India**, with more than 600 million people facing acute water shortages.
    - It is also projected the country's water demand to be twice the available supply by 2030.

➢ **Constitutional Provision:**
  - ○ **Fundamental Right:** Water is the basic need for the survival of human beings and is part of the **right to life** as enshrined in Article 21 of the Constitution of India.
  - ○ **Entry 56 of Union List:** The central government can regulate and develop **inter-state rivers and river valleys** to the extent determined by Parliament as expedient in the public interest.
  - ○ **Entry 17 of State List**: It deals with water supply, irrigation, canals, drainage, embankments, water storage, and water power.
  - ○ **Article 262:** It states that in case of disputes relating to waters:
    - By law, Parliament can resolve disputes or complaints related to the use, distribution, or control of interstate rivers or river valleys.
    - Parliament may, by law, **provide that no court, including the Supreme Court, shall have jurisdiction** over any such dispute or complaint.

➢ **Legal Provisions:**
  - ○ **Inter-State Water Dispute Act, 1956:** The **Inter-State Water Dispute Act** enables the states to enrol the central government in setting up an Advisory River Board to resolve issues in inter-state cooperation.
  - ○ **Water (Prevention and Control of Pollution) Act, 1974:** It establishes an institutional structure for preventing and abating water pollution while maintaining standards for water quality.
    - **Central Pollution Control Board (CPCB)** is a statutory organisation which was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974.

What are the Challenges Regarding Water Management in India?

➢ **Potential Rural-Urban Conflict:** Cities are rapidly expanding as a result of rapid urbanisation, and a large influx of migrants from rural areas has increased the per capita use of water in cities, which is causing water to be **transferred from rural reservoirs to urban areas** to meet the deficit.

○ Considering the **downward trend of water level** in urban areas, it is likely that cities will rely heavily on rural areas for raw water supply in the future, which may **spark the rural-urban conflict**.

➢ **River-Water Dispute**: Majority of rivers flowing in two or more states in India have been a subject to water sharing disputes between their states regarding their **use, distribution, and control.**

  ○ Some major **inter-state river water disputes** are:

- **Krishna River** - Maharashtra, Andhra Pradesh, Karnataka, Telangana
- **Cauvery River** - Kerala, Karnataka, Tamil Nadu and Puducherry
- **Periyar River** - Tamil Nadu, Kerala
- **Narmada River**- Madhya Pradesh, Gujarat, Maharashtra, Rajasthan

  ○ India faces river water disputes not only among its states but **also with its neighbouring countries. For example:**

- **Brahmaputra River**- India, China
- **Teesta River**- India, Bangladesh

➢ **Ineffective Waste Water Management**: In a highly **water-stressed environment,** the inefficient use of wastewater is leaving India unable to make the most economical use of its resources. In cities, most of this water is in the form of greywater.

  ○ According to a recent report published by the **Central Pollution Control Board** (March 2021), **India's current water treatment capacity is 27.3%** and the sewage treatment capacity is 18.6% (with another 5.2% capacity being added).

- Still, **most sewage treatment plants do not function at maximum capacity** and do not conform to the standards prescribed.

➢ **Food Security Risk**: **Crops and livestock** need water to grow. Water is used extensively for irrigation in agriculture and serves as a **major source of domestic consumption**. Given the combination of rapidly declining groundwater levels and inefficient river water management, food insecurity **is likely to follow.**

  ○ The impacts of water and food scarcity can undermine basic livelihoods and exacerbate **social tensions.**

➢ **Rising Water Pollution:** There is a large amount of **domestic, industrial, and mining** waste that is discharged into water bodies, which can lead to **waterborne illnesses**. Moreover, water pollution can lead to eutrophication, which can significantly **impact aquatic ecosystems.**

➢ **Overexploitation of Groundwater: 256 of 700** districts in India have reported **critical or overexploited** groundwater levels according to the most recent study of the **Central Ground Water Board.**

  ○ **Wells, ponds and tanks** are drying up as groundwater resources come under increasing pressure due to **over-reliance and unsustainable consumption**. This has escalated the water crisis.

What are the Current Government Initiatives Related to Water Management?
➢ **National Water Policy, 2012**
➢ **Pradhan Mantri Krishi Sinchayee Yojana**
➢ **Jal Shakti Abhiyan- Catch the Rain Campaign**
➢ **Atal Bhujal Yojana**

What Should be the Way Forward?

➢ **Sustainable Groundwater Management:** There is a need to devise a proper mechanism and rural-urban integrated projects for artificial recharge to groundwater and rainwater harvesting at **household level**, **conjunctive use of surface water and groundwater**, and **regulation of water reservoirs**.

  ○ In addition, there is also a need to improve water infrastructure **(groundwater wells, dams, storage tanks, pipelines, etc)** which will not only reduce the amount of clean water being wasted but will also **help reduce the number of persons constantly searching for clean water on a daily basis.**

➢ **Smart Agriculture**: Drip irrigation is a powerful technology that can reduce water consumption by 20-40% while increasing crop yield by 20-50% compared to furrow (flood) irrigation.

  ○ Also, **cultivation of less water-intensive crops** like pulses, millets and oilseeds should be encouraged **in water-stressed regions.**

➢ **Blue-Green Infrastructure:** Combining green and blue elements together in modern infrastructure planning can be an effective way of providing a sustainable **natural solution** for watershed management and eco friendly infrastructure.

  ○ **Green** indicates: gardens, permeable pavements, green roofs.

  ○ **Blue** indicates: water bodies like rivers, canals, ponds and wetlands.

➢ **Water Conservation Zone:** There is a need to shift focus towards efficient water governance and increased data discipline regarding the status of water bodies at regional, state and national level, and setting up **water conservation zones**.

➢ **Leveraging Modern Water Management Techniques:** Information Technology can be linked with water-related data systems. Also, in recent years, breakthroughs in

research and technology have made it possible to make **water that was considered unfit for consumption**, clean and safe for consumption.

○ Some of the most frequently used techniques include **Electrodialysis Reversal (EDR), Desalinization, Nanofiltration, and Solar and UV Filtration**.

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Ageing in India: State of the Elderly

This editorial is based on "The future of old times in India" which was published in The Hindu on 15/09/2022. The article discusses the state of India's ageing population and related issues.

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

According to the **National Commission on Population**, the **share of the elderly in India's population, close to 9% in 2011, is growing fast** and may reach 18% by 2036. If India is to ensure a decent quality of life for the elderly in the near future, planning and providing for it must begin today.

Life expectancy in India has more than doubled since Independence from around 32 years in the late 1940s to 70 years or so today. Many countries have done even better, but this is still a historical achievement.

Over the same period, **the fertility rate has declined from about six children per woman to just two**, liberating women from the shackles of repeated child-bearing and child care. All this is good news, but it also creates a new challenge —the ageing of the population.

What are the Problems Associated with the Ageing Population?

➢ **Social:**
○ Indian society is **undergoing rapid transformation** under the impact of industrialization, urbanization, technical & technological change, education and globalization.

○ Consequently, the **traditional values and institutions are in the process of erosion** and adaptation, resulting in the weakening of intergenerational ties that were the hallmark of the traditional family.

○ **Industrialization** has replaced the simple family production units by the mass production and the factory.

○ **Other Problems:**
● **Negligence by kids** towards their old parents.
● **Disillusionment** due to retirement.

● Feeling of powerlessness, **loneliness**, uselessness and **isolation** in elderly.
● Generational gap.

➢ **Financial:**
○ **Retirement and dependence** of elderly on their child for basic necessity.

○ **Sudden increase in out of pocket expenses** on treatment.

○ **Migration of young working-age persons from rural areas** has negative impacts on the elderly, living alone or with only the spouse, usually poverty and distress.

○ Insufficient housing facility.
● A national survey carried out by the NGO HelpAge India has shown that as many as **47% of elderly people are economically dependent on their families** for income and **34% are relied on pensions and cash transfers**, while 40% of the surveyed people have expressed the desire to work "as long as possible".

➢ **Health:**
○ Health issues like **blindness, locomotor disabilities and deafness** are most prevalent.

○ **Mental illness** arising from senility (showing poor mental ability because of old age) and neurosis.
● Neurosis is a **class of functional mental disorders** involving chronic distress, but neither delusions nor hallucinations.

○ Absence of geriatric care facilities at hospitals in rural areas.
● According to a recent survey, **30% to 50% of elderly people had symptoms that make them depressed.** A large majority of elderly persons living alone are women, especially widows.

● Depression is strongly correlated with poverty, poor health, and loneliness.

What do we Know about India's Social Assistance Scheme?

➢ **About:**
○ Under the **National Social Assistance Programme (NSAP) scheme**, India has **important schemes of non-contributory pensions** for the elderly, widowed women and disabled persons.

○ It is **administered by the Ministry of Rural Development**.

➢ **Issues with the Scheme:**
○ Chances of Exclusion:
● **Eligibility for NSAP is restricted to "Below Poverty Line" (BPL) families,** based on outdated

and unreliable BPL lists, some of them are 20 years old.

- When it comes to old-age pensions, **targeting is not a good idea in any case as there are huge exclusion errors in the BPL lists.**

- For one thing, **targeting tends to be based on household** rather than individual indicators.

- A widow or elderly person, however, may experience major deprivations even in a relatively well-off household.

○ **Complicated Formalities:**

- **Targeting tends to involve complicated formalities** such as the submission of BPL certificates and other documents, which has certainly been the experience with NSAP pensions.

- The **formalities can be particularly forbidding for elderly persons** with low incomes or little education, who are in greatest need of a pension.

- Moreover, **even when lists of left-out, likely-eligible persons were submitted to the local administration**, very few were approved for a pension, confirming that they face resilient barriers in the current scheme.

○ **Stagnant Contribution:**

- The **central contribution to old-age pensions under NSAP has stagnated at a tiny Rs. 200 per month** since 2006, with a slightly higher but still paltry amount (Rs. 300 per month) for widows.

  ■ On the other hand, many States have **enhanced the coverage and/or amount of social-security pensions beyond NSAP norms** using their own funds and schemes.

  ■ Some have **even achieved "near-universal" (about 75%-80%) coverage of widows** and elderly persons.

What are the Other Related Schemes?

➢ **Pradhan Mantri Vaya Vandana Yojana (PMVVY):**
  ○ It is a **Pension Scheme announced by the Government of India exclusively for the senior citizens** aged 60 years and above.
  ○ The scheme is now **extended up to 2023** for a further period of three years beyond 2020.

➢ Integrated Program for Older Persons (IPOP):
  ○ The main goal of this policy is to improve the quality of life of senior citizens.
  ○ This is done by providing them with various basic amenities such as food, shelter, medical care, and even entertainment opportunities.

➢ Rashtriya Vayoshree Yojana:
  ○ It is a **central sector scheme** funded from the Senior Citizens' Welfare Fund. The fund was notified in the year 2016.
    - All unclaimed amounts from small savings accounts, PPF and EPF are transferred to this fund.
  ○ It aims to provide aids and assistive living devices to **senior citizens** belonging to **Below Poverty Line (BPL) category** who suffer from age-related disabilities such as low vision, hearing impairment, loss of teeth and locomotor disabilities.

➢ **SAMPANN Project:**
  ○ It was launched in 2018. It is a **seamless online pension processing and payment system** for **Department of Telecommunications pensioners.**
  ○ It provides direct credit of pension into the bank accounts of pensioners.

➢ **SACRED Portal for Elderly:**
  ○ The portal was developed by the Ministry of Social Justice and Empowerment.
  ○ **Citizens above 60 years of age** can register on the portal and **find jobs and work opportunities.**

➢ **Elder Line: Toll-Free Number for Elderly:**
  ○ It **provides information, guidance, emotional support -** particularly on pension, medical and legal issues - besides **immediate assistance in cases of abuse.**
  ○ It is devised to provide all senior citizens, or their well-wishers, with ONE platform across the country to connect and share their concerns and get information and guidance on problems that they face on a day-to-day basis.

➢ **SAGE (Seniorcare Ageing Growth Engine) Initiative:**
  ○ It is a **"one-stop access" of elderly care products** and services by credible start-ups.
  ○ It has been launched with a view to help such persons who are interested in entrepreneurship in the field of providing services for elderly care.

What can be the Way Forward?

➢ **Protection from Destitution:**
  ○ The first step towards a **dignified life for the elderly is to protect them from destitution** and all the deprivations that may come with it.
  ○ **Cash in the form of a pension** can help to cope with many health issues and avoid loneliness as well.
  ○ That is why **old-age pensions are a vital part of social security systems** around the world.

- ➢ **Emulating the Frontrunners:**
  - ○ The southern States and India's poorer States such as Odisha and Rajasthan have achieved near-universal social security pensions. Their actions are worth emulating.
  - ○ It **would be much easier for all States to do the same** if the central government were to revamp the NSAP.
- ➢ **Focus on Revamping Pension Schemes:**
  - ○ Another critical area would be bringing reforms in the social security pensions.
  - ○ They **also need other support and facilities** such as health care, disability aids, assistance with daily tasks, recreation opportunities and a good social life.
- ➢ **Transparent "Exclusion Criteria":**
  - ○ A better approach is to **consider all widows and elderly or disabled persons as eligible,** subject to simple and transparent "exclusion criteria".
  - ○ **Eligibility can even be self-declared**, with the burden of time-bound verification being placed on the local administration or gram panchayat.
  - ○ Although there are chances of **privileged households taking the advantage,** it is much preferable to accommodate some inclusion errors than to perpetuate the massive exclusion errors as is the case today.

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Future of Crypto Assets in India

This editorial is based on "[Let's take an inclusive approach to the regulation of crypto assets](#)" which was published in Livemint on 14/09/2022. It talks about the future of crypto currency in India and related issues.

Tags: Indian Economy, GS Paper - 3, IT & Computers, Mobilisation of Resources

    Cryptocurrency has grown in size and popularity among investors to facilitate the financial activities such as buying, selling and trading trading in India and around the world. According to the **United Nations Conference on Trade and Development Report 2021**, **7.3%** of Indians owned cryptocurrency in **2021.**

    As much appreciable as it is that India is rapidly moving towards **digitisation** in almost every aspect of life, an underlying concern that needs immediate attention is that at present, **India does not have any regulatory framework to govern the crypto assets** market.

    The absence of a regulatory framework not only **creates uncertainty for businesses** looking to enter this space, but also **exposes investors to avoidable frauds.** An unregulated ecosystem can also facilitate **money laundering**, fraud and **terror financing.**

What is Cryptocurrency?

- ➢ A cryptocurrency is a **medium of exchange**, such as the rupee or the US dollar, but is **digital in format** that uses **encryption techniques** to both control the creation of monetary units and to verify the exchange of money.
  - ○ **Bitcoin** is considered to be the world's best known cryptocurrency and is the largest in the world according to **market capitalisation.**
- ➢ Most **cryptocurrencies are not regulated by national governments,** they are considered alternative currency or means of financial exchange that are outside the scope of state monetary policy.
  - ○ However, In September 2021, **El Salvador** became the first country in the world to introduce **Bitcoin** as legal tender.

Where does India Stand in terms of Regulating Cryptocurrency?

- ➢ In **2017,** the **Reserve Bank of India** (RBI) issued a warning that **virtual currencies/cryptocurrencies are not a legal tender in India.**
  - ○ However, no ban on virtual currencies took place.
- ➢ In **2019,** RBI issued that **trading, mining, holding or transferring/use of cryptocurrencies** is subject to punishment in India with a financial penalty or/and imprisonment up to 10 years.
  - ○ RBI also declared that it may launch digital rupee as a legal tender in India in future.
- ➢ In **2020**, the **Supreme Court of India removed the ban on cryptocurrencies** imposed by RBI.
- ➢ In 2022, the Government of India clearly mentioned in the **Union budget 2022-23** that-the transfer of any virtual currency/cryptocurrency asset will be subject to **30% tax deduction.**
  - ○ Gifts in the form of virtual assets/cryptocurrencies will be taxed in the hands of the receiver.
- ➢ In **July 2022**, The **Reserve Bank of India (RBI)** recommended a ban on cryptocurrencies citing **'destabilising effects'** for the country's monetary and fiscal health.

What are the Grey Areas Regarding Crypto-Currency?

- ➢ **Volatile Nature:** Cryptocurrency is speculative. Investing in high amounts leads to **Market Volatility**, meaning prices fluctuate and people may suffer big losses as a result.

- ➤ **Reliability and Security:** Cryptocurrency for its characteristic of be a digital mode of transaction, it has become a very **common platform for hackers, terror finance, and drug transaction.**
  - ○ This has brought tiredness among the people to a larger extent as it brings **lesser security** and lack of reliability.
  - ○ For example, **Wannacry virus** was used by criminals to make ransom payments in Bitcoin**.**

- ➤ **Lack of Regulatory Framework:** The Indian government is following a **wait and watch policy towards cryptocurrencies**. Absence of regulatory authority has led to increased chances of fraud threat to investor protection and **movement of money in the economy.**

- ➤ **Flooding Advertisement:** There has been an explosion of advertising in the crypto market to lure people into speculating, because it is seen as a **quick way to make money.** However, there is concern that these efforts are to **mislead youth through "overpromising" and "non-transparent advertising"**.

- ➤ **Stock-Market Issues:** The **Securities and Exchange Board of India (SEBI)** has pointed out that it does not have control over cryptocurrency **"clearing and settlement"** and cannot provide counterparty guarantees as it does for stocks.
  - ○ In addition, cryptocurrency has not been defined as either a **currency, commodity, or security.**

- ➤ **Scalability Concern:** The scalability of crypto remains a major concern, since it is based on **blockchain technology**. In blockchain technology, the data storage mechanism is **append-only**, that means it cannot be modified, and since the demand is growing, storage capacity remains limited.

- ➤ **Money Laundering:** There is a huge possibility that people might **start investing in** money laundering and it is very easy as one can send money from country to country without any accountability.

- ➤ **Possibility of Economic Disbalance:** Rising crypto currency market can disbalance the circular flow of money in the **Indian Economy.** The creation of cryptocurrency is very different from how actual cash is created in the economy.
  - ○ For instance, In India, only the **RBI has the authority to create cash** only after maintaining the **Minimum Reserve System**. This creates a balance of demand and supply.
    - ● However, Cryptocurrency doesn't rely on the **financial institutional regulations** but are encrypted and protected which makes it **difficult to increase the supply of money** over a predefined algorithm rate.

- ➤ **No Ombudsman:** Currently there is **no forum**, where a user can possibly reach out for any help or **grievance redressal mechanism** related to crypto assets, as a result of which consumers are exposed to **transactional and informative risks.**

What Should be the Way Forward?

- ➤ **Defining Cryptocurrency:** Cryptocurrencies **should be explicitly defined** as securities or other financial instruments under the relevant national laws.

- ➤ **Linking Startup Ecosystem with Crypto:** **India's startup ecosystem can be revitalised by cryptocurrency** and **blockchain technology**, which can create job opportunities, from blockchain developers to designers, project managers and business analysts to promoters and marketers.

- ➤ **Lynchpin for International Cooperation:** Because **crypto assets transcend national borders,** they serve as a lynchpin for international coordination of **financial markets governance.**
  - ○ However, crypto-asset regulation is still in its infancy in many **emerging and developing economies (EMDEs)** like India.
  - ○ A **risk-based and context-specific international cooperation** to **regulate cryptocurrency flow** is crucial.

- ➤ **India Towards CBDC:** The **Finance Minister of India** announced the introduction of a **Central Bank Digital Currency (CBDC)** for India in the form of **Digital Rupee**. It will give a big boost to the **Indian digital economy**.
  - ○ Digital currency will also lead to a more efficient and cheaper **currency management system.**
  - ○ However, **CBDC should exist in harmony with other cryptocurrencies** to reap the full benefits of the Blockchain technology.

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India's Transition to Green Transport

This editorial is based on "Green Transport: Keep all options on the table" which was published in The Hindu Business Line on 18/09/2022. It talks about the need to harness the potential of Green Transportation in India.

Tags: Governance, GS Paper - 2, GS Paper - 3, Infrastructure, Growth & Development, Government Policies & Interventions, Renewable Energy, Technology Missions

An efficient **Transport Sector** is important for economic development of the country and for the well-being of its people. The transport sector makes up **30%**

of the **global energy consumption**. Its energy use is expected to grow 1% every year till 2030.

In India, the transport sector has grown extensively, both in terms of physical spread as well as capacity to meet the mobility demands for both **passengers** as well as **freight**. Despite its impressive growth, it is seen that the existing transport infrastructure in India is **far from meeting the growing mobility needs** in terms of **coverage, capacity as well as service quality.**

Unsustainable transport activities can produce widespread negative impacts like **degradation of air quality, greenhouse gas emissions,** increased threat of global **climate change** and habitat loss of animals and fragmentation.

Therefore, there is a need to pay greater attention to **sustainable (green) transport** at city, state and national level as the way forward for **India's mobility sector.**

> **What is Green Transport?**
> ➢ **Green transport (Sustainable transport)**, refers to modes of transportation that do not negatively impact the environment and **ecological balance** as well as human health.
> ➢ **Components** for evaluating sustainability include:
>   ❍ **Vehicles** (car, bus, aeroplane, ships etc.)
>   ❍ **Source of energy** (**wind** and **solar energy, electricity, and biomass** etc)
>   ❍ **Infrastructure** (roads, railways, airways, waterways)

What is the Current State of Transport Infrastructure in India?

➢ **Roads: Roads** are the dominant mode of transportation in India today. They carry almost **85% of the country's passenger traffic**.
  ❍ Road transport also helps the **industrial sector** by moving raw materials to industries and finished goods to market.

➢ **Ports and Shipping:** India has **13 major ports** along its more than **7500 km** long coastline. Ports play a very significant role in improving **foreign trade** in a growing **Indian economy**, with its seaborne foreign trade being **95% by volume** and **67% by value**.

➢ **Railway: Indian Railways** is the main artery of the country, it is also called as **lifeline of India** which provides both freight and passenger mode of transportation.
  ❍ India's railway network is the **4th largest railway network** in the world and **2nd largest in Asia,** under single management. It is also the single largest employer in India.

➢ **Civil Aviation:** The **civil aviation industry in India** has emerged as one of the fastest growing industries in the country. India has become the **3rd largest domestic aviation market** in the world and is expected to overtake the **United Kingdom** to become the **3rd largest air passenger** market by 2024.

> **What are the Recent Government Initiatives Regarding Sustainable Transport Development?**
> ➢ **Onboard Driver Assistance and Warning System (ODAWS)**
> ➢ **Sagarmala** and **Parvatmala Project**
> ➢ **Gati Shakti Mission**
> ➢ **Atal Mission for Rejuvenation and Urban Transformation**
> ➢ **National Electric Mobility Mission Plan**

What are the Key Challenges Related to Transportation in India?

➢ **Challenges in Railways:**
  ❍ **Slow Expansion of Rail network:** In view of the country's size and requirements of a growing economy, the **growth in railways has been extremely slow** and inadequate.
    ● There is also **little presence of railways in hilly regions** and **North Eastern (NE)** states in India, making access to railways a major concern in these areas.
  ❍ **Higher Freight Transportation Cost:** Freight transportation costs by Railways in India are much higher than in most countries as **freight tariffs** have been kept high **to subsidise passenger traffic.**
  ❍ **Social v/s Commercial Objective:** Private contracts are driving Indian Railways towards **commercialization**. However, privatising railways will result in better infrastructure, which in turn will enhance travel facilities.
    ● But, the private players would be more concerned with **making a profit** which will result in a **rise in prices**, resulting in **poor reach to all segments of society**. This will undermine the very social objective of railways.

➢ **Challenges in Road Transportation:**
  ❍ **Catalyst in Water Stress:** Unsustainable road construction and maintenance, including the creation of impervious surfaces adversely affect **water quality due to faster rates of runoff**, **lower groundwater recharge rates**, and **increased erosion**.
  ❍ **Poor Accessibility in Rural Areas:** Rural areas home to almost 70% of India's population. Still, **33% of India's villages do not have access to all-weather roads** and remain cut off during the monsoon season.

- The problem is more acute in India's **northeastern states** which are **poorly linked to the country's major economic centres**.
- ❍ **Rising Road Accident:** India has **1% of the world's vehicles but accounts for 11% of all road crash deaths**.
  - According to the **Ministry of Road Transport and Highways' 2020**
    - Speeding accounted for **69.3%** of deaths.
    - Non-wearing of helmets resulted in **30.1%** deaths.
    - Non-use of seatbelts caused **11.5%** of deaths.
- ❍ **Inadequate Traffic Calming Infrastructure:** There is a lack of traffic calming measures and manpower in highly congested cities of India. Despite the fact that more than 60% of road accidents result from over-speeding, **speed limit signs are rarely seen even on state highways and major roads.**

➢ **Challenges in Airways Transportation:**
  - ❍ **Accessibility and Affordability Constraints:** Poor regional connectivity, inadequate hangar space, and l**ack of land for airport expansions** are some of the key constraints of India's aviation sector.
    - Also, because of **high central and state taxes,** aviation fuel in India is approximately **60% more expensive** than it is in **ASEAN** and the **Middle East countries**.
      - This makes the **profitability of the civil aviation industry vulnerable to volatility in global oil prices**.

➢ **Challenges in Ports and Shipping:**
  - ❍ **Inefficiency and High Turnaround Time:** In India, Inefficiencies in port operations have resulted in **high dwell times and high turnaround times,** due to a wide range of issues, including insufficient port infrastructure and **lengthy custom clearance procedures.**
    - Also, poor hinterland connectivity and inefficient modal transfers lead to problems of **slow evacuation of cargo**.

➢ **Other Challenges:**
  - ❍ **Gaps in Urban Transport Management:**
    - There is a **gap between the demand and supply of public transportation** primarily due to rapid **urbanisation**.

➢ The growing number of vehicles in Indian cities is **viewed as the essential driver of climate change** due to high dependence on **combustible fuel.**
  - **Urban transportation is the second leading source of carbon dioxide (CO2) emissions due to its dependency on fossil fuels.**

- ❍ **Threat to Biodiversity:**
  - Transport sector has been recognized as a primary cause of habitat loss and a subsequent decline in **biodiversity.**
  - Expansion of road, railways, airways network creates **fragmentation and degradation of habitat**.

What Should be the Way Forward?

➢ **Intelligent Transportation System (ITS):**
  - ❍ There is a need to shift towards an **intelligent transport system** to enable users to be better informed and make safer, more coordinated, and **'smarter' use of transport networks.**
  - ❍ **Example:** Intelligent traffic management, V2X communication, **Electronic toll collection.**

➢ **Awareness Towards Green Travel Habits:**
  - ❍ It is necessary to launch intensive awareness campaigns that **educate people on the ill effects of the growing transport problems.** Promoting greater use of **non-motorized vehicles**, proper maintenance of their vehicles, **safer driving practices**, etc.
  - ❍ Such campaigns will encourage individuals, families and communities to adopt **"Green Travel Habits"** that would make travel less polluting and damaging.

➢ **Resilience, Equity, and Sustainability in Transport (REST):**
  - ❍ **Resilience:** There is a need to **rethink and restore confidence in public transport,** including the procurement of more buses, the adoption of **e-buses, bus corridors** and **bus rapid transit systems** with **digitization of public transport.**
  - ❍ **Equity:** Last mile **road and railway connectivity** should be at priority with **special attention to the north east region.**
  - ❍ **Sustainability:** Emission norms should be tightened and **electric vehicles** should be promoted, as well as **biofuels** should replace fossil fuels.
    - The development of several **electric freight corridors** to promote electrification is also crucial to reaping the benefits of electric vehicles.

➢ Manufacturing Hub in Green Mobility:
  - ❍ With **proper policy support, industry action, market generation, increased investor interest and acceptance**, India can position itself as a **low-cost, zero-carbon manufacturing hub in green mobility**, at the same time fulfilling its goal of **economic development, job creation, and improved public health.**

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Science and Tech-driven Diplomacy

This editorial is based on "India needs a holistic and effective 'techplomacy' strategy" which was published in Hindustan Times on 19/09/2022. It talks about utilising technology as a credible foreign policy and diplomacy tool for India.

Tags: International Relations, **S Tag:** GS Paper - 2, Government Policies & Interventions, E-Governance, Issues Relating to Development, Bilateral Groupings & Agreements, Global Groupings, IT & Computers, Cyber Security

In International Affairs, **diplomacy, economics and technology** are the most important tools for any nation. Historically, **Science and Technology** has been one of the main currencies for exchange and dialogue among human societies and sovereign nations.

In modern times, it is emerging as an important instrument of **techno-economic power** that will **shape the changing dynamics of international relations** and global affairs. Technologically adept nations are developing their own strategies to integrate technology with their foreign policy and diplomatic initiatives.

Science and Technology is a low-hanging fruit for India to employ in its soft power arsenal. Along with a **multi-aligned stand** on global geopolitics, the time is ripe for India to extend its **science and tech ties in global geoeconomics** in a more comprehensive and well-rounded manner.

How Science and Technological Diplomacy Can Shape Global Geopolitics?

➢ **Science in Diplomacy:** It means the **scientific inputs going into diplomacy** and foreign policy making.
  ○ Global challenges such as **weapons of mass destruction**, **climate change**, **cyber security,** human health, energy and environment, **outer space** etc., all require scientific inputs in order to understand and deal with them.
    ● These challenges are **trans-border and require application of science and technology in order to resolve them** in addition to normal diplomatic efforts.
  ○ **Example: Intergovernmental Panel on Climate Change (IPCC).**
➢ **Science for Diplomacy:** It offers alternative channels of engagement among countries that may have **political differences**, thus playing an important role by influencing the dynamics of **power-balance between sovereign nations.**
  ○ Scientific values of **rationality, transparency and universality** are the same the world over. S&T

cooperation therefore provides a **non-ideological environment** for the participation and free exchange of ideas.
➢ **Diplomacy for Science:** It means making **use of diplomacy to gain benefits in science and technology** – bilaterally as well as multilaterally.
  ○ It seeks to acquire science and technology knowledge **to strengthen national economy** and capacity and to participate more effectively in international discussions where science and technology are involved.

What is the Current Status of Science and Tech-Driven Diplomacy in India?

➢ The **Science, Technology and Innovation Policy (STIP) 2013** was one of the instances that an intersection of technology and diplomacy found a mention in an official government document.
  ○ The document states that the "policy framework will enable strategic partnerships and alliances with other nations through both **bilateral and multilateral cooperation in science, technology and innovation**.
  ○ **Science diplomacy, technology synergy** and **technology acquisition** models will be judiciously deployed based on strategic relationships.
➢ **International Solar Alliance (ISA) 2015** was launched by **India and France** to boost solar energy in developing countries.
  ○ It is an association of **121 signatory countries** which **majorly are sunshine countries** (countries lying between **Tropic of Cancer and Tropic of Capricorn**), **and is an excellent example of modern-day science diplomacy.**
➢ **Draft Science, Technology and Innovation Policy, 2020** discusses the role of **Science & Technology** in re-organising India's foreign policy priorities and shaping the global technology ecosystem.
➢ In **2020,** the **Ministry of External Affairs (MEA)** created technically specialised divisions, such as the **cyber diplomacy division**, **e-governance and information technology division,** and the new emerging and strategic technologies division.

What are the Major Challenges Before Science and Tech-Driven Diplomacy?

➢ **Growing Risk of Weaponization of Outer Space:** Given the advances in space technology, many areas of peaceful use of space are increasingly becoming **double-edged** and there is a growing risk of **militarisation and weaponization of outer space.**

○ Satellites that can be used for both civil and military purposes have led to the development of anti-satellite weapons **technology.**

- Several countries, including the **United States, Russia, China, and India**, have already tested this.

○ Also, as we **move from exploration of the Moon and Mars to exploitation,** questions of mineral and other rights on extraterrestrial bodies are likely to surface.

➢ **Rise of Cyber-Warfare and Cyber-Armies:** Technology has changed the nature of warfare from visible **large-scale military action and violence** to **subtle, invisible yet decisive cyberwarfare** for crippling the enemy's information environment in a war-like situation.

○ Many countries around the world are maintaining military units that are specifically trained to operate in a cyberwarfare environment called **cyber-armies.**

➢ **Threat of Bioweapons:** With advances in biotechnology, **microbiological agents (such as bacteria, viruses, or fungi)** can be used as biological weapon to intentionally cause harm to humans, animals, or plants in case of conflict and war.

➢ **Data Privacy Concern:** Big data is often perceived as the **black gold of the 21st century.**

○ As the Internet allows for the aggregation and globalisation of markets and consumers, **cross-border data flow** is becoming a contested issue of data privacy and **global governance.**

➢ **Growing China's Influence:** The last two decades have seen the Chinese leapfrog in critical technology domains such as quantum information and the electric vehicles ecosystem.

○ Also, the Chinese state has been actively promoting and exporting its technology infrastructure beyond its borders, thereby **increasing its sphere of influence.**

How India Can Harness the Potential of Science and Tech-driven Diplomacy?

➢ **Unifying World with Unified Payment System:** The Unified Payment Interface **(UPI)** has proved a tectonic shift in the payments system for India.

○ An open and multilateral digital system of payments that has been developed in India **can be pushed for adoption in different countries.** This can serve as a **perfect soft power opportunity**.

○ A key diplomatic win would be when **India's existing digital payments system becomes a globally accepted standard**. This is already underway, with four countries **(Nepal, Bhutan, Singapore and UAE)** having accepted and using India's payments system.

➢ **Torchbearer in Public Health Space:** In terms of global presence, India remains the **world's largest supplier of generic medicines and drugs**, accounting for **20%** of the global demand. India has also been at the forefront of vaccine manufacturing and **Vaccine diplomacy**.

○ This has made India a **torchbearer in the public health space** forging new ties around. **More incentive for Research and Development** activities can **improve India's soft power in terms of global health cooperation.**

➢ **Fostering Multilateralism**: In the technology sphere, diplomacy is not about seeking entry into an exclusive alliance or club but about **maximising a state's integration with the existing global value chains.**

○ Promoting the **growth of open source technologies (and built on open standards)** which have very little entry barriers in the form of licences, can be a priority on the multilateral front. In this way, technology related diplomatic engagements will increase as well as improve **India's accessibility to key technologies.**

➢ **Science Tourism: India can conceptualise science tourism** promoting scientific locations around the nation like **National Science Centre, Delhi** and **Birla Science Museum, Hyderabad** that can be visited by the people across the globe to quench their thirst for knowledge in the **various fields of science and technology.**

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Raising the Bar on Capital Punishment

This editorial is based on "Life and death: The Supreme Court's initiative to raise the bar on capital punishment is welcome" which was published in The Indian Express on 21/09/2022. It talks about scope of Capital Punishment in Indian Justice System and recent stand of Supreme Court of India on the same.

Tags: Governance, GS Paper - 2, Judiciary, Government Policies & Interventions, Issues Arising Out of Design & Implementation of Policies

Capital punishment, is a **legal penalty** ordered by the Court against the person who has committed a certain crime that is prohibited by the law. In India, it is only given in the **rarest of the rare** cases as per the Indian Penal Code and Code of Criminal Procedure.

Capital punishment is the most controversial penal practise debated highly all over the world and the word

'**Abolition of Death Penalty**' is one of the most discussed topics in **United Nation (UN)** where Death Penalty is considered as a violation of **Human Rights.**

What is Capital Punishment?

➤ **Capital Punishment** stands for most severe form of punishment. It is the punishment which is awarded for the most **heinous and grievous crimes against humanity.**

  ❍ Certain offences under **Indian Penal Code**, for which the offenders can be sentenced to punishment of death are:

    ● **Murder** (Section 302)

    ● **Dacoity with murder** (Section 396)

    ● **Criminal Conspiracy** (Section 120B)

    ● **Waging war against the Government of India or attempting to do so** (Section 121)

    ● **Abatement of mutiny** (Section 132) and others.

➤ The term **death penalty is sometimes used interchangeably with capital punishment,** though **imposition of the penalty is not always followed by execution**, it can be **commutated into life imprisonment** or **pardoned by the President** under **Article 72 of Indian Constitution.**

What are the Arguments in Favour of Death Penalty in India?

➤ **Retribution: Retribution** refers to the idea that **punishment is imposed because it is deserved** and that the death penalty is necessary to ensure justice for the victims, their families, and/or society at large.

  ❍ In arguing for the death penalty, supporters sometimes mention that **"an eye for an eye"** is appropriate, the punishment should match the crime, and the penalty should be a moral response to the crime.

➤ **Procedure Established By Law: Article 21** of the Indian Constitution ensures the **Fundamental Right to life and liberty for all persons**.

  ❍ It adds no person shall be deprived of his life or personal liberty **except according to procedure established by law.**

  ❍ This has been legally construed to mean if there is a procedure, which is fair and valid, then the **state by framing a law can deprive a person of his life.**

➤ **Deterrence: Deterrence** is the most commonly expressed rationale for the death penalty. The essence of the theory is that **"when there are executions, violent crime decreases"**.

  ❍ That means, the **threat of being executed** in the future will be sufficient to cause a significant number of **people to refrain** from **committing a heinous crime** they may otherwise commit.

➤ **Safety and Welfare the Citizens:** A democratic nation like India relies on the state as a means of safety, security, and **enforcement of the faith of the public in the legal system**.

  ❍ The **Preamble of the Indian Constitution** also refers to **Social justice**, so capital punishment is often defended on the groud that state has the moral obligation to safeguard its citizens' welfare and safety.

What are the Arguments Against Death Penalty in India?

➤ **Deflecting From Purpose of Punishment**: Capital punishment **does not rehabilitate prisoners**, which is the **very purpose of punishment.**

  ❍ The accused is given punishment with the vision of making him capable of **returning to society** and function as a law abiding member of the community.

➤ **Immorality Associated With Retribution:** People who oppose Capital punishment are of the view that **retribution is immoral**, and it is just a **sanitized form of vengeance.**

  ❍ Further, the data from across the world could not conclusively prove that the death penalty does reduce the crime rate, **especially rape.**

    ● Death has been prescribed in rape cases since **2013 (Sec. 376A of IPC),** still, rapes continue to happen and in fact, the **brutality of rapes has increased manifold**. This compels one to think whether the death penalty is an effective deterrent to crime or not.

➤ **Reciprocation of Cultural Violence:** The ones who oppose death penalty argue that it reciprocates the existing cultural violence in society and does not offer a solution.

➤ **Blind Eye on Societal Failure:** Hang till death only accounts for the '**individual failure' of the rapist and turns a blind eye on the 'societal failures'**.

  ❍ People who oppose Capital punishment are of the view that through the political will of executing a rapist, the **onus of making society safer for women is shifted upon individuals, and society is let free of its responsibilities.**

    ● According to the national figures, **74.1%** of the prisoners sentenced to death in India are **economically vulnerable** according to their occupation and landholding and most death row prisoners belong to the **lower strata of society**.

➢ **Execution of the Innocent:** One argument against capital punishment is the notion that **mistakes or flaws in the justice system** can lead to innocent people being killed.

What are the Major Cases Related to Capital Punishment in India?

➢ **Jagmohan Singh V/s State of UP 1973:** The **Supreme Court** held that according to **Article 21** deprivation of life is constitutionally permissible if that is done according to the procedure established by law.

➢ **Bachan Singh V/s State of Punjab 1979:** In this case the Supreme Court held that capital punishment should only be given in rarest of rare cases.

➢ **Machhi Singh V/s State of Punjab 1983:** The Supreme Court outlined certain factors that determine whether a case should be considered rarest of rares.

  ❍ The **Supreme Court listed the two questions that need to be answered** prior to the imposition of the death sentence on individual cases.

   ● Firstly, is the offence committed so exceptional that there is **no scope for awarding any other sentence.**

   ● Secondly, even when weightage is accorded to the mitigating circumstances **does the circumstances still warrant death penalty.**

What is the Recent Stand of the SC on Capital Punishment?

➢ In response to concerns about the way courts award the death penalty, the **Supreme Court has suo motu started a review of the process**. The apex court will consider laying down guidelines for determining **mitigating circumstances in death penalty cases.**

➢ The SC stated that the accused **must have a meaningful, real and effective hearing**, along with the chance to introduce evidence relevant to the sentence question.

➢ Supreme Court also suggested that while delivering judgement in case related to death penalty the convict's **social background, age, educational levels** should be taken into account.

  ❍ Additionally, considerations should be made regarding the convict's **psychological experiences and post-conviction behavior,** before deciding whether the death penalty should be imposed or not.

Conclusion

➢ **Focus should not only be on eliminating the criminal but also on elimination of the crime.** The purpose of punishment in criminal law, if looked at from a wider angle and a broader perspective, is to achieve the goals of an **orderly society.** There is a need to ensure the restoration of peace and prevent future occurrences of crimes by **balancing the competing rights of the criminal and the victim.**

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CBI's Shrinking Jurisdiction

This editorial is based on "What CBI's shrinking jurisdiction implies" which was published in Hindustan Times on 21/09/2022. It talks about the issues related to the Central Bureau of Investigation and solutions.

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

The **Central Bureau of Investigation** is an **extra constitutional, multidisciplinary investigation agency** of the Government of India, officially designated single point of contact for liaison with the **Interpol.**

CBI is empowered to investigate cases of **corruption, bribery and misconduct** of Central government employees and take up any case of public importance on the request of a state government.

But currently, the CBI is in the eye of the storm as the opposition parties allege that the federal agency is targeting them. **As of now, 9 Indian states have withdrawn consent to the CBI** for prosecution in their respective jurisdictions. Distrust in CBI by a **third of India's states** underlines the **weakening spirit of cooperative federalism.**

What is the Background of Establishment of CBI in India?

➢ In **1941**, **Government of India** established the **Special Police Establishment (SPE),** which is the **forerunner** of the Central Bureau of Investigation.

  ❍ During **World War II**, the SPE's role was to examine accusations of bribery and corruption in dealings with the **Indian War & Supply Department**.

➢ After **World War II,** the necessity for a Central Government body to examine accusations of bribery and corruption by Central Government workers was realised.

  ❍ As a result, the **Delhi Special Police Establishment Act** was enacted in **1946**.

  ❍ The SPE's supervision was shifted to the Home Department, and its **powers were expanded to include all departments of the Indian government.**

➢ In **1963**, the **Ministry of Home Affairs altered the name** of the Special Police Establishment to the **Central Bureau of Investigation (CBI).**

  ❍ CBI was established on the recommendations of **Santhanam Committee on Prevention of Corruption (1962–1964).**

➤ Currently, CBI functions under the Department of Personnel, **Ministry of Personnel, Pension & Public Grievances** of the Government of India.

What are the Major Functions of the Central Bureau of Investigation(CBI)?

➤ Investigating cases of **corruption, bribery and misconduct** of Central government employees under the **Prevention of Corruption Act** against Indian public officials, **public sector undertakings,** corporations, and bodies that are owned or controlled by the Indian government.

➤ Investigating cases relating to infringement of **fiscal and economic laws,** that is, breach of laws concerning export and import control, customs and central excise, income tax foreign exchange regulations.

   ○ **Example: Fake Indian Currency Notes**, **Bank Frauds**, **Import Export & Foreign Exchange violations** etc.

➤ Taking up, **on the request of a state government**, any case of public importance for investigation. Whereas, it can **suo-moto** take up investigation of offences in the **Union Territories.**

➤ Maintaining **crime statistics** and disseminating criminal information.

What are the Current Issues Related to the Central Bureau of Investigation (CBI)?

➤ **CBI v/s State Police:** Along with state police forces, the **Special Police Establishment** (**a division of CBI**) enjoys the concurrent powers of investigation and prosecution for offences that sometimes **leads to duplication and overlapping of cases.**

➤ **Narrow Investigation Arena:** CBI investigation in a particular state is subjected to approval by the State Government.

   ○ The ruling party in a state, sometimes genuinely and many times on flimsy grounds, has **denied permission** to the CBI to investigate matters, thereby **limiting the extent of investigations.**

➤ **Face-off with Other Law Enforcement Agencies:** There have been instances when the CBI faced-off with other law enforcement agencies like the **Intelligence Bureau (IB),** Income Tax Authorities (ITA), **Directorate of Enforcement.**

   ○ These were also due to the **CBI lacking legal powers to operate on an all-India basis.**

➤ **Political Interference:** The **Supreme Court of India** has criticised the CBI for excessive political interference in its functioning, calling it a "**caged parrot speaking in its master's voice".**

   ○ Governments have often used it to hide wrongdoing, keep coalition partners in line, and deter political opponents.

   ○ In 2019, the **then CJI** questioned the CBI's role in "politically sensitive" cases, suggesting there was a **"deep mismatch between institutional aspirations and governing politics".**

What Should be the Way Forward?

➤ **Incorporation of Statutory Provisions:** CBI first needs a **dedicated and separate law** that can provide it with unequivocal statutory backing and resolve concerns regarding the CBI's legal status.

   ○ A new CBI Act should be promulgated in a manner that it ensures the **autonomy of CBI** while at the same time **improving the quality of supervision.**

➤ **Insulation from Political Current:** The SC had observed that there is a need to **"provide permanent insulation"** to agencies like **CBI against extraneous political influences** to enable them to discharge their duties in the manner required for proper implementation of the rule of law.

➤ **Internal Revitalisation of CBI:** In order for CBI to function effectively, not only the extrinsic factors, but also the intrinsic ones such as the **code of conduct, fixed tenure** of officers, and the **consensus building between different departments** will have to be taken into account so that the **sanctity, credibility, sustainability and durability of the agency is maintained.**

➤ **Recommendations of Parliamentary Standing Committee:** The 24th report of Department related **parliamentary standing committee** on personnel, public grievances, law and justice on working of CBI recommended the following:

   ○ Infrastructure investments should be improved

   ○ Enhancing CBI's strength to strengthen human resources

   ○ To give the CBI more powers (related to the **Union, State and Concurrent lists.**

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Fire Safety in India

This editorial is based on "The failure of fire safety norms" which was published in The Hindu on 22/09/2022. It talks about recent fire accident in Telangana and issues related to Urban fires in India.

Tags: Geography, GS Paper - 1, GS Paper - 3, Urbanisation, Disaster Management

Urbanisation leads to house densification, a phenomenon experienced in both planned and unplanned settlements in cities. In **densely packed urban areas** of India, devastating **fires** are the most predominant risks.

According to **India Risk Surveys 2018**, India ranks 3rd in **fire incidents**, especially in the Northern and Western regions of the country. Typical causes of fire disasters in urban areas include **usage of wood fuel and charcoal for room heating, waste burning around courtyards, poor city infrastructure** for firefighting and accessibility which increase the potential for fire risk occurrence.

Urban fire can adversely affect human lives and property as well as **environment and ecosystem** by generating a large amount of **smoke pollution and releasing greenhouse gases.** Despite major fires in the past, **flagrant violations of building and fire safety norms continue unabated** and fire accidents take place with alarming regularity. It is high time fire safety is taken seriously and violators are brought to book.

What is the Current Provision Regarding Fire Safety in India?

➢ Fire service is one of the most important emergency response services in the country, which comes under the **12th schedule of the Indian Constitution** dealing with **Municipal functions.**

　○ At present, fire prevention and fire fighting services are organised by the concerned **States and Union Territories (UTs), and Urban Local Bodies (ULBs).**

➢ The **National Building Code (NBC) of** India, **2016:** Published by the **Bureau of Indian Standards,** NBC is a "**recommendatory document",** and state governments are expected to incorporate it into their local building by laws, **making the recommendations a mandatory requirement.**

　○ It mainly contains **administrative regulations,** general building requirements such as **fire safety requirements**, structural design and construction (including safety) provisions.

➢ **Model Building Bye Laws, 2003**: Under **Modern Building Bye Laws 2003,** fire clearance is the responsibility of the **C**hief Fire Officer at each point. The concerned **Development Authority** must provide the building plans to the Chief Fire Officer for clearance purposes.

➢ **National Disaster Management Authority (NDMA):** Guidelines by **National Disaster Management Authority** stipulates fire safety requirements for **public buildings, including hospitals** along with design guidelines relating to maintaining a **minimum level of open space, exit mechanisms, stairs, and evacuation drills.**

What are the Issues Leading to Urban Fire in India?

➢ **Lack of Uniform Fire Safety Legislation:** According to **Accidental Deaths & Suicides in India report 2020,** a total of **11,037 cases of fire accidents** were reported in the country during 2020. Despite that there is **no uniform legislation** regarding fire safety in India.

➢ **Natural and Climatic Causes**: Natural weather phenomena like **lightning, extreme heat with low humidity** cause fires in urban areas.

➢ **Absence of Smoke Management and Emergency Lighting:** Because high-rise buildings often contain large enclosed spaces or voids, even a small fire can become a fire hazard due to the **lack of smoke management** and **warning mechanism through emergency lighting.**

➢ **Lack of Vulnerability Analysis:** Due to poor regulation and enforcement of **National Building Code 2016, lack of vulnerability analysis** buildings leads to urban fire as vulnerability directly affects preparedness, response, and recovery.

➢ **Lack of Proper Electric Insulation: Polyurethane foam (PUF)** used for plastic insulation is highly flammable due to its proximity to electrical wiring that, when heated due to overloading or short circuit, **immediately catches fire.**

What Should be the Way Forward?

➢ **Fire Safety Legislation and Audit:** India needs strong **fire safety legislation** with an effective time to time audit mechanism to reduce the vulnerability of urban fires.

➢ **Corporate Safety Responsibility:** Building corporations need to ensure proper **vulnerability assessments** before construction and maintain basements free of obstructions to maintain proper escape channels.

➢ **Fire Hazard Response Plans:** It is imperative that every **Urban Local Body** develops a **fire hazard plan in partnership with administration, fire brigade, and health department** and conduct regular mock drills in public spaces to facilitate awareness among the people and swift recovery from unforeseen fires.

➢ **Modernisation of Fire Safety Equipment**: Finances and assistance should be provided by the government to bolster and modernise fire departments with equipment like **smoke detectors**, **fire hose cabinets** and **automatic sprinkler systems.**

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Reimagining India's Urban Space

This editorial is based on "Why our urban spaces need to be reimagined" which was published in The Indian Express on 24/09/2022. It talks about the necessity of reforms for the development of India's urban space.

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

Urban Space is a breathing entity, it is ever-growing and evolving. Urbanisation in India is taking place at a fast pace; it is projected to have about **35%** of India's population living in urban areas by the end of **2022.**

However, **unsustainable urban planning** is a huge limiting factor to achieving the real economic potentials of urbanisation as **urban challenges have changed and require different approaches considering the current scenario.**

As **India is approaching the tipping point in its transition from rural to urban society**, it is imperative that all sections of society have the best opportunities for economic growth.

What are Provisions Related to Urban Governance in India?

➤ A **pan-India vision** for the urban area was first articulated in the 1980s with the creation of the **National Commission on Urbanisation (1988).**

➤ Through the **Directive Principles of State Policy** and the **74th Amendment Act 1992,** the Indian Constitution imposes a clear mandate for **Democratic Decentralisation (Municipality)** in India's Urban Space.

➤ The **15th Finance Commission** report on local bodies also emphasised the city governance structures and the need for their **financial empowerment.**

What are the Recent Initiatives Related to Urban Development?
➤ Atal Mission for Urban Rejuvenation and Urban Transformation (AMRUT)
➤ Pradhan Mantri Awas Yojana-Urban (PMAY-U)
➤ Climate Smart Cities Assessment Framework 2.0
➤ TULIP-The Urban Learning Internship Program

What are the Current Major Challenges Related to Urban Space in India?

➤ **Purse, Purpose and Politicisation of the ULBs:** In view of **inadequate finances**, the **Urban Local Bodies (ULBs)** have been unable to fulfil their obligatory functions.

○ The **functions of ULBs are often overlapped with special purpose agencies** resulting in accountability mismatch.

○ In addition, urban local governments are seen more as **platforms for political mobilisation** than as effective tools for development.

➤ **Urban Heat Island:** Natural land cover is reduced with dense **concentrations of pavement, buildings**, and other surfaces in urban areas that absorb and retain heat leading to the formation of **urban heat island**.

○ It **increases energy costs** (e.g., for air conditioning), **air pollution** levels, and **heat-related illness** and mortality.

➤ **Critical Infrastructure Shortages:** Infrastructures are one of the layers that form a city. Majority of cities in India **lack physical and cyber-based systems** essential to the minimum operations of the **local economy and local governance.**

○ Lack of critical infrastructure like access to **safe housing, clean water and sanitation, waste management,** timely health care, **digital infrastructure and education** affects the upward mobility of urban residents and the city as a whole.

➤ **Inefficient Water Resource Management:** Due to an **increase in land prices** and the **lack of available land in city** centres, new developments in Indian cities and towns are taking place in low-lying areas, often as **encroachments on lakes, wetlands and rivers.**

○ As a result, the natural drainage systems have become less effective, resulting in **urban flooding.**

○ Also, **poor solid waste management** is causing blockage to storm water that is leading to **waterlogging and flooding.**

➤ **Weak Urban Transport:** The **supply and demand of public transportation in urban areas are out of balance**, so private vehicles are increasing, **leading to congestion** as the most prevalent issue of urban transport.

○ Also, the growing number of vehicles in Indian cities is viewed as the **essential driver of climate change** due to high dependence on combustible fuel.

➤ **Urban Poverty:** The urban poor is largely the **overflow of the rural poor who migrate to urban areas** in search of alternative employment and livelihood. This creates overcrowding in the already packed urban infrastructure.

○ Due to the informal nature of work, **migrants have no social security,** causing them to be in fear of being expelled at any time as seen at the time of **Covid-19.**

What Should be the Way Forward?

➢ **Sustainable Urban Planning:** There is a need to align towards **sustainable solutions for urban issues** that can include **green infrastructure**, **mixed-use of public spaces** and use of **alternative energy** sources such as solar and wind.

  ❍ Good sustainable urban planning can help improve the welfare of people shaping their urban areas and neighbourhoods into **healthier, more efficient spaces.**

  ❍ It will also help India to achieve **Sustainable Development Goals** specifically **Goal 11** (**making cities inclusive, safe, resilient, and sustainable**).

➢ **Local E-Governance:** Urban local bodies should maximise **e-participation** and include various social categories and in decision-making and **bottom-up approach** in policy-making through the use of new technologies such as **social networks.**

➢ **Urban Employment Guarantee:** A replica of **MGNREGA scheme** is needed in urban areas to provide a basic standard of living to the urban poor. **Social security** measures for migrants and unorganised sector workers are also necessary.

❍ The **Indira Gandhi Urban Employment Guarantee Scheme** has been rolled out in **Rajasthan** with the objective of providing **economic support to the poor** and needy families **living in the cities** through work to be provided on demand for **100 days in a year.**

➢ **Towards Green Mobility: Public transport** needs to be rethought and rebuilt, including by adopting **e-buses**, creating **bus corridors,** and using **bus rapid transit systems** to achieve green mobility in India's urban space.

➢ **Special Cultural and Environment Zones:** Indian cities can create Special Cultural and Environment Zones with **zero-exploitation of that area** and **"Our City Our Culture"** centres as a means to **promote cultural values.**

  ❍ **City Tourism** can be promoted in cities and included in **school activities (especially government schools)** that will strengthen **people's emotional attachment with their cities**, as well as **create jobs** for the newly urbanised Indian population.

Smart Mobility
- Mixed-modal access
- Clean & non-motorised option
- Integrated ICT

Smart City
- 21st century education
- Inclusive society
- Embrace creativity

Smart Living
- Culturally vibrant & happy
- Safe
- Healthy

Smart Economy
- Entrepreneurship & innovation
- Productivity
- Local & global interconnectedness

Smart Government
- Enabling supply & demand size policy
- Transparency & open data
- ICT & eGov

Smart Environment
- Green buildings
- Green energy
- Green urban planning

Smart City

■■■

Web 3.0: The New-Age Internet

This editorial is based on "First Principles / Hold the hosannas for web3" which was published in Hindustan Times on 25/09/2022. It talks about the potential of Web 3.0 and related challenges.

Tags: Science & Technology, GS Paper - 3, IT & Computers, Indigenization of Technology, Technology Missions, Scientific Innovations & Discoveries

Web 3.0 is the third iteration of the internet based on **Blockchain Technology**. The goal of Web 3.0 is to create an **intelligent, autonomous, connected**, and **open internet.** As we move towards Web 3.0, one major trend is expected to be **decentralisation**. In essence, it is a concept that **transfers power** from a single person or body to the masses.

India has been one of the early proponents of Web 3.0 technology. According to the **Cryptotech Industry in India 2021** report by **NASSCOM and WazirX**, India is home to more than **230 Web 3.0 start-ups** already.

With the advancement of internet technology with Web 3.0, there is a significant probability of **technology**

becoming **weaponized**, **cyber threats becoming more prevalent**, and challenges to national security may arise. Therefore, it is vital to examine Web 3.0 closely for its future viability and sustainability.

What are the Different Versions of Web?

➢ **Web 1.0:** It is considered the first phase, where most of the web accessible to people was **"Read-only"**, allowing users to simply read content and not really interact with it.
  ○ This included content like **news sites, portals and search engines.**

➢ **Web 2.0:** With **Web 2.0,** the major new aspect that came into play is **interaction.** The trend of **'liking'** something on social media, **'commenting'** on videos, and sharing interesting content became increasingly popular.
  ○ This also became a phase where **ads started popping on pages**, again based on these data bits, and **monetisation** of content started growing.

➢ **Web 3.0:** Web 3.0 represents a new phase in the internet's evolution i.e., a **visually dynamic, semantic and spatial Web** with concept of decentralisation, openness, and greater user utility.
  ○ It combines a bouquet of disruptive technologies such as **blockchain, Augmented Reality, Virtual Reality**, Cloud, Edge, **IoT, cryptocurrency** and runs on an **AI-based analytics** layer for data-driven insights.
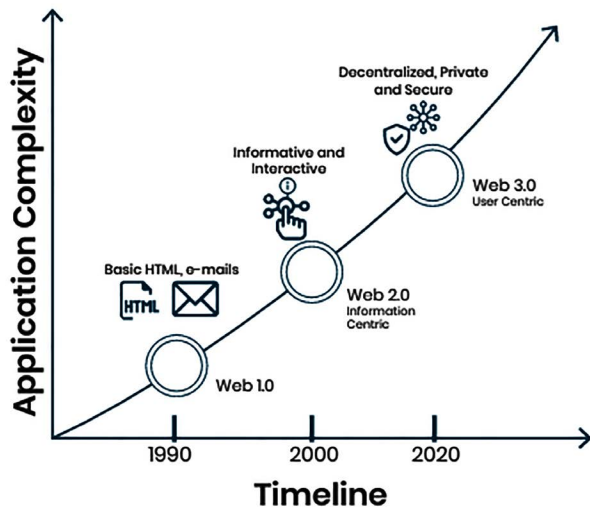
What are the Pros of Web 3.0?

➢ **Open and Transparent Network:** Web 3.0 is the open network, all applications and programs are developed using open-source software.
  ○ Essentially the code for development, which is a virtual resource, is public for the community and the development process is also kept transparent.

➢ **Seamless Ecosystem:** The centralised control over data by platform companies moves into the hands of the individuals with Web 3.0, using **smart protocols** on blockchain that eliminate the need for third parties.
  ○ Therefore, pushing a **trustless, permissionless and seamless ecosystem.**

➢ **Direct Relationship Between Sellers And Customers:** Web 3 technology can also **eliminate middlemen**, allowing sellers and customers to interact directly.
  ○ Non-fungible tokens are already enabling much of this, largely in **static digital art**, but the arrangement could easily be **replicated in music, films, and other mediums.**

➢ **Personalised Experience:** It has the potential to **blur the lines between the physical and digital world**. For instance, in the case of e-commerce using AI-powered Web 3.0**, sellers would be able to better understand the buying needs.**
  ○ They will show those products and services to buyers that they are interested in buying. Also, buyers will see more useful and relatable advertisements.

➢ **Independent Monetization:** In centralised content management, user-generated content typically belongs to the platform it is published but Web 3.0 can empower creators by giving them a better **opportunity to monetize.**
  ○ About **2 million professional content creators** in India can benefit from this.

What are the Cons of Web 3.0?

➢ **Rise in Cyber Crimes:** According to some experts, **regulating Web 3 would be difficult.** They further claim that decentralisation can bring new types of cyber-crime in the picture. It might lead to an **increase in cyber-crime and online abuse**, among other things.
  ○ **Cryptocurrency-based crime** remains a significant issue to address, especially given that **rising overall transaction volumes mean the value of illicit transactions** is increasing.

➢ **Lack of Grievance Redressal Mechanism:** Due to its decentralised nature, it raises a question about whom to approach in case of grievances and who is **accountable for data breach.**

➢ **Lack of Censorship Mechanism:** Web 3.0 remains silent on censorship. It might **give birth to obscene and provocative things.**
  ○ Also, removal of obscene or defamatory information, photos or videos will be challenging for national and international authorities.

➢ **Scalability Concern:** Scalability of Web 3.0 remains a major concern, since it is based on **blockchain technology.** Due to blockchain technology's **append-only data storage mechanism,** it cannot be modified, and **since demand is increasing, storage capacity is limited.**

➢ **Regulatory Vacuum:** The Web3 industries are **still navigating the regulatory space in India** which is not cemented as of yet. Additionally, many countries have not yet embraced space and defined clear protocols for its use.

What Should be the Way Forward?

➢ **Opportunity for India:** India has used **technology in shaping its domestic socio-economic development.** This technology has brought in greater inclusion and impactful societal outcomes.

○ For instance, through **Aadhaar, Jan Dhan, UPI, CoWin for vaccination,** India has built **low-cost, high-impact tech-for-better-life innovation.**

○ **In line,** India can also **leverage this early development stage of Web 3.0** by leading and playing the role of a catalyst.

● Web 3.0 can accelerate the value of **India's digital economy.** With such opportunities, there is a need to encourage and incentivise the startup ecosystem to **position India well on the Web 3.0 Map.**

➢ **Revitalising E-Citizens and E-Governance:** Web 3.0 can be utilised for better user experience of digital government services as well as **better-quality data for more evidence-based policymaking.**

○ From the government's perspective**, cross-ministerial services can be built more quickly through blockchain technology**.

➢ **Focus on Interoperable and Ethical Standards:** As all technologies evolve, the evolution of the internet is inevitable, **to make Web 3.0 a strong propellant of global economic growth**, prompt actions need to be taken by nations and industrial bodies to have **open, ethical, and interoperable systems** with solid standards.

➢ **Decentralised Science (DeSc):** Web 3.0's decentralised nature can be utilised in the fields of **science and research** to eliminate barriers of patenting and utilising the available resources for global good.

○ For instance, **blockchain technology** was used to store and classify vast amounts of **data relating to the virus's DNA genome sequencing**.

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Rethinking and Reimagining Tourism

This editorial is based on "Pitching India as a signature destination" which was published in The Hindu on 27/09/2022. It talks about the recent Dharamshala Declaration and future of the Tourism Sector in India.

Tags: Indian Heritage & Culture, GS Paper - 1, Indian Heritage Sites, Temple Architecture, Conservation, Growth & Development, Government Policies and Interventions.

Tourism has emerged as a **key driver of economic growth**. It is one of the fastest growing economic sectors and has significant impact on **trade, job creation, investment, infrastructure development and social inclusion.**

Tourism has been the most affected sector by the **Covid-19 pandemic**. According to the **UN World Tourism Organisation (UNWTO),** this is by far the worst crisis international tourism has faced since records began in 1950.

Post Covid-19, it is a **challenge for the tourism sector in India** to return to business as usual while maintaining safety and hygiene. The crisis is an **opportunity to consider the long-term implications of the crisis** and **reimagine the future of tourism** and take coordinated action across governments at all levels and the private sector.

What is the Status of the Tourism Sector in India?

➢ The **World Travel and Tourism Council's 2019** report ranks India's tourism at **10th** in terms of its **contribution to World GDP (Gross Domestic Product).**

➢ **India has 40 sites listed on the UNESCO World Heritage List** (32 cultural, 7 natural, and 1 mixed) as of 2021.

○ **Dholavira** and **Ramappa Temple** are the latest ones.

➢ A total of **39 million jobs** were created in the tourism sector in FY20, which represented 8% of the country's employment. **By 2029, it will account for 53 million jobs.**

What are the Recent Initiatives Related to Tourism in India?
➢ **Swadesh Darshan Scheme**
➢ Draft National Tourism Policy 2022
➢ **Dekho Apna Desh Initiative**
➢ National Green Tourism Mission

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

➢ **Lack of Training and Skill Development:** Given that the tourism industry is a l**abour-intensive sector**, it is

undeniable that practical training plays an important role. Over the years, **availability of trained manpower has not kept pace with growth of the tourism sector** in India.

- ○ The sector's growth is constrained by the **limited number of multilingual trained guides** and the **inadequate understanding of the benefits and responsibilities involved in tourism** among locals.

➢ **Underutilization of Tourism Potential:** India has an abundance of places that are left unexplored due to **lack of surveys, infrastructure, and connectivity,** which also results in lukewarm attitudes toward domestic tourism.

- ○ For instance, **despite the Northeast's breathtaking natural beauty, it is not often seen in the travel itineraries** of either domestic or international tourists in the country because of **lack of connectivity with the rest of the country** as well as a lack of infrastructure and necessary facilities.

➢ **Overexploitation of Resources: Unsustainable Tourism** often puts **pressure on natural resources through overconsumption** especially in **Himalayan regions** of India, where resources are already scarce.

- ○ Unsustainable tourism also affects local land use, resulting in **soil erosion, increased pollution, and loss of natural habitats** of endangered species.

➢ **Lack of Infrastructure and Security**: It is a major challenge for the Indian tourism sector. It includes a **lack of multi cuisine restaurants, basic health facilities, public transport** and hygiene and safety & security of tourists.

- ○ **Attacks on foreign tourists**, especially on women tourists have raised the security concern as India is placed at 114th position in terms of safety **(WEF Index 2017).**

What Should be the Way Forward?

➢ **Global Opportunity for India:** India's philosophy of **'Vasudhaiva Kutumbakam'** sees the world as one family. It gives India an **unwavering belief in multilateralism.**

- ○ Considering India's **rich heritage and culture**, an **unmatched variety of cuisine** tourism can be a **vehicle for enhancing India's soft power** and attracting foeign revenue.

- ○ Recent **Dharamshala Declaration** that aims to **recognise India's potential in supporting global tourism and also promote domestic tourism** is a good step in this direction.

➢ **Responsible, Inclusive, Green and Hospitable Tourism (RIGHT)**: To ensure **better accountability,** all stakeholders involved in **tourism management** need to be governed by a common umbrella of regulations.

- ○ There is a need to focus on **inclusive growth of tourism** by creating **opportunities for marginalised sections** of society including people living in remote areas.

- ○ Also, from **Gautama to Gandhi**, our **Indian culture has always stressed the importance of living harmoniously with nature and within our means**.

  - ● It is important to promote **green tourism** with minimal disturbance to the natural ecosystem and maintain **sustainable infrastructure** so that **warm hospitality can thrive.**

➢ **Unified Tourism System:** An **extensive market research and evaluation exercise** can be undertaken in order to **identify desired tourist destinations** across the country and major markets and segments.

- ○ It can be followed by developing a **digital unified system (promoting the essence of Ek Bharat Shreshtha Bharat),** to map these places and promote them through **social media.**

➢ **Tourism Impact Assessment:** The impact of tourism on local resources, atmosphere, and residents needs to be assessed regularly.

- ○ Also, tourism regulations can be revised from time to time to **address the needs of visitors, the industry, the environment, and host communities**, taking into account current and future economic, social and environmental impacts.

➢ **One State One Tourism Mascot: State animals** can be used as advertising mascots for Tourism Departments of different states as an innovative tool to **promote tourism education, especially among children.**

➢ **Presidency of G20:** India has an opportunity to position itself as a major tourism destination during India's presidency of the **G20 (December 2022-November 2023).**

- ○ India's age-old dictum of **'Atithi Devo Bhava'** will come to the fore as it welcomes delegates from different countries.

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From Waste to Wealth

This editorial is based on "What is the solution to India's garbage disposal problem?" which was published in The Indian Express on 28/09/2022. It talks about waste disposal in India and related issues.

Tags: Biodiversity & Environment, GS Paper - 2, Government Policies & Interventions, GS Paper - 3, Environmental Pollution & Degradation, Conservation of Resources

Rising incomes, rapidly growing but **unplanned urbanization**, and changing lifestyles have resulted in increased volumes and changing composition (**increasing use of paper, plastic and other inorganic materials) of waste in India.**

Improper waste management in India has numerous implications on the environment and health. Besides paying attention to ameliorate the immediate **environmental and public health crises** resulting from the current state of solid waste management, there is also a need for articulating a **long term strategy** to address the **future challenges of solid waste management in Indian cities.**

What is the Current Status of Waste Management in India?

➢ The **Municipal Solid Waste Management Handling Rules, 2000** indicated that all the **Urban Local Bodies(ULBs)** are responsible for the **collection, transportation, disposal and segregation of solid waste in India.**

➢ India generates **62 million tonnes of waste each year.** About **43 million tonnes (70%) are collected**, of which about **12 million tonnes are treated,** and **31 million tonnes are dumped in landfill sites.**

  ❍ With changing consumption patterns and rapid economic growth, it is estimated that urban municipal solid waste generation will increase to **165 million tonnes in 2030.**

➢ Most of India's dumpsites have exceeded their capacity and height limit of **20 meters.** It is estimated that these sites enclose more than **10,000 hectares of urban land.**

What is the Major Classification of Waste?

➢ **Solid Waste:** vegetable waste, kitchen waste, household waste etc.

➢ **E-Waste:** discarded electronic devices such as computers, TV, music systems etc.

➢ **Liquid Waste:** water used for different industries, tanneries, distilleries, thermal power plants.

➢ **Plastic Waste:** plastic bags, bottles, buckets, etc.

➢ **Metal Waste:** unused metal sheet, metal scraps etc.

➢ **Nuclear Waste:** unused materials from nuclear power plants.

  Further, all these types of waste can be grouped into wet waste **(Biodegradable)** and dry waste **(Non Biodegradable).**

What are the Challenges Related to Waste Management in India?

➢ **Inefficient Waste Management by ULBs:** In most of the municipalities in India, the solid waste management practices are **highly inefficient** along with other administrative obstructions such as the **difficulties in the decision making and the problem of cost planning.**

  ❍ The **Municipalities bodies** under the state government are mostly understaffed as most of its **financial budgets** are utilized in the waste dumping practices.

    ● Furthermore, **many municipal bodies hire private contractors** to pick up and dispose of garbage in order to earn profits.

➢ **Lack of Segregation of Waste:** There is a **lack of awareness** among a large section of the population regarding the **segregation of household waste.** Failing to segregate trade waste properly ends up mixed in landfills.

  ❍ Waste items like food scraps, paper, plastic and liquid waste mix and decompose, **releasing run-off into the soil and harmful gas into the atmosphere.**

➢ **Unsustainable Packaging:** The popularity of **online retail and food delivery apps,** though restricted to big cities, is contributing to the rise in plastic waste.

  ❍ **E-commerce** companies too have come under fire for **excess use of plastic packaging**.

  ❍ Also, there are no **disposal instructions included with packaged products.**

➢ **Lack of Data Collection Mechanism:** India lacks **time series data or panel data in connection with solid or liquid waste.** So it is very difficult for the waste planners of the country **to analyze the economy of waste management.**

  ❍ Hence i**t becomes difficult for private entities** to understand the relationship between cost and benefits of the waste management policies and **enter into the market.**

➢ **Rising Rural-Urban Conflicts:** In most of the cities in India, waste is dumped in the outskirts near the villages that **impact the environment of the village and induce many health hazards giving rise to urban-rural conflict.**

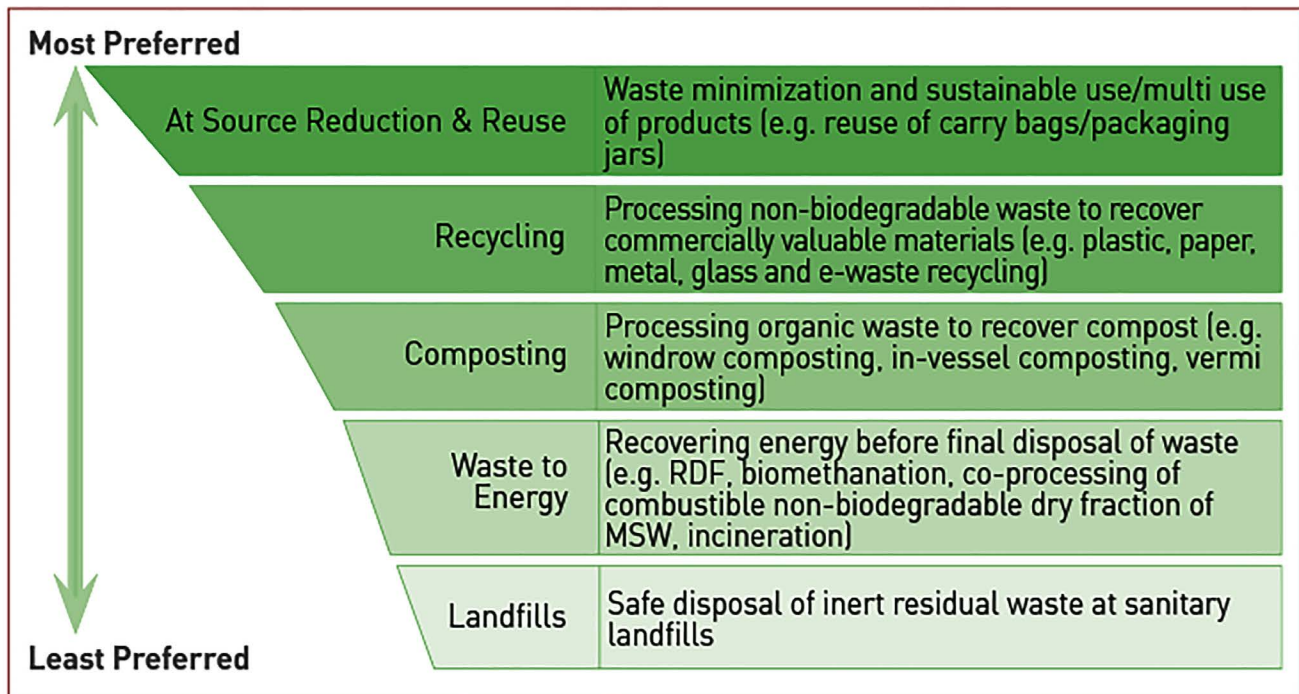
What are the Recent Government Initiatives Regarding Waste Management?

➢ National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management

➢ Plastic Waste Management Amendment Rules, 2022

➢ Mascot Prakriti

➢ Project REPLAN

What Should be the Way Forward?

➤ **Extended Producer Responsibility:** There is a need to devise the mechanism for **Extended Producer Responsibility** in India to **ensure that product manufacturers are made financially responsible** for various parts of the life cycle of their products.

○ It includes **take-back, recycling and final disposal at the end of their useful life,** in a way promoting **circular economy.**

➤ **Decentralized Waste Management:** A new innovative system can be introduced at city level **for collection of recyclables at the community level**, preferably through **involvement of the informal sector.**

○ Decentralized waste management systems or community level waste management systems will **reduce the burden of handling large volumes of municipal waste at a centralized location,** with **corresponding reduction in costs of transportation and intermediate storage.**

○ It will also provide **job opportunities for informal workers** and small entrepreneurs at city level.

● For instance, in **Bhopal (Madhya Pradesh), ULBs in partnership with a local organization**, have been working with waste collectors since 2008 to **streamline plastic waste collection and sales to recyclers.**

➤ **Behavioral Change Towards Waste and Waste-Pickers:** Waste is often viewed as useless, and waste collectors are often isolated. There is a need to change this perception and look at proper waste management.

○ Also, **ULBs should reward waste pickers by providing incentives** and spreading awareness to the public regarding their social inclusion.

● The **inclusion of waste pickers is crucial not only for their own health and livelihoods, but for the economies of municipalities as well.**

➤ **City Composting Centers:** **Composting** centers can be established in cities to reuse organic waste, which will enhance soil carbon content and **eliminate the need for chemical fertilizers.**

○ **Compost will also help in carbon dioxide sequestration** by storing carbon back into the soil.

➤ **Technology-Driven Recycling:** Government should encourage research and development in the field of waste recycling at **university and school level** to promote **active participation of masses** in technology enhancement in the field of waste management.

○ **Thiagarajar College of Engineering in Madurai** has received a patent for **manufacturing tiles and blocks from waste plastic.**

● The manufactured tiles could withstand heavy loads and could be used as a construction material.

➤ **Integrated Solid-Waste Management:**

Figure 1.1: Integrated Solid Waste Management System Hierarchy

Most Preferred

At Source Reduction & Reuse	Waste minimization and sustainable use/multi use of products (e.g. reuse of carry bags/packaging jars)
Recycling	Processing non-biodegradable waste to recover commercially valuable materials (e.g. plastic, paper, metal, glass and e-waste recycling)
Composting	Processing organic waste to recover compost (e.g. windrow composting, in-vessel composting, vermi composting)
Waste to Energy	Recovering energy before final disposal of waste (e.g. RDF, biomethanation, co-processing of combustible non-biodegradable dry fraction of MSW, incineration)
Landfills	Safe disposal of inert residual waste at sanitary landfills

Least Preferred

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Time to Reform UNSC

This editorial is based on "Permanent membership of the UNSC is another story" which was published in The Hindu on 28/09/2022. It talks about issues related to the United Nations Security Council and the need for reforms.

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

The process of **decolonisation**, in which the United Nation and its Security Council played an important role, radically changed the geopolitical landscape of the world. In the past quarter century, the **global order has seen massive changes**, **from American unilateralism to the rise of multilateral institutions** and **multipolarity.**

Developing nations, including India, now **play a larger role in both the international economy and politics**. But **these changes are not reflected in the UNSC**, where all critical decisions are still being taken by the **veto-wielding permanent members of the Security Council.**

In his address to the **77th Session of the United Nations General Assembly,** the **Indian External Affairs Minister** highlighted the **anachrony and ineffectiveness** in the current architecture of the UNSC.

Hence, it is essential to go beyond **P5's prerogatives** and look for a more **democratic and representative security council.**

What is the United Nations Security Council?

➢ The **United Nations Security Council** was established by the **UN Charter in 1945**.
  ❍ It is one of the **6 principal organs** of the United Nations.
➢ UNSC has 15 members: **5 permanent members (P5)** and **10 non-permanent members** elected for **2-year** terms.
  ❍ The 5 permanent members are: **United States, Russian Federation, France, China and the United Kingdom.**
➢ India has been a non permanent member of the Council during **1950-51, 1967-68, 1972-73, 1977-78, l984-85, 1991-92, 2011-12 and** for the **8th time**, has entered the UNSC in 2021 and will stay on the council for the term **2021-22.**

What is the Procedure for Amending UNSC Membership?
➢ Changing the membership of the UNSC requires amending the UNCharter.
  ❍ This involves **consent of two-thirds of the total membership of the U.N**, **including the concurring votes of P-5.**
    ● This means that each of the **P5 has a veto.**
➢ The **Charter was amended once in the 1960s** to enlarge the Council by additional **non-permanent seats.**

What are the Issues Related to UNSC?

➢ **Lack of Adequate Representation:** It was argued by several speakers that the UN Security Council is **less effective because it is less representative**, the most pertinent **absence being that of Africa, a continent of 54 countries**.
  ❍ Current global issues are complex, and interconnected. Lack of representation of **geopolitical and geo-economically important countries** is leaving out a large segment of global opinion to have a voice in the **highest security summit.**
  ❍ Furthermore, It is matter of concern that globally impportant countries such as **India, Germany, Brazil, and South Africa** are not represented on the UNSC permanent members list.
➢ **Misuse of Veto Power:** Veto power has been always criticised by many experts as well as by most States calling it a "**self-chosen club of the privileged"** and **non-democratic** and **not allowing the Council to make necessary decisions** whenever it **displeases any one of the P-5.**
  ❍ It is also **not appropriate for the current global security environment** to be guided by **elite decision-making** structures.
➢ **Geopolitical Rivalry within P5:** The geopolitical rivalry among the permanent members has **prevented the UNSC from coming up with effective mechanisms to deal with global issues.**
  ❍ Taking the current world order as an example, the **P5 members: United States, Russia, and China** are **three poles on the periphery of the globe having several geopolitical issues revolving around them** (**Taiwan Issue** and **Russia-Ukraine War**).
➢ **Threat to State's Sovereignty:** As the principal organ of **international peacekeeping** and conflict resolution, the **UNSC** is responsible for keeping peace and managing conflict. Its **decisions (referred to as resolutions) are binding on all member countries, unlike the General Assembly's.**
  ❍ This means that any state's sovereignty can be encroached upon if necessary by taking action, such as **imposing sanctions.**

What Should be the Way Forward?

➤ **Welcoming Voices Across the Globe:** It is perceived as deeply unfair, denying **entire continents (Africa) and regions a voice in a forum that deliberates their future.**

   ○ To decentralise UNSC governing power and authority over nations, it is essential that **all regions are represented equally in the UNSC.**

   ○ With this transformation, **nations of all regions will have the opportunity to raise concerns** affecting peace and democracy in their countries.

   ○ Also, introducing **decentralisation** to UNSC decision-making will make it more **representative, participatory, and democratic.**

➤ **Global Consonance for Global Governance**: UNSC should realise there are more pressing issues to be tackled at the global level than merely preserving the **prerogatives of P5 nations.**

   ○ There needs to be urgent **correction of the power imbalance between the P5 and the rest of the world**.

   ○ It is necessary for the UNSC **to be more democratic and more legitimate to govern,** ensuring the universal respect of **international peace, security, and order.**

➤ **Re-energizing Intergovernmental Negotiation (IGN):** Serious negotiations on such critical matters should proceed sincerely. They must **not be blocked by procedural tactics.**

   ○ The **IGN process**, which is the principal framework through which UNSC reform is discussed and debated, needs to be revised and **re-energised.**

   ○ Recommendation of the President of the **76th UN General Assembly** to gradually **move the IGN process towards text based negotiations** is a **welcoming step.**

➤ **Towards Reformed Multilateralism:** Calling for **reformed multilateralism** with reforms of the Security Council at its core enjoys considerable support among UN members.

   ○ In order to **protect faith in the principles of the United Nations, in its charter,** and in reformed multilateralism as a key to achieving global goals, the core issues in UNSC must be critically examined and addressed with global cooperation.

➤ **India From the Lens of UNSC Reforms:** India's candidature for permanent seat in UNSC is legitimate and justified as it fulfils all the objective criteria for the permanent membership.

   ○ India has initiated the **International Solar Alliance in 2015** to reduce the exploitation of fossil fuels and encourage the use of solar energy and has been a frontrunner in **Vaccine Diplomacy.**

   ○ With one among the largest individual contributors to the **UN Peacekeeping Force**, India is prepared to take up greater responsibilities at the highest security cooperation forum.

   • As the same time, it also seeks **to ensure that the injustice faced by the Global South is decisively addressed.** India is **willing and able to contribute on both counts.**

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Drishti Mains Questions

1. Despite its vast heritage repository, India's insurmountable heritage remains largely untapped. Critically Analyse.

2. While the Absorption of Indigenisation has matured in Indian Navy, a large gap still exists in the development of critical technologies. Critically Analyse.

3. As India moves towards Digitised Ecosystem, cyberspace has become a serious concern of National Security.

4. The pandemic led to an increase in India's youth unemployment rate, making their already insecure position in the job market even more precarious. Discuss the role of Lifeskills in bridging the gap between education and employment.

5. Trace India's transformation from food-deficit to a food-surplus nation. Highlight the challenges confronting agricultural growth.

6. "Though India and Japan have shared interest in keeping the Indo-Pacific open and free, their bilateral cooperation is still lacking." Comment

7. Growth journey of India has been a tale of ups and downs. Examine India's economic growth trajectory and major obstacles.

8. India's urban planning machinery has not evolved at the rate of urbanisation. Provide appropriate arguments to support the statement.

9. In spite of Bangladesh's central role in India's Neighbourhood First Policy, there are still major issues that need to be addressed. Examine.

10. Despite various measures to address Food Security in India, major challenges remain. Critically analyse.

11. Taking into account the militarization of outer space, critically analyse the growing synergy between space and the military.

12. How has the Covid-19 Pandemic highlighted the flaws in global health protection and pandemic governance? Suggest measures to improve global health management.

13. "While India has multiplied its economy by many folds, it has not made much progress on HDI". Critically analyse.

14. What is Water Stress? Discuss the current challenges related to water management in India?

15. Share of the elderly in India's population is growing fast and may reach 18% by 2036. What can be done to provide the elderly with a decent quality of life in the near future?

16. "Time is ripe for India to move beyond its wait and watch policy for cryptocurrencies". Comment.

17. Despite India's significant infrastructural growth, the mobility sector in India is still far from meeting the growing demands. Explain.

18. Technology is a low-hanging fruit for India to employ in its soft power arsenal. Explain.

19. Examine the rationality of Capital Punishment in India in the light of recent judgements of Supreme Court.

20. "Recent distrust in a CBI due to mismatch between institutional aspirations and governing politics underlines the weakening spirit of cooperative federalism." Comment.

21. Discuss the provision related to Fire Safety in India in the light of recent fire incidents. Also, suggest measures to improve fire safety in India.

Drishti Mains Questions

22. "Unsustainable urban planning is a huge limiting factor to achieving the real economic potentials of Urban space in India." Comment

23. Discuss how India can leverage the potential of Web 3.0 for its domestic socio-economic development.

24. Covid crisis is an opportunity to reimagine the future of tourism in India. Discuss.

25. Considering the current state of waste disposal, discuss how a decentralized waste management system can be introduced in India.

26. Addressing the contemporary world realities requires comprehensive reform of the United Nations Security Council. Comment.