

Monthly Current Affairs – July 2023

Table of Contents

History	3	GM Mustard	20
Archaeologists Come Up with Rare Findings in Tamil Nadu	3	Govt. Approves 8.15% Interest Rate for PF Deposits in 2022-23	21
Fusion of Rock Art in A.P.'s Rudragiri	4	Is there a Rural Bias in National Surveys?	22
Genomic Data Throw Light on Demise of Copper Age	5	India's First Gig Workers' Rights Bill	23
Tankai Method	5	Meri Maati, Mera Desh Campaign	24
Art and Culture	6	Cyber Security	25
Authoor Betel Leaves from Tamil Nadu Receives GI Certificate	6	CERT-In Cautions Against Ransomware 'Akira' Attack	25
Geography	7	International Relations	26
First GSI Survey of Siachen	7	India – China & Pangong Tso Lake	26
Agriculture	8	NATO & NATO Plus	27
Kharif Sowing Turns Around To Rise 1.2% amid Excess Rain	8	France Set to Co-develop Jet Engine	29
Polity	8	India and UAE Set to Use Rupee, Dirham for Trade	29
A Bill to Amend the Registration of Birth and Death Act	8	U.S. Hands Over 105 Antiquities to India	31
Biological Diversity (Amendment) Bill, 2021	9	India, Tanzania Begin Trade Settlements in Local Currencies	31
Cinematograph Bill	11	India's Rice Export Ban Impacts Asian and African Nations Most	32
Governance & Social Justice	11	Mekong Ganga Cooperation	34
Disability & NFHS-6	11	Military Exercises, Defence & Security 34	
Centre Announces Scheme to Support Minor Rape Victims	12	India & Mongolia Exercise: Nomadic Elephant-23	34
Green Tribunal Orders SOP to Curb Pollution at Hospitals	14	India-Australia Antisubmarine Warfare Exercise	34
Govt. To Help Combat Child Trafficking in Border Areas, Set Up Rehabilitation Homes	15	IAF Plans Its Biggest Air Exercise	35
Open Market Sale Scheme (OMSS)	16	'Sagar Nidhi' Participation in Colombo Security Conclave	36
National Research Foundation (NRF)	17	INS Visakhapatnam Recently Entered Oman	37
Ban on Export of Non-Basmati White Rice	18	IN-USN SALVAGE AND EXPLOSIVE ORDNANCE DISPOSAL EXERCISE - SALVEX	38
Portal Launched to Report Violation of Ban on E- Cigarettes	19		

INS Sahyadri and INS Kolkata, Engage in Bilateral Maritime Exercise with Indonesian Naval Forces	38	Tuberculosis & Bedaquiline	60
Environment	39	ICMR Argues for Controlled Human Infection Studies	61
Turtles Help Clean the Ganga	39	Crimean-Congo Haemorrhagic Fever (CCHF) Virus	62
Primary Forest Cover	40	Bacteriophages	63
One More Cheetah Dies at Kuno National Park	41	Report & Index	64
Hoolock Gibbon	42	Performance Grading Index	64
Cicada Species	43	Global Report on the Food Crises (GRFC) 2023 released	66
Captive-Bred Vultures	44	National Multi-Dimensional Poverty Index	68
Lightning Not a Natural Disaster, says Centre	45	WHO and UNICEF Estimates for National Immunisation Coverage	69
India's Tiger Population	45	Passport Index	69
Economy	46	Important Days	70
Rupee Internationalisation	46	World Population Day	70
Dark Patterns	48	World Hepatitis Day, July 28	70
Non-Performing Assets	50	Kargil Diwas	72
Science & Technology	51	GST Day	72
Genome-Sequencing	51	Other Important Days	72
Smart Bandage	52	Important Editorials of the Month	73
LMV-3	53	Potable Water & Jal Jeevan Mission	73
Webb Space Telescope Rediscovered Star-Forming Region	53	India-SCO	82
Health	54	Chandrayaan-3	93
The Irrevocable Connection Between Anaemia and Maternal Health	54	Forest (Conservation) Amendment Bill, 2023	98
Understanding Leptospirosis	56	India-France Relations: Horizon 2047	104
Palliative Care	58	ASEAN	110
Middle Eastern Respiratory Syndrome coronavirus (MERS-CoV)	59	Evidence-Based, Ethics-Driven Medicine	118
A New Diarrhoea-Causing Parasite Found	59		

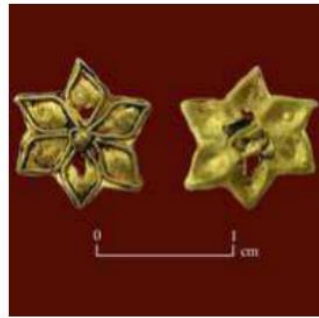
History

Archaeologists Come Up with Rare Findings in Tamil Nadu

Context: A gold stud, a bone point and a carnelian bead have been unearthed by archaeologists at Porpanaikottai in Pudukottai district of Tamil Nadu, where the State Archaeology Department has taken up excavation this year.

Key Highlights

- A Sangam age fort is believed to have existed at the site.
- The stud in floral design with six petals was found at a depth of 133 cm in one of the eight trenches dug at the site.
- “The ornament, weighing 0.26 grams, probably used as a nose stud and is an indication of the culture of the Sangam Age.
- The bone point and the broken piece of carnelian bead were found at a depth of 140–160 cm in another trench.
- The bone point, with pointed ends on both sides and carvings, was probably used for weaving.
- The discovery of the red round-shaped carnelian bead is a pointer to domestic trade.
- “Carnelian beads have been found at Kodumanal and a few other places in Tamil Nadu. The stones were usually sourced from Gujarat.



New find: (from left) The carnelian bead, the obverse and reverse sides of a gold stud and the bone point found by archaeologists at Porpanaikottai. SPECIAL ARRANGEMENT



Old Findings

- A three course brick structure was unearthed within a few days of digging.
- Over 150 antiques, including potsherds, hopscotches, spouts, pieces of glass bangles and beads, a terracotta lamp, a coin, a spindle whorl and rubbing stone, besides a couple of graffiti, have been found at the site so far.
- Porpanaikottai, situated about 6.5 km to the east of Pudukottai town, is one of the new sites where the department had taken up excavation this year.
- Studies carried out at the site using Light Detection and Ranging (LIDAR), a remote sensing method, had indicated that a fort had existed at Porpanaikottai. A habitation mound spread over 1.26 hectares is believed to have existed within the fort.

Fusion of Rock Art in A.P.'s Rudragiri

Context: Fusion of Rock Art depicting the intense battle between the Vanara brothers — Vali and Sugriva found in A.P.'s Rudragiri.

- Rudragiri hillock, located in the village of Orvakallu, Atchampet mandal, in Guntur district of Andhra Pradesh, boasts a celebrated historical past and remarkable archaeological monuments.
- This site unveils a fascinating combination of prehistoric rock paintings from the Mesolithic period and exquisite artwork from the Kakatiya dynasty.
- Rudragiri, nestled amidst the Eastern Ghats, features five naturally formed rock shelters at its foothills, facing westward.
 - These shelters served as living quarters for people during the Mesolithic age around 5000 B.C., and they bear witness to the luminous rock paintings of that era.
- Interestingly, two natural caves at the southern end of the hillock also exhibit exceptional murals from the renowned Kakatiya kingdom.



Artistic brilliance

- These caves showcase the artistic brilliance of the Kakatiya period. While many have suffered damage over time due to exposure to the elements, some sketches and outlines have managed to survive.
- The paintings, adorned with a variety of colours derived from white kaolin and different pigments, depict captivating scenes from the epic **Ramayana**. Despite the impact of nature's wrath, fragments of these paintings offer valuable insights into their creation during the 13th century A.D.
- The first cave, starting from the southern end of the hillock, presents a narrative mural portraying the intense battle between the Vanara brothers — Vali and Sugriva.
- In the middle cave, a grand sketch of Hanuman, accompanied by sacred symbols of the conch (Sankha) and the fire altar (Yagna Vedi), captures visitors' attention. Hanuman is depicted carrying the Sanjivani hill in his hand, symbolising his mission to save Lakshmana's life.
- The third cave houses the prehistoric rock paintings from the Mesolithic era. Interestingly, the Kakatiya artist chose the same rock shelter to superimpose the elegant figure of Hanuman, who is portrayed in a unique 'Anjali' posture, folding his hands in a divine offering.



Genomic Data Throw Light on Demise of Copper Age

Context: An analysis of ancient human genomic data suggests that Copper Age farmers and steppe pastoralists may have interacted 1,000 years earlier than previously thought. The findings, published in Nature, may aid our understanding of the demise of the Copper Age and the expansion of pastoralist groups around 3,300 BC.

Key Highlights

- Previous analyses of ancient genomic data have suggested that two major genetic turnover events occurred in Western Eurasia;
 - One associated with the spread of farming around 7,000-6,000 BC and
 - A second resulting from the expansion of pastoralist groups from the Eurasian steppe starting around 3,300 BC.
- The period between these two events, the Copper Age, was characterized by a new economy based on metallurgy, wheel and wagon transportation, and horse domestication. But what happened between the demise of Copper Age settlements (around 4,250 BC) and the expansion of pastoralists is not well understood.
- According to the paper, the researchers analysed genetic data from 135 ancient individuals, dating to between 5,400 and 2,400 BC, from eight sites across southeastern Europe and the northwestern Black Sea region.
- While there was genetic continuity between the Neolithic and Copper Age groups, from around 4500 BC groups from the northwestern Black Sea region carried varying amounts of ancestry from Copper Age and steppe-zone populations.
- They suggest that this finding shows that the groups had cultural contact and mixed nearly 1,000 years earlier.
- The transfer of technology between farmers and transitional hunters from different geographical zones was integral to the rise, formation and expansion of pastoralist groups around 3300 BC, the authors propose.
- A finding from our study indicates early contact and admixture between Copper Age farming groups from southeastern Europe and Eneolithic groups from the steppe zone in today's southern Ukraine, possibly starting in the 5,500 BC when settlement densities shifted further north.
- The early admixture during the Eneolithic appears to be local to the NW Black Sea region of the fourth millennium BC and did not affect the hinterland in southeastern Europe.
- The Early Bronze Age individuals from Yunatsite and Pietrele do not show traces of steppe-like ancestry but instead a resurgence of hunter-gatherers ancestry observed widely in Europe during the fourth millennium BC.

Tankai Method

Context: In a remarkable initiative to revive and preserve the 2000-year-old technique of shipbuilding known as the 'stitched shipbuilding method', the Ministry of Culture and the Indian Navy have entered into a Memorandum of Understanding (MoU).

Key Highlights

- It is a 2000-year-old technique of shipbuilding known as the 'stitched shipbuilding method'.
- Throughout history, India has had a strong maritime tradition, and the use of stitched ships played a vital role in trade, cultural exchange, and exploration.
- These ships, constructed by stitching wooden planks together rather than using nails, offered flexibility and durability, making them less susceptible to damage from shoals and sandbars.
- Although the arrival of European ships led to a shift in shipbuilding techniques, the art of stitching ships has survived in a few coastal regions of India, primarily for small local fishing boats.

Significance of the Project

- The project aims to leverage the expertise of the remaining traditional shipwrights in India and showcase their exceptional craftsmanship.
- By sailing along ancient maritime routes using traditional navigational techniques, the project seeks to gain insights into the historical interactions across the Indian Ocean, which facilitated the flow of Indian culture, knowledge systems, traditions, technologies, and ideas.
- It aims to revive the maritime memory and instill a sense of pride in India's rich maritime heritage among its citizens.
- It aims to promote cultural memories among the Indian Ocean littoral countries.

Art and Culture

Authoor Betel Leaves from Tamil Nadu Receives GI Certificate

Context: The Tamil Nadu State Agriculture Marketing Board and NABARD Madurai Agribusiness Incubation Forum have awarded a Geographical Indication (GI) certificate to the Authoor betel leaves from Thoothukudi district in Tamil Nadu. The certificate is granted in the name of Authoor Vattara Vetrilai Vivasayigal Sangam.

Key Highlights

- The Authoor Vattara Vetrilai Vivasayigal Sangam, representing cultivators of Authoor betel leaves, has earned the esteemed Geographical Indication (GI) certificate.
- This GI certification brings forth promising avenues for the marketing of Authoor betel leaves, both locally and globally.
- The recognition amplifies the scope for these leaves to enter diverse markets, encouraging heightened demand and popularity.

Significance of Authoor Betel Leaves

- The Authoor betel vine, scientifically known as Piper betle, is recognized under a multitude of names across various languages and cultures.
- It is also known by different names such as Nagavalli and Tambulam in Sanskrit, Vetrilai in Tamil, pan in Hindi, and Tamula pakukilli in Telugu.
- With a distinct spicy and pungent flavor, Authoor betel leaves are especially favored during significant occasions such as temple festivities, weddings, and housewarming celebrations.

Reference in Ancient Texts

- The historical practice of betel consumption finds mention in ancient texts, notably Suśruta's works.
- Suśruta, whose chronology places him prior to the first century A.D., references betel usage in his writings.
- Within a discourse on post-meal digestion, Suśruta imparts valuable advice to mindful eaters.
- He recommends consuming fruits with astringent, pungent, or bitter tastes.
- Alternatively, he suggests the consumption of a betel leaf combined with areca nut, camphor, nutmeg, clove, and other ingredients.

Geographical Indication (GI) Tag

- The GI tag serves as an intellectual property right granted to products originating from specific geographical regions.
- This certification is bestowed upon items that possess unique attributes or are closely associated with a particular area.
- Eligibility for the GI tag hinges on the presence of a distinctive mark indicating the product's origin from a specific locale.
- The Geographical Indications Registry, headquartered in Chennai, is entrusted with the responsibility of granting GI tags in India.

- The exclusive cultivation of this unique paan thrives in Authoor village, nestled within the Thoothukudi district of Tamil Nadu.
- The presence of the Thamirabarani river for irrigation plays a pivotal role in supporting the growth of Authoor betel leaves in local plantations.
- These leaves flourish across approximately 500 acres of land, encompassing regions like Mukkani, Athoor, Korkai, Sagunthalai, Vellakoil, and other Mukkani villages.
- Authoor betel leaves stand out due to their elongated petioles and are available in three distinct varieties: natukodi, karpoori, and pachaikodi.
- The cultural significance of Authoor Betel leaves is illustrated through their mention in the 13th-century book 'The Travels of Marco Polo (The Venetian)', as well as their presence in various ancient stone inscriptions.
- Authoor betel vine belongs to the botanical family Piperaceae.
- It thrives in moist tropical and subtropical regions of numerous countries, encompassing China, Thailand, the Philippines, India, Bangladesh, and Sri Lanka.
- Indigenous to Central and Eastern Malaysia, its roots trace back to these regions.

Geography

First GSI Survey of Siachen

Context: June-August 2023 marks the sapphire jubilee of a very important event in the history of the exploration of the Siachen glacier i.e First GSI survey of Siachen glacier.

- Everyone is familiar with the grid reference point NJ 9842 as it is the last mutually demarcated point between India and Pakistan as per the Karachi ceasefire agreement of 1949 and also the point where the Line of Control of the Simla Agreement ends, not many people are familiar with what 5Q 131 05 084 stands for.
 - This is the number assigned to the Siachen glacier by the Geological Survey of India (GSI)

First Siachen Survey

In June 1958, exactly 65 years ago, V. K. Raina, a top Indian geologist, who at that time was an Assistant Geologist with the GSI led the first GSI Survey of the Siachen glacier.

- ✓ 1958 was an important year for geologists all over the world as it was celebrated as **the International Geophysical Year**.
 - To commemorate this event, various activities had been planned by different geological institutes all over the world.
 - While some institutes planned research trips to the Arctic Circle or the Antarctica, the GSI, with its limited resources, proposed to conduct a study of the Himalayan glacier systems which included snout monitoring of the glaciers in the Sikkim Himalayas, Kumaon Himalayas as well as the Kashmir Himalayas.



The ice mountain: The first picture shows the Siachen trench; the second picture shows the points A and B which were the survey points; the third picture shows the picture points. PICTURES TAKEN BY V. K. RAINA

- The responsibility of snout surveying five glaciers in the Ladakh region was given to Mr. Raina. These were the Siachen, Mamostong, Chong Kumdan, Kichik Kumdan and Aktash glaciers.

Agriculture

Kharif Sowing Turns Around To Rise 1.2% amid Excess Rain

Context: With aggregate rainfall in the country rising above the long-term average, Kharif crop sowing has picked up pace to lift overall levels 1.2% over last year by July 21, from a 2% deficit recorded a week earlier, spurring hopes of a relief in the pace of price rise of some food items. Kharif crops require good rainfall and a hot and humid climate for their growth.

- ✓ Most significantly, the overall sown area for rice, which was lagging over 6% from last year's level as of July 14, touched 180.2 lakh hectares by July 21, 2.7% higher than a year ago.
- ✓ The sown area for pulses increased over the same period, but remained nearly 10% below last year.
- ✓ The sharpest decline among pulses' sowing has been clocked in Arhar (-18.4%) and Urad (-9.7%).
- ✓ Bajra crop sowing has surged the most so far, with the sown area rising 11.3%, lifting coarse cereals' sown area by 4.8%.
- ✓ The southern peninsula and eastern regions are still facing deficient rains and the distribution of rainfall needs careful monitoring along with sowing of Kharif crops. Any shortage or excess might play a significant role on prospects of agriculture growth, a report that showed a third of India's 36 sub-divisions have had excess rains in July, while eight have had deficient rains.

Cropping Season	Time Period	Crops	States
Rabi	Sown: October-December Harvested: April-June	Wheat, barley, peas, gram, mustard etc.	Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh
Kharif	Sown: June-July Harvested: September-October	Rice, maize, jowar, bajra, tur, moong, urad, cotton, jute, groundnut, soybean etc.	Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra
Zaid	Sown and harvested: March-July (between Rabi and Kharif)	Seasonal fruits, vegetables, fodder crops etc.	Most of the northern and northwestern states

Polity

A Bill to Amend the Registration of Birth and Death Act

Context: A Bill to amend the Registration of Birth and Death Act is likely to make Aadhaar compulsory for registration of births and deaths for whoever has one.

- India has taken the first step to generate digital birth certificates, which will be an all-encompassing document that can be used for admission to educational institutions, jobs, passports or Aadhaar, voter enrolment, registration of marriage, and others.
- This will “avoid multiplicity of documents to prove date and place of birth”, according to the Registration of Births and Deaths Amendment Bill, 2023.

Key Highlights

- On June 28, the Centre allowed the Registrar-General of India (RGI) to perform Aadhaar authentication during registration of births and deaths in the country.
- Currently, Aadhaar is not mandatory for such registration. The proposed amendment to the 1969 Act will give it legal teeth.
- The Bill also requires the States to compulsorily share data on registered births and deaths with the RGI, which functions under the Union Home Ministry.
- The RGI will maintain its own register of births and deaths. The States are currently required to only send annual statistical reports to the RGI.
- As per the requirements of the amendment, the States will have to sign a memorandum of understanding with the RGI to share the Application Programming Interface (API) from where the data can be pulled out.
- While all States are required to use the Civil Registration System (CRS) operated by the RGI to issue birth and death certificates, there are some States which have their own applications.

Centralised Register

- It said a centralised register “would help in updating other databases resulting in efficient and transparent delivery of services and social benefits.”
- The Bill would “insert provisions for digital registration and electronic delivery of certificate of births and deaths for the benefit of public.”
- It proposes to “collect Aadhaar numbers of parents and informant, if available, for birth registration”. It will also “facilitate registration process of adopted, orphan, abandoned, surrogate child and child of single parent or unwed mother”.

Biological Diversity (Amendment) Bill, 2021

Context: The Lok Sabha passed the Biological Diversity (Amendment) Bill, 2021. The Bill aims to amend the Biological Diversity Act, 2002. The amended Bill was drafted in response to complaints by traditional Indian medicine practitioners, the seed sector, industry and researchers that the Act imposed a heavy “compliance burden”.

- To ensure that tribes and vulnerable communities benefit from the proceeds of medicinal forest products, these amendments were necessary.
- By decriminalising certain activities, we are encouraging Ayurveda as well as ease of doing business.”

NPR database

- The database will be used to update the National Population Register (NPR), the Bill proposes.
- NPR is the first step towards the creation of a National Register of Indian Citizens (NRIC) or NRC.
- If the amendments are implemented, the Centre could use the data to update the NPR that was first prepared in 2010 and revised through door-to-door enumeration in 2015.
- NPR already has a database of 119 crore residents. The real-time update of the data on births and deaths will eliminate the requirement of such enumeration to a large extent.
- The database will also be used to update the electoral register, Aadhaar, ration card, passport and driving licence databases.
- The Census besides being a headcount exercise also contains more granular details on socio-cultural indicators and is conducted every 10 years, an aberration being the 2021 Census which has been suspended indefinitely post-COVID-19, but updating the population register will give a clear picture of population figures in real time.

Key Highlights

- The Bill sought to exempt registered AYUSH medical practitioners and people accessing codified traditional knowledge, among others, from giving prior intimation to State biodiversity Boards to access biological resources for certain purposes.
- The Bill decriminalises a range of offences under the Act and substitutes them with monetary penalties.

Environmental organisations such as Legal Initiative for Forests and Environment (LIFE) have said that the amendments were made to “solely benefit” AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) firms and would pave the way for “bio piracy”.

Significant shift

The Biological Diversity (Amendment) Bill, 2021 seeks to exempt registered AYUSH medical practitioners from intimating biodiversity boards before accessing biological resources



Traditional knowledge: A tribal harvesting *Arogyapacha* leaves from a forest in Kerala. S. MAHINSHA

- It also aims at easing compliance burden, boosting investment and simplifying patent application processes

- Environmental organisations have raised concerns about potential for “bio piracy”; they say amendments favour industry and there is lack of clarity on benefit sharing with local communities

Key Provisions: Biological Diversity (Amendment) Bill, 2021 Vs Biological Diversity Act, 2002

Provisions	The Biological Diversity Act, 2002	Amendments to the 2002 Act
Access to Biological Resources	The Act requires anyone seeking to access biological resources or associated knowledge in India to obtain prior approval or inform the regulatory authority about their intent.	The Bill modifies the classification of entities and activities that require intimation, while also introducing exemptions to certain cases.
Intellectual Property Rights	Concerning Intellectual Property Rights (IPR), the Act currently demands NBA approval before applying for IPR related to biological resources from India.	The Bill suggests that approval will be required before the actual grant of the IPR, not during the application process.
Benefit Sharing	The Act mandates benefit sharing, which involves sharing both monetary and non-monetary benefits with those who conserve biodiversity or hold traditional knowledge associated with it. NBA determines the terms of benefit sharing when granting approvals for various activities.	The Bill removes the applicability of benefit sharing requirements from research, bio-survey, and bio-utilisation.
Criminal Penalties	The Act imposes criminal penalties, including imprisonment, for offenses such as not obtaining approval or intimation for specific activities.	The Bill, on the other hand, decriminalizes these offenses and introduces fines ranging from one lakh to fifty lakh rupees instead.
Exempting AYUSH Practitioners	-	It seeks to exempt registered AYUSH medical practitioners and people accessing codified traditional knowledge, among others, from giving prior intimation to State biodiversity boards for accessing biological resources for certain purposes.

Cinematograph Bill

Context: The Rajya Sabha on Thursday passed the Cinematograph (Amendment) Bill, 2023 that introduces stringent anti-piracy provisions, expanding the scope of the law from censorship to cover copyright also.

Key Highlights

- The Bill proposes a jail term of up to three years and a fine up to 5% of a film's production cost for persons who "use any audiovisual recording device in a place licensed to exhibit films with the intention of making or transmitting an infringing copy of" a film, or trying to do so.
- The Bill seeks to amend the Cinematograph Act, 1952, which authorises the Central Board of Film Certification (CBFC) to require cuts in films and clear them for exhibition in cinemas and on television.
- The government will not have revisional powers over the CBFC's decisions even after this Bill.
- The Bill introduces three age ratings for films requiring adult supervision.
 - Such films now get a U/A rating, but this has been split into U/A 7+, U/A 13+ and U/A 16+.
 - Films rated for adults have largely been prohibited on television, following a 2004 Bombay High Court order.
 - Broadcasters often cut films voluntarily, and re-apply with the CBFC for a U/A rating. The Bill formalises this practice.

Governance & Social Justice

Disability & NFHS-6

Context: Union government to drop the disability specific question from the National Family Health Survey (NFHS)-6.

Key Highlights

- After years of campaigning for the same, activists rejoiced when the government added one question on disability in the NFHS-5, and were hopeful that this would be built upon in subsequent versions of the nationwide survey.
- The Ministry of Health and Family responded that questions about disability were already asked as part of the Sample Registration Survey (SRS) 76th round, conducted between July and December 2018, and that any specific information can be tabulated from the raw data, which is also available in the public domain.
 - It has also gone on record stating that disability data will 'not change fast'.
- The SRS does a good job with marking the prevalence and incidence of disability, education level, living arrangements, care-givers, certificate of disability, accessibility and unemployment rate, among others.
- The NFHS asks more comprehensive questions. It seeks answers on health and nutrition status, access to health schemes, insurance, sexual behaviour, availability of family planning, use of contraception, domestic violence, household amenities and possessions, lifestyle indicators, and access to drinking water and toilets.

New Domain Areas in NFHS-6



Visit by community health workers for health awareness and needs

Supplementary nutrition from the anganwadi/ ICDS center while breastfeeding, blood transfusion (month and year)

Financial inclusion among women

Knowledge of anaemia, hepatitis B & C, syphilis etc.

- Unlike in previous rounds, NFHS-6 will adopt Urban Frame Survey (UFS, 2012-17) of National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI) as a sampling frame for urban area.
- This strategy will minimize the non-sampling errors to large extent as the boundary identification problems using 2011 census frame will be resolved.
- While for rural areas, updated list of villages from NSO will be used as a frame, which would be matched with the Principal Component Analysis (PCA) from the Census to get auxiliary information.”
- The government will also evaluate the areas such as



Centre Announces Scheme to Support Minor Rape Victims

Context: Recognising the trauma faced by minor rape victims, the Union government has decided to provide medical, financial and infrastructure support to victims in cases where the sexual assault results in pregnancies.

Key Highlights

- The special scheme, announced by the Women and Child Development Ministry (WCD), would operate under the aegis of the Nirbhaya Fund and an amount of ₹74.1 crore has been allocated.
- Govt. have additionally leveraged the administrative structure of Mission Vatsalya in collaboration with State governments and Child Care institutions [CCIs] to actualise this support to minor victims.
 - Mission Vatsalya, launched in 2021, is focused on the protection and welfare of children.
- **Fast Track Courts:** The government had already accelerated access to justice for minor victims of rape by establishing 415 POCSO fast track courts in the country.
- This **scheme aims to provide** integrated support to girl child victims under one roof, facilitate immediate, emergency and nonemergency access to a range of services.

In 2021, the National Crime Records Bureau reported 51,863 cases under the Protection of Children from Sexual Offences (POCSO) Act. Out of these, 64% cases were reported under Section 3 and 5 (penetrative sexual assault and aggravated penetrative sexual assault, respectively).

- The **scheme aims to provide** access to education, police assistance, healthcare, psychological support, and legal aid.
- It **also provides** insurance coverage for the victim and her new-born and does not require the victim to have a copy of the First Information Report (FIR) to avail of the benefits.
- The new scheme would be available for girls up to the age of 18 years at the level of childcare institutions and for women up to 23 years at aftercare facilities.

NIRBHAYA SCHEME

About	In a bid to counter abuses against women and girls, Nirbhaya Fund was announced in 2013 Union Budget.
Fund	The fund was started with a corpus of Rs 1,000 crore. <ul style="list-style-type: none"> • The Government of India established the Nirbhaya Fund in response to the Nirbhaya Case in 2013. • It is aimed specifically at projects for improving women's safety and security.
Administration	The Fund is administered by Department of Economic Affairs (DEA) of the Finance Ministry.
Nodal Agency	The Ministry of Women and Child Development is the nodal agency for Nirbhaya Fund, though schemes are implemented by several Union ministries, state governments and other agencies, including non-government outfits.

SCHEMES UNDER NIRBHAYA FUND

Ministry of Women and Child Development

One Stop Centre	These are popularly known as Sakhi Centres. The scheme began to function across India from April 2015. The scheme aims to establish centres to facilitate women who are victims of violence. The Centres provide first aid, medical aid, police assistance, legal aid and counselling support. About 186 centres will be made operational by July, 2017.
Universalisation of Women Helpline	The Department of Telecommunication has allocated the number 181 for women helpline. As of now, Women Helplines are already operational in 18 States/UTs. These helpline numbers will link the One Stop Centres being established under the Nirbhaya Fund.
Mahila Police Volunteer scheme	Mahila Police Volunteers (MPVs) is envisaged to act as a link between police and community and help women in distress. Haryana has become the first state to start this scheme in December, 2016. Other States are expected to follow suit.

Schemes Of Ministry of Home Affairs

Emergency Response support System	Emergency Response Support System (ERSS) envisages an integrated computer aided emergency response platform that aims to ensure speedy assistance to the distressed persons.
Central Victim Compensation Fund	Central Victim Compensation Scheme (CVCF) has been framed under section 357A of CrPC. Under this initiative a Corpus Fund will be disbursed to States/UT to facilitate

	States/UTs in providing compensation to the victim (including survivors of rape and acid attack) or her dependents who have suffered loss or injury as a result of the crime.
Schemes of Ministry of Railways	
Integrated Emergency Response Management System	This will provide round the clock security to women passengers in 983 Railway Stations across the country by strengthening of security arrangements of Railways with Security Helpline, Medical Facilities, RPF and police, installation of CCTV cameras, etc.
Abhaya Project Proposal (Andhra Pradesh)	Abhaya Project is a proposal proposed by Andhra Pradesh for ensuring the safety of Women and Girl child during the transport (auto rickshaw).
CHIRALI-Friends Forever (Rajasthan)	Under this scheme, Community Action Groups in 7 districts of Rajasthan has been constituted for a period of three years from 2016-17 to 2018-19 to create an enabling environment to support girls and women to move freely and make use of opportunities for their overall well-being.

Green Tribunal Orders SOP to Curb Pollution at Hospitals

Context: The National Green Tribunal (NGT) has constituted a five-member committee, headed by the Secretary of the Union Ministry of Health, to form a standard operating procedure (SOP) for environmental management inside and around all government district hospitals and hospitals larger than such district hospitals, including medical colleges, within three months.

- “The committee may specify issues to be covered within the complex and outside the boundary of the healthcare facility for regulation and control of polluting activities which may be found necessary to offset adverse impact on environment.
- The green panel also ordered measures such as multilevel parking, management of traffic and controlling air pollution to be taken specifically for All India Institute of Medical Sciences, Delhi.

National Green Tribunal	
Establishment	Established under the National Green Tribunal Act 2010
Aim	Established for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
Composition of NGT	<p>NGT comprises the Chairperson, the Judicial Members, and Expert Members.</p> <ul style="list-style-type: none"> • They shall hold office for a term of 5 years and are not eligible for reappointment. • The Chairperson is appointed by the Central Government in consultation with the Chief Justice of India (CJI). • A Selection Committee shall be formed by the central government to appoint the Judicial Members and Expert Members. • There are to be at least 10 and a maximum of 20 full-time Judicial members and Expert Members in the tribunal.
Powers of NGT	<ul style="list-style-type: none"> • It has appellate jurisdiction to hear appeals as a Court. • The Tribunal is not bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice. • NGT is mandated to make disposal of applications or appeals finally within 6 months of the filing of the same.

	<ul style="list-style-type: none">• An order/decision/award of Tribunal is executable as a decree of a civil court.
Head office	New Delhi is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai shall be the other four places of sitting of the Tribunal.

Govt. To Help Combat Child Trafficking in Border Areas, Set Up Rehabilitation Homes

Context: The Centre has decided to help build infrastructure in border areas to combat child trafficking and help in rehabilitation and protection of victims.

Key Highlights

- As part of this initiative, the Women and Child Development Ministry will provide financial assistance to the States and Union Territories (U.T.) along the border areas to set up homes for the protection and rehabilitation of trafficking victims from neighbouring countries.
- These homes would provide shelter, food, clothing, counselling, primary health facilities and other daily needs for the trafficking victims, most of whom are children and minors.
- The trafficking victims in the border areas will also be produced before the child welfare committees to declare them fit for availing sponsorship as per the Mission Vatsalya Scheme guidelines and accordingly, the States and U.T.s will be requested to do the needful.

India & Human Trafficking

- According to the officials, India is a source as well as a destination country for human trafficking.
 - The main source countries are Nepal, Bangladesh and Myanmar from where women and girls are trafficked in the lure of a better life, jobs and good living conditions on this side.
- A majority of those trafficked are minor girls or young women who after their arrival in India are sold and forced into commercial sex work.
- These women often reach major cities such as Mumbai, Delhi and Hyderabad from where they are taken out of the country mainly to West Asia and South East Asia, the officials said.

Thus, the States bordering these countries need to be more vigilant and have adequate facilities to provide relief and rehabilitation, and in order to aid this, the Ministry would provide the financial assistance.

Previous Status

- Till now, the Women and Child Development Ministry has been providing financial assistance to all States and Union Territories under **the Nirbhaya Fund** to set up and strengthen Anti-Human Trafficking Units (AHTU) in every district of the country.
- Funding has also been provided for setting up these units in border guarding forces such as the Border Security Force (BSF) and Sashastra Seema Bal (SSB).
- As of now, 788 AHTUs are functional.

Need for the scheme

- According to the NCRB data, there were 6,533 victims of human trafficking in the 2,189 cases filed last year under anti-human trafficking units. Out of these, 4,062 victims were female and 2,471 were male.
- As many as 2,877 victims were minors. While more underage boys (1,570) were trafficked in 2021 than girls (1,307) in 2021, this trend reversed in the case of adult victims.

Open Market Sale Scheme (OMSS)

Context: The National Conference of Food Ministers failed to resolve the issue of the discontinuance of rice and wheat sales to States under the Open Market Sale Scheme (OMSS) in view of the Centre's restrictions.

Open Market Sale Scheme (OMSS)

- FCI sells surplus stocks of wheat and rice at predetermined prices through e-auction in the open market from time to time to enhance the supply of food grains.
- The purpose of OMSS is to dispose of surplus stocks of wheat and rice held by FCI, and to regulate the prices of wheat in the open market.
- FCI conducts weekly auctions for the OMSS for wheat on the platform of the National Commodity and Derivatives Exchange Limited (NCDEX).
- NCDEX is a commodity exchange platform in India that provides a platform for trading in various agricultural and other commodities.
- The State Governments/ Union Territory Administrations are also allowed to participate in the e-auction, if they require wheat and rice outside the Targeted Public Distribution Scheme (TPDS) and Other Welfare Schemes (OWS).
- The reserve price is fixed by the government. In the tenders floated by the FCI, the bidders cannot quote less than the reserve price.
- The present form of OMSS comprises 3 schemes as under:
 - Sale of wheat to bulk consumers/private traders through e-auction.
 - Sale of wheat to bulk consumers/private traders through e-auction by dedicated movement.
 - Sale of Raw Rice Grade 'A' to bulk consumers/private traders through e-auction.

Food Corporation of India (FCI)

- It is a statutory body set up in 1965 (under the Food Corporation Act, 1964) against the backdrop of major shortage of grains, especially wheat, in the country.
- It comes under the ownership of the Ministry of Consumer Affairs, Food and Public Distribution, Government of India.
- It was established with the objective of ensuring adequate availability of food grains throughout the country, and to maintain price stability in the market.
- The FCI also maintains buffer stocks of food grains to ensure food security during times of scarcity or crisis.
- The FCI is also responsible for distributing foodgrains throughout the country for public distribution system.
- FCI also conducts e-auction as one of the methods to dispose of its surplus food grains.

Issue related to the OMSS

OMSS	Under the OMSS, the FCI sells (from time to time) surplus food grains (especially wheat and rice) from the central pool in the open market to traders, bulk consumers, and retail chains, at pre-determined prices.
How?	Through e-auctions, where open-market bidders can buy specified quantities.
OMSS and States	States are also allowed to procure food grains (over and above what they get from the central pool to distribute to NFSA beneficiaries) through the OMSS without participating in the auctions.
Objective of OMSS	Ensure food security by enhancing the supply of food grains during the lean season, control inflation by moderating the open market prices, especially in the deficit regions

Revision of OMSS	The Centre decided to restrict the quantity that a single bidder can purchase from 3,000 metric tonnes (MT) to 10-100 MT.
The objective behind the revision	To accommodate more small and marginal buyers, curb retail prices as allowing smaller bids should ideally break monopolies of bulk buyers, allowing more competitive bids by small buyers.
Impact of Revision on States	The Centre stopped the sale of rice and wheat from the Central pool under the OMSS to State governments, also disallowing private bidders to sell their OMSS supplies to state governments.
Steps Taken by States	Considering alternative methods of obtaining wheat and rice. For example, TN is trying to purchase rice from government agencies other than FCI.
Allegations of States	States such as Karnataka (which runs the Anna Bhagya scheme) and Tamil Nadu (which runs the universal PDS) have criticised the government for engaging in “politics” at the expense of marginalised beneficiaries of State welfare schemes.
Centre’s reply	Restrictions are imposed to curb inflation and regulate supply. The Centre is already distributing grains to 80 crore marginalised beneficiaries under the NFSA.

National Research Foundation (NRF)

Context: The Union Cabinet has approved the introduction of the National Research Foundation (NRF) Bill in Parliament.

What is NRF?

- Setting up the NRF was one of the key recommendations of the National Education Policy 2020.
- The NRF intends to act as a coordinating agency between researchers, various government bodies and industry, thus bringing industry into the mainstream of research.
- In addition to providing research grants to individuals, the NRF plans to seed, grow and facilitate research in India’s universities, especially State universities, by funding research infrastructure and researchers.

How will NRF be funded?

- ✓ The NRF will operate with a budget of ₹50,000 crore for five years, of which 28% (₹14,000 crore) will be the government’s share, and the remaining 72% (₹36,000 crore) will come from the private sector.
- ✓ The NRF draft proposes the government’s share to increase eventually to ₹20,000 crore per year.
 - Out of the government’s share, ₹4,000 crore will be used from the existing Science and Engineering Research Board’s budget, which will be subsumed under the NRF.
 - Therefore, the government has earmarked an additional 10,000 crore over the next five years for the NRF.

However, this increase in the nation’s gross domestic expenditure on research and development (GERD) seems too meagre, (less than 2% of GERD) especially if one compares the GDP and the comparative spending in other big economies, such as the U.S. and China.

As per the last available statistics (2017-18), India's GERD was ₹1,13,825 crore. While India's GDP was 7.6 and 5.1 times smaller than that of the U.S and China respectively, India's GERD was nearly 24 times less than both these countries during the same period. And in the last five years, that gap has further widened.

How can the NRF facilitate the “ease of doing science”?

- ✓ First, the time between applying for a research grant and receiving the money must be minimal, preferably within six months.
 - Although the NRF draft mentions that the peer-review process will be completed within six months, releasing funds may take time, pending financial clearance.
- ✓ Second, all the paperwork must be digitally processed without sending stacks of papers in hard copies to the NRF.
- ✓ Third, all finance-related queries, paperwork, approval, and acceptance need to be between the NRF and the finance department of the university/research institution keeping the scientist free to focus on research.
- ✓ Fourth, the NRF needs explicit spending guidelines away from the General Financial Rules (GFR) and the government's e-Marketplace (GeM) usage.
 - Scientific research needs independent guidelines for spending money, which provides flexibility while making scientists accountable.
- ✓ Finally, the release of money needs to be timely. Although the NRF draft mentions timely disbursement of funds, a mechanism needs to be in place to facilitate and implement this.

While the participation of the private industry in the NRF is an important and welcome step, it is unclear how the government will raise ₹36,000 crore from the industry. Although the NRF describes a legislative route to facilitate this, a more detailed plan and establishing mechanisms akin to escrow accounts will reassure the scientific community

Ban on Export of Non-Basmati White Rice

Context: Centre bans export of non-basmati white rice to control price rise in India.

Key Highlights

- The ban was announced by the Directorate General of Foreign Trade under the Union Commerce Ministry through a notification.
- The ban is effective immediately, and exemptions will be granted only if certain conditions are met.
 - Exemptions will be given if the loading of non-basmati rice on the ship had commenced before the notification or if the shipping bill was filed and vessels had already berthed or arrived and anchored in Indian ports.
- The decision was taken to ensure sufficient availability of non-basmati white rice in the domestic market and to control the price rise.
- Non-basmati rice was previously exported under the category 'Free with export duty of 20%.'
- The retail prices of non-basmati white rice have increased by 11.5% over a year and 3% over the past month, leading to the ban.
- Last year, an export duty of 20% was imposed on non-basmati white rice to lower the price and maintain availability in the domestic market.
- Despite the imposition of the export duty, the export of this variety increased significantly in the following years.
- The increase in exports can be attributed to various factors, including high international prices, geopolitical scenarios, El Nino sentiments, and extreme climatic conditions in other rice-producing countries.

Portal Launched to Report Violation of Ban on E-Cigarettes

Context: Portal launched to report violation of ban on e-cigarettes.

Key Highlight

- E-cigarettes, despite being banned by the Union government in 2019, are still being sold on e-commerce sites, even to children below 18, according to experts in tobacco control.
- To address this issue, the Health Ministry has launched an online portal, www.violation-reporting.in, to facilitate the reporting of violations under the Prohibition of Electronic Cigarettes (Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage, and Advertisement) Act (PECA).
- The portal **aims** to enable faster action against reported violations of the ban on e-cigarettes, as stated by the government.
- The ban on electronic cigarettes was introduced to protect the younger generation from a new form of toxic addiction, and the online portal is seen as a positive step towards strict enforcement and effective implementation of the ban.
- The Health Ministry had previously cautioned all States and Union Territories about the weak implementation of PECA, which led to the easy availability of e-cigarettes through various channels, including online, retail, convenient stores, stationery shops, and near educational institutions.
- The States were directed to review the compliance of PECA and issue necessary instructions for effective implementation through special drives and random checking.

What is E-Cigarette?

E-cigarettes are electronic devices powered by batteries, which function by heating a liquid to produce an aerosol that users inhale and exhale. The liquid used in e-cigarettes usually consists of nicotine, propylene glycol, glycerin, flavorings, and various other chemicals.

Up in smoke

Wednesday's move follows an advisory by the government in 2018 to all States to consider banning e-cigarettes

- e-cigarettes are brought from China and other countries and are not manufactured in India. They are also available online

- WHO too urged member countries to take appropriate steps. It does not endorse e-cigarettes as cessation aids

- 16 States & one Union Territory have already banned them. The Indian Council of Medical Research, in a recent paper, had recommended a complete ban on them



- They are marketed as being safer than conventional cigarettes but this is false. Available literature suggests that they may act as gateway products to induce non-smokers to nicotine-use

Reason for Banning e-cigarettes

The Health ministry provided several reasons to justify the ban on e-cigarettes, including:

- Threat to country's tobacco control efforts.
- Hindrance in achieving targets under Sustainable Development Goals, National Monitoring Framework for Prevention and Control of non-communicable diseases, and National Health Policy, 2017.
- Concerns for the overall public health of youth and pregnant women.
- Addictive nature of nicotine.
- Insufficient scientific evidence for the use of e-cigarettes as effective tobacco cessation aids.
- Safety concerns regarding flavors combined with nicotine.
- The government also cited Article 47 of the Indian Constitution to support the e-cigarette ban, which emphasizes the State's duty to improve public health and raise the standard of living of its people.

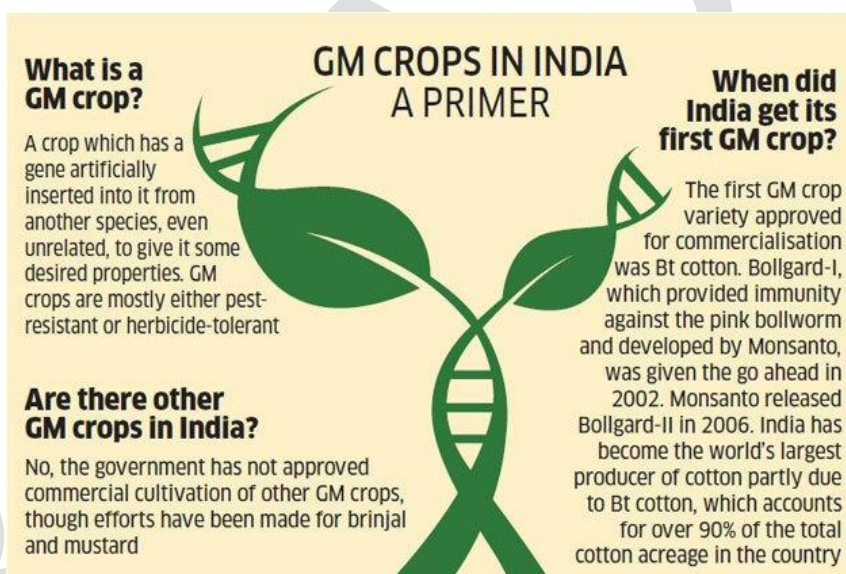
- Additionally, the Indian Council of Medical Research (ICMR) warned against the growing use of e-cigarettes, citing studies showing adverse effects such as DNA damage, carcinogenicity, toxicity at the cellular, molecular, and immunological levels, as well as respiratory, cardiovascular, neurological disorders, and negative impacts on foetal development and pregnancy.

GM Mustard

Context: Rather than engaging with constitutional issues involving public health, environmental protection and agricultural livelihoods, the government is disregarding facts and logic before the Supreme Court. A determined battle by environmentalists in the Supreme Court of India against Delhi University's genetically modified (GM) herbicide-tolerant (HT) mustard is all that stands between GM food and Indian farmers and consumers.

Key Highlights

- GM crops are quite different from conventional varieties and hybrids, such as those developed by farmers, agricultural research institutions and companies.
- Biotechnologists insert select genes at a random location in the DNA of a plant to develop a GM crop. The insertion makes a GM crop express traits that it ordinarily would not.
 - For instance, GM mustard has been altered to withstand the broad-spectrum plant-killer or herbicide glufosinate.
 - This makes it easier to develop hybrid mustard seeds for higher yields. And farmers growing GM mustard can spray the herbicide to kill all plants except the mustard.



What is a GM crop?
A crop which has a gene artificially inserted into it from another species, even unrelated, to give it some desired properties. GM crops are mostly either pest-resistant or herbicide-tolerant

**GM CROPS IN INDIA
A PRIMER**

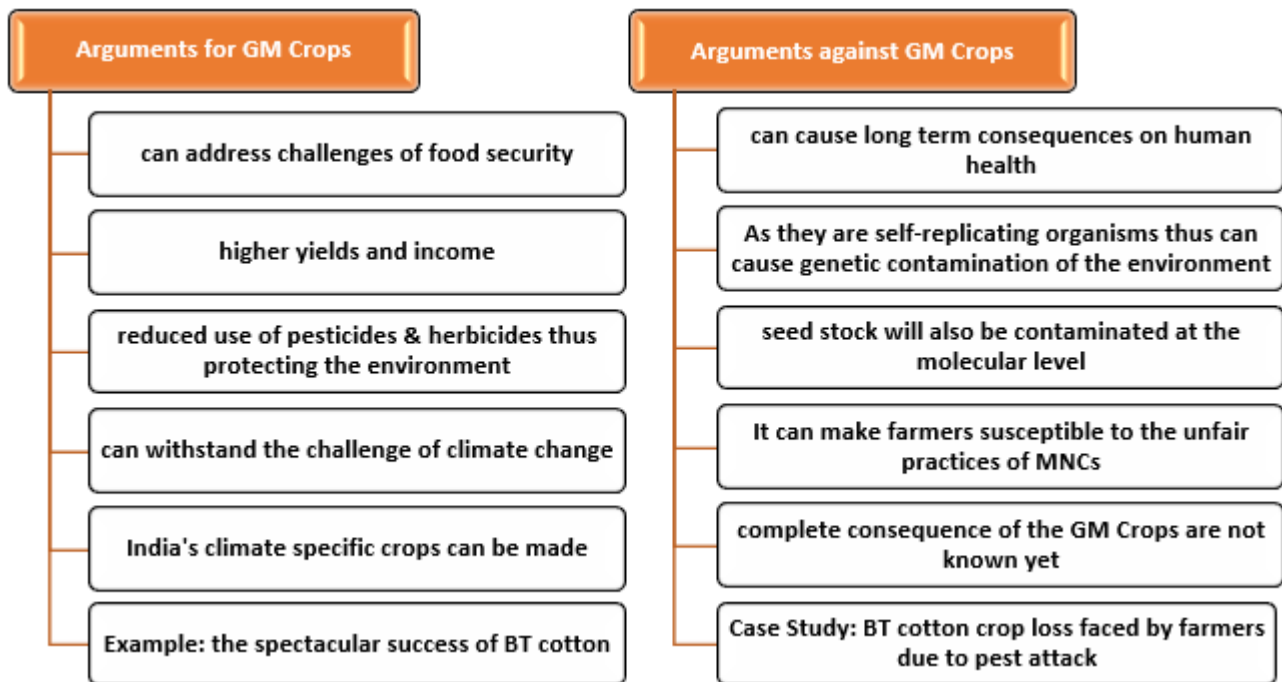
When did India get its first GM crop?
The first GM crop variety approved for commercialisation was Bt cotton. Bollgard-I, which provided immunity against the pink bollworm and developed by Monsanto, was given the go ahead in 2002. Monsanto released Bollgard-II in 2006. India has become the world's largest producer of cotton partly due to Bt cotton, which accounts for over 90% of the total cotton acreage in the country

Are there other GM crops in India?
No, the government has not approved commercial cultivation of other GM crops, though efforts have been made for brinjal and mustard

GM crops in India, the debate

India has seen a robust debate on GM crops in the last two decades. Environmentalists, scientists, politicians, farmers, consumers and the higher judiciary have asked probing questions about the safety, efficacy and even the very necessity of GM food.

Many have been alarmed by the experience with Bt cotton, the first and only GM crop approved in the country. Long-term research suggests that Bt cotton has provided only fleeting benefits to farmers, while enormously increasing their costs of cultivation and risk. On the other hand, some seed companies have profited handsomely from the expensive GM seeds.



Govt. Approves 8.15% Interest Rate for PF Deposits in 2022-23

Context: The Centre accepted the recommendation of the Central Board of Trustees (CBT) of the Employees' Provident Fund Organisation (EPFO) to increase the interest rate of deposits in Provident Fund (PF) to 8.15%. The new rate will be applicable for last financial year.

- The CBT had recommended an increase to 8.15% from 8.10%.
- The EPFO, through an official order, has instructed its field offices to credit the interest into the accounts of members.
- The unions had also complained that the rate of 8.10% was the lowest in recent past and had demanded an increase. In 2020-21, the rate was 8.5%.

Employee Provident Fund (PF)

- It is a government-established savings scheme for employees of the organised sector.
- The EPF interest rate is declared every year by the EPFO (Employees Provident Fund Organisation) which is a statutory body under the Employees' Provident Fund Act, 1956.
- For the current financial year 2022-23, the interest rate on the EPF account has been fixed at 8.15%. Only employees of companies registered under the EPF Act can invest in the EPF or PF.

Employees' Provident Fund Organisation (EPFO)

- EPFO is one of the World's largest Social Security Organisations in terms of clientele and the volume of financial transactions undertaken.
- At present it maintains 24.77 crore accounts (Annual Report 2019-20) pertaining to its members.
- The central board of trustees which administers the EPFO runs three schemes - EPF Scheme 1952, Pension Scheme 1995(EPS) and Insurance Scheme 1976 (EDLI).



Is there a Rural Bias in National Surveys?

Context: The Government of India recently appointed a panel under the chairmanship of Pronab Sen, former Chief Statistician of India to review the methodology of the National Statistical Organisation (NSO).

Why is there a Need for Review?

This happened in the backdrop of articles arguing that the usage of outdated survey methodology by national surveys such as the National Sample Survey (NSS), National Family Health Survey (NFHS) and Periodic Labour Force Survey (PLFS), have systematically underestimated India's development.

- According to them, this archaic methodology has failed to capture reality in the recent past as the "Indian economy has been incredibly dynamic in the last 30 years".
- On the other hand, P. C. Mohanan and Amitabh Kundu have reasoned that there is no systematic underestimation of development by these national surveys. Therefore, there is no need for restructuring and overhauling the survey methodology just because it doesn't suit certain narratives of development.
- However, they accept that there may be errors, which should be minimised. They also advocate the usage of appropriate sample weights to make the national sample adequately representative.

THE GIST

■ The Government of India recently appointed a panel under the chairmanship of Dr. Pronab Sen to review the methodology of the National Statistical Organisation.

■ This happened in the backdrop of articles by Dr. Sharmika Ravi and Dr. Bibek Debroy arguing that the usage of outdated survey methodology by national surveys, have systematically underestimated India's development.

■ National level data is a key source for research, policymaking and development planning.

Why is it Important?

National level data is a key resource for research, policymaking and development planning, so it is of utmost importance to understand and analyse both claims in the light of existing evidence. For this purpose, we will be taking a closer look at NFHS data, which is being conducted by the Ministry of Health and Family Welfare for the last 30 years with the International Institute of Population Sciences (IIPS) as the nodal agency.

Does the NFHS have a Rural Bias?

It has been argued that one of the ways in which national surveys like the NFHS are underestimating Indian development is through "rural bias in terms of representation".

- ✓ In other words, the survey methodology, which depends heavily on the last Census data, systematically overestimates the rural population.
- ✓ However, the examination of five rounds of NFHS data doesn't show any such systematic bias towards rural population.
- ✓ If we match the estimates of the urban population by the NFHS

Urban composition across surveys

A closer look at the urban population estimates (in per cent) in the NFHS data. The NFHS survey is conducted by the Ministry of Health and Welfare.

Years	Unweighted sample	NFHS weighted estimate	Census projection	World Bank estimates	Difference	
(1)	(2)	(3)	(4)	(5)	(3)-(4)	(3)-(5)
NFHS 5 (2019-21)	24.2	31.7	34.3	34.5	-2.6	-2.8
NFHS 4 (2015-16)	28.0	33.0	32.7	32.8	0.3	0.2
NFHS 3 (2005-06)	44.2	30.8	28.9	29.2	1.9	1.6
NFHS 2 (1998-99)	31.3	26.4	28.0	27.2	-1.6	-0.8
NFHS 1 (1992-93)	31.0	26.3	NA	26.0	NA	0.3

Source: NFHS, Census of India and World Bank

with the corresponding World Bank estimates and urban percentage projections from the Census figures of 1991, 2001 and 2011, it is clear that there is no evidence of any systematic rural bias.

- ✓ On the other hand, there is evidence of rural population underestimation by NFHS-3. Overestimation of rural population seems to have taken place by NFHS-2 and NFHS-5.
- ✓ Only NFHS-1 and NFHS-4 estimates seem to be really close to World Bank estimates and projections based on Census data.

However, these errors seem random rather than systematic.

India's First Gig Workers' Rights Bill

Context: On July 24, the Rajasthan government passed the Rajasthan Platform Based Gig Workers (Registration and Welfare) Bill, 2023. It is the first legislation of its kind in India outlining welfare schemes for the State's approximately three lakh gig workers.

THE GIST

- On July 24, the Rajasthan government passed the Rajasthan Platform Based Gig Workers (Registration and Welfare) Bill, 2023.
- The Bill proposes a Welfare Board comprising State officials, five representatives each from gig workers and aggregators, and two others from civil society.
- An aggregator's duties under the Bill include: depositing welfare cess on time, updating the database of gig workers, and documenting any variations in numbers within one month of such changes.

The term "gig" draws its etymological origin from jazz musicians doing short time-based performances called "gigs" for a predetermined fee.

- ✓ The capitalist economy applied this definition to current working arrangements, to escape from employer-employee relationships of any kind.
- ✓ The "gig economy" is in fact nothing more than the minute contractualisation of work, where the employer escapes from all responsibility except for determining the immediate task at hand, and arranging the pecuniary payment for it.

What did the Bill propose?

- The Bill applies to "aggregators" (digital intermediaries connecting buyers and sellers) and "primary employers" (individual or organisations engaging platform-based workers).
- The Bill proposes a Welfare Board comprising State officials, five representatives each from gig workers and aggregators, and two others from civil society.
 - The Board will "set up a welfare fund, register platform-based gig workers, aggregators and primary employers, facilitate guarantee of social security to platform-based gig workers and to provide for matters connected therewith or incidental thereto."
 - The Board will maintain a database of companies and workers and each worker will receive a unique ID which "shall be valid in perpetuity."

Are workers' rights recognised?

- Under existing labour laws, gig workers who are named 'partners' by platforms are not 'employees' because theirs is not a "fixed term of employment" — marked by providing exclusive service to one provider for a specified duration.

- The Code on Social Security, passed in 2020 and yet to be implemented, carried “restrictive criteria” about eligibility which are done away with in the Rajasthan Bill.
- The Bill states any person has the right to be registered the minute they join an app-based platform, regardless of the duration of work or how many providers they work for.
- The Welfare Board is expected to formulate schemes “for social security,” listing only accidental insurance and health insurance, and “other benefits concerning health, accident and education as may be prescribed.”
- Unions have recommended that benefits available to gig workers be enumerated clearly in the Bill, expanding on the clause “other benefits.”
- Another responsibility of the Welfare Board, unions say, should be to assist workers in negotiating contracts by developing standard formats and principles for aggregators.

Where will the funds come from?

- According to the Bill, the Board will create a “Social Security and Welfare Fund” comprising contributions made by individual workers, State government aids, other sources and a ‘welfare cess’ — a cut from each transaction — which the aggregator is required to pay.
- The rate of the welfare cess will not exceed 2% nor fall short of 1% of the value of “each transaction,” and aggregators are required to submit the amount within the first five days of a month.

What about workers’ grievances?

Gig workers “have an opportunity to be heard for any grievances” with “entitlements, payments and benefits provided under the Act.” Per Section 15, a worker can file a petition physically before an officer or online through the web portal. The employer can object to the order within 90 days before an ‘Appellate Authority’. Several reports have documented ineffective and unresponsive redressal mechanisms. Urban Company workers are currently protesting the “arbitrary” blocking of their accounts and a lack of support.

Are aggregators held accountable?

An aggregator’s duties under the Bill include:

- Depositing welfare cess on time
- Updating the database of gig workers
- Documenting any variations in numbers within one month of such changes

If they fail to comply, they will be fined up to ₹5 lakh for the first offence and ₹50 lakh for further violations; primary employers will pay up to ₹10,000 for the first offence and ₹2 lakh for subsequent violations.

Meri Maati, Mera Desh Campaign

Context: The Union government has launched the *Meri Maati, Mera Desh* campaign envisaged as a culminating event of the *Azadi Ka Amrit Mahotsav* (celebration of India’s 75 years of Independence) celebration.

- ✓ Under the campaign, soil collected from different parts of the country in August will be used to develop a garden called Amrit Vatika along the Kartavya Path in Delhi. This ‘Amrit Vatika’ will also become a grand symbol of ‘Ek Bharat Shrestha Bharat’.
- ✓ Events have been planned at the panchayat, village, block, urban local body, and State and national levels, respectively.
- ✓ The five-point agenda includes



<p>Installation of a shilaphalakam</p> <ul style="list-style-type: none"> The installation of a <i>shilaphalakam</i> (memorial plaque), bearing the “names of those who have made the supreme sacrifice”. “For this purpose, <i>veers</i> (bravehearts) include freedom fighters, defence personnel, CAPF personnel, and State Police. 	<p>Solemn Pledge Affirmation</p> <ul style="list-style-type: none"> Participants will take a solemn pledge affirming their commitment to India and its progress. 	<p>Vasudha Vandhan</p> <ul style="list-style-type: none"> Every gram panchayat or village will renew its commitment to Mother Earth. This will involve planting 75 saplings of indigenous species and developing an Amrit Vatika (an ambrosial garden). 	<p>Veeron Ka Vandan</p> <ul style="list-style-type: none"> The campaign aims to felicitate freedom fighters and the families of deceased freedom fighters, honoring their contributions to the nation. 	<p>Mitti Kalash</p> <ul style="list-style-type: none"> Soil will be collected from various parts of the country. This collected soil will be used to build a garden along Kartavya Path in Delhi, symbolizing the unity and diversity of the nation.
--	--	---	--	--

Cyber Security

CERT-In Cautions Against Ransomware ‘Akira’ Attack

Context: An Internet ransomware virus ‘Akira’ that steals vital personal information and encrypts data leading to extortion of money from people has been reported in cyberspace, the country’s federal cybersecurity agency said in the latest advisory.

- This computer malware is targeting Windows and Linux-based systems.
- Akira is reportedly active in cyberspace. This group first steals the information, then encrypts data on their systems and conducts double extortion to force the victim into paying.

How It Works?

- The ransomware is spread through spear phishing emails with malicious attachments, drive-by downloads, specially crafted web links in emails, and insecure Remote Desktop connections.
- It has targeted various domains, including education, finance, real estate, manufacturing, and consulting, and once inside a corporate network, it spreads laterally to other devices using stolen Windows domain admin credentials.

To protect against Akira ransomware and other similar threats, users are advised to:

<p>Maintain up-to-date offline backups</p>	<p>Keep operating systems and networks updated</p>	<p>Implement strong password policies and multi-factor authentication</p>
<p>Enforce data encryption</p>	<p>Block attachment file types that are commonly associated with malicious code</p>	<p>Regular security audits of critical systems</p>

International Relations

India – China & Pangong Tso Lake

Context: India is building a black topped road on the north bank and China is building a bridge across glacial lake; both await 19th round of Corps Commander level talks to find a resolution to dispute.

Key Highlights

- Three years after the violent clash between Indian and Chinese forces in Galwan followed by tanks facing each other around the Pangong Tso — a lake spanning eastern Ladakh and western Tibet — there is hectic activity in the area from both sides.
- While China is rushing to complete a bridge across the Pangong Tso, connecting the north and south banks, India is also building a blacktopped road on its side on the north bank.
- These are among a number of infrastructure projects initiated on both sides since the stand-off, permanently altering the status quo on the ground in eastern Ladakh, even as the two sides await the 19th round of Corps Commander level talks to find a resolution to their dispute in the region.
- “Construction of blacktopped road towards Finger 4 on our side is on and is expected to be completed by 2025.
- Chinese construction On the Chinese side, the source said that work is now under way on the main bridge, while the secondary bridge has been completed. Recently, largescale construction activity was observed on the north bank. Apart from the bridge, work on road connectivity along the south bank towards Shandong village is also under progress, another official source said, citing intelligence inputs.
 - A Chinese air defence site is located east of the Khurnak fort.
 - A 22 km tunnel is under construction along the G-0177 expressway at Yuli, connecting to the very important G 216 highway in Tibet.



Pangong Lake and Border Disputes

- India holds one-third of the 135 km-long Pangong Lake, with the disputed area known as the "fingers".
- Indian claims extend till Finger 8, the perceived Line of Actual Control (LAC), while historically holding territory till Finger 4.
- Initial clashes in May 2020 occurred on the north bank, which has more significant differences in LAC perceptions compared to the south bank.
- Indian Army has a permanent position near Finger 3, while the Chinese have a base east of Finger 8.



NATO & NATO Plus

Context & Background: It was during a virtual press briefing in March 2023 on the North Atlantic Treaty Organization's (NATO) focus on South Asia and the Indo-Pacific region that the United States Permanent Representative to NATO, Julianne Smith, was quoted as saying that "the NATO alliance is open to more engagement, should India seek that".

- Reflecting the same sentiment, the U.S. House Select Committee on the Strategic Competition between the United States and the Chinese Communist Party (CCP), in May 2023, recommended strengthening the 'NATO Plus' framework by including India in the grouping.
- India's External Affairs Minister S. Jaishankar had rejected this idea by saying that "NATO template does not apply to India".
- Yet on the eve of Prime Minister Narendra Modi's visit to the U.S., in June, Senate India Caucus Co-Chair Mark Warner shared his plans to table a bill to bring India into the NATO Plus fold.

NATO & NATO Plus

- ✓ NATO is a transatlantic military alliance of 31 countries, with the majority of members from Europe.
 - After the dissolution of the Soviet Union and the end of the Cold War, many thought that NATO would lose its relevance.
 - On the contrary, NATO has not only survived but also expanded, with Finland joining as its 31st member (April 2023), and Sweden waiting in the wings.
 - NATO appears to be getting the much-needed ground for survival, thanks to Russia's tirade against it and the invasion of Ukraine. With NATO swelling its expanse, some analysts even see the onset of Cold War 2.0.
- ✓ NATO plus refers to a security arrangement of NATO and the five treaty allies of the U.S. — Australia, New Zealand, Japan, Israel, and South Korea as members — to enhance "global defence cooperation" and win the "strategic competition with the Chinese Communist Party".
 - Interestingly, the term 'NATO Plus' is not an officially recognised or established concept within NATO itself, but has been used in discussions and debates regarding the potential expansion of the alliance.
 - The inclusion of these countries as members would require a complex process of negotiation and assessment of their compatibility with NATO's principles, obligations, and defence commitments.

- ✓ While NATO's earlier target was the Soviet Union and now Russia, the focus of NATO Plus is clearly on containing China.
 - Therefore, considering its disputes with China, India remains a missing link in the framework.

India & NATO

- ✓ In light of increasing regional security challenges, India joining the NATO Plus framework could provide it with a security umbrella, with protection and deterrence against potential threats.
- ✓ India could also gain access to advanced military technologies, intelligence-sharing platforms, and interoperability with other member states.
- ✓ This could potentially strengthen India's defence capabilities and modernisation efforts.
- ✓ But this bait needs to be assessed in the larger context of India's strategic autonomy.
 - First, getting into any NATO framework will annoy Russia and China.
 - Apart from the robust strategic partnership, Russia has been useful to India in dealing with regional security challenges and, importantly, moderating the stance of China.
 - Even though Russia is getting over-dependent on China, post the war in Ukraine, Moscow remains a valuable partner for India.
 - Second, while aligning with a U.S. led alliance system may be tempting due to the threats posed by China, it could ultimately prove counterproductive and detrimental.
 - Having a military framework will limit India's freedom of action and prevent it from pursuing an independent policy towards China.
 - Moreover, at a time when India has its own bilateral issues with China and a strategy for the Indo-Pacific, hopping into the Taiwan strategy of the U.S. under NATO Plus will complicate India's security, with the possibility of Chinese justification for further military buildup along the India-China border and frequent intrusion.
 - Third, India has traditionally maintained a policy of strategic autonomy, allowing it to engage with various nations and blocs based on its own interests.
 - Joining a NATO framework would require India to align its defence and security policies with the objectives and strategies of the alliance, thereby potentially undermining India's autonomy.
 - While the non-aligned policy will get a quick death, it could strain relationships with countries, especially neighbours and regional organisations that value India's independent stance, and could also limit its flexibility in engaging with other regional powers.

India's Priorities

- India's priorities lie in addressing its own regional dynamics that includes a unique set of security challenges such as border disputes, terrorism, and regional conflicts.
- While NATO has certain competencies to deal with such issues, its larger geopolitical agenda starting from Eurasia to the Indo-Pacific may divert resources and attention away from these pressing issues and, therefore, will not be of much help to India.
- For the time being, India's posturing through the Quad (India, Japan, Australia and the U.S.; the Asian NATO as per China) looks more promising than the NATO Plus bait, though China remains an elephant in the room during its summits.

France Set to Co-develop Jet Engine

Context: India and France will extend their defence cooperation in advanced aeronautical technologies, supporting the joint development of a combat aircraft engine and an engine for the Indian multi-role helicopter (IMRH).

Key Highlights

- Cooperation on small and advanced modular reactors and the joint Earth observation satellite was also announced.
- A road map for the project will be prepared between Safran and DRDO.
- Industrial cooperation for motorization of heavy-lift helicopters under the IMRH program will involve Safran Helicopter Engine.
- A Shareholders' Agreement has been concluded between HAL, India, and Safran Helicopter Engine for engine development.
- The defence cooperation between India and France is based on trust and joint development of critical components and technology building blocks.
- HAL and General Electric signed an MoU to potentially manufacture the F-414 engine for the indigenous Light Combat Aircraft-MK2.
- The Defence Acquisition Council gave preliminary approval for the procurement of 26 Rafale-M fighters and three additional Scorpene-class submarines from France.
- A Memorandum of Understanding was welcomed between Mazgon Dockyard Ltd. and Naval Group for the construction of three additional Scorpene submarines.
- Other defence industrial partnership initiatives include a contract between Safran Helicopter Engine and HAL for technology transfer and an MoU between Garden Reach Shipbuilders and Engineers Ltd. and Naval Group France for collaboration in the field of surface ships.
- A road map on Defence Industrial Cooperation is being worked upon, and India is establishing a Technical Office of DRDO at its Embassy in Paris.
- Indian Rafale jets participated in the Bastille Day parade, and an Indian Navy ship was present in a port of France.

Bastille Day

The National Day of France, also known as Bastille Day, is celebrated on July 14 to commemorate the fall of the Bastille, a symbol of the monarchy, during the French Revolution. The day is marked with fireworks, parades, and serves as a significant event in French history.

India and UAE Set to Use Rupee, Dirham for Trade

Context: The agreement brings the country a step closer to increasing circulation of the rupee in the Gulf countries. The two nations also agree to interlink their payment and messaging systems

Key Highlights

- India on Saturday moved a step closer to increasing circulation of the rupee in the Gulf region with the signing of two memoranda of understanding (MoU) between the Reserve Bank of India and the Central Bank of the United Arab Emirates.
- The signing of these agreements was witnessed by UAE President Sheikh Mohamed bin Zayed Al Nahyan and Prime Minister Narendra Modi, who was on a day-long visit to the Gulf country on his way back from France.

- The first agreement between the RBI and the UAE Central Bank will establish a framework to “promote the use of local currencies (rupee and dirham) for cross-border transactions”, the External Affairs Ministry said in a statement.
- The other MoU between the two central banks is aimed at interlinking their “payment and messaging systems”, the Ministry said.
- The two countries expressed their interest in strengthening cooperation in the payment systems area by enabling integration between cross-border transactions between the UAE and India more efficiently.
- This cooperation will also include the mutual acceptance of domestic card schemes by interlinking national card switches. Integration between these systems will enhance access to payment services for the benefit of the citizens and residents of the two countries.
- The two agreements between the central banks came against the backdrop of Indian entities commencing payment in yuan to Russian energy majors; it is likely to enhance the trend of doing business in local currencies that gained greater acceptance since the start of the Ukraine crisis in February 2022.
- This was the fifth visit by Mr. Modi to the UAE.

UPI-IPP Cooperation

- **Signing of MoUs:** The central banks of India and the UAE have signed Memorandums of Understanding (MoUs) to collaborate on linking India's Unified Payments Interface (UPI) with the UAE's Instant Payment Platform (IPP) and card switches, namely RuPay switch and UAESWITCH.
- **Cross-border transfers:** The UPI-IPP link will enable users in both countries to make fast, secure, and cost-effective cross-border transfers. This integration aims to enhance the efficiency and convenience of international remittances and payments between India and the UAE.

Significance of Rupee-Based Cross-Border Transactions



- **Mitigating exchange rate risks:** Implementing rupee-based cross-border transactions allows India to reduce the exposure of Indian exporters to exchange rate fluctuations. By conducting trade in rupee terms, exporters can limit potential losses caused by fluctuating exchange rates.
- **Internationalization of the Rupee:** The rupee-based transaction is a part of India's strategic efforts to promote the internationalization of its currency, the Indian Rupee. By encouraging trade in rupee terms, India aims to decrease its dependence on the U.S. dollar and enhance the role of the rupee in global transactions.
- **Expansion of trade partners:** Apart from Russia, several countries in Africa, the Gulf region, Sri Lanka, and Bangladesh have shown interest in conducting trade in rupee terms. This expansion of trade partners allows for increased economic cooperation and trade opportunities, strengthening bilateral relationships and promoting regional trade integration.
- **Settlement process:** Under the Reserve Bank of India's plan, international trade can be settled in the local currency (rupee). Importers will make payments in rupees, which will be credited to the special account of the correspondent bank of the partner country. Similarly, exporters will be paid from the balances in the designated special account. This streamlined settlement process simplifies cross-border transactions and facilitates smoother trade operations.

What is UPI and IPP?

- **Unified Payments Interface (UPI):** UPI is a real-time payment system developed by the National Payments Corporation of India (NPCI). It allows users to link multiple bank accounts to a single mobile application, enabling instant fund transfers between different bank accounts. UPI simplifies peer-to-peer transactions, facilitates merchant payments, and supports various payment options, including QR codes and virtual payment addresses.
- **Instant Payment Platform (IPP):** The Instant Payment Platform (IPP) is a payment infrastructure in the United Arab Emirates (UAE) developed by the Central Bank of the UAE. It provides a real-time payment settlement system that enables individuals and businesses to make instant payments within the UAE. The IPP supports various payment methods, including card-based transactions, mobile payments, and electronic fund transfers.

U.S. Hands Over 105 Antiquities to India

Context: The countries had agreed to work towards preventing illegal trafficking of cultural artefacts during Modi's state visit to the U.S. last month and the United States handed over 105 trafficked antiquities to India.

- India and the U.S. have agreed to work for a **Cultural Property Agreement** that would help **prevent illegal trafficking of cultural artefacts** in future.
- Such an understanding would add further value to the dynamic bilateral collaboration between Homeland Security and law enforcement agencies of the two countries as "for the people of India, these were not just pieces of art but part of their living heritage and culture".

About Artefacts

- The 105 artefacts represent a wide geographical spread in terms of their origin in India – with 47 from eastern India, 27 from southern India, 22 from central India, six from northern India and three from western India.

Spanning a period from 2nd-3rd century CE to 18th-19th century CE, the artefacts are made of terracotta, stone, metal and wood. Around 50 of them have religious significance.

During Mr. Modi's 2016 visit to the U.S., 16 artefacts were handed over by the U.S. side while in 2021, the U.S. government handed over 157.

In 2022, the U.S. authorities formally handed over 307 antiquities, estimated to be worth nearly \$4 million to Indian officials.

India, Tanzania Begin Trade Settlements in Local Currencies

Context: India and Tanzania have started trade settlements in local currencies and this new initiative will help in promoting commerce between the two countries.

Significance

- **Stated by Indian High Commissioner:** Binaya Pradhan, the Indian High Commissioner to Tanzania, emphasizes the recent progress regarding the acceptance of the Indian Rupee and the Tanzanian Shilling (Tsh) for settling bilateral trade. This move is seen as a positive advancement benefiting the business community.
- **Authorized Banks' Role:** The recently sanctioned mechanism empowers authorized banks in India to create Special Rupee Vostro Accounts (SRVAs) dedicated to the correspondent banks situated in Tanzania.
- **Tanzanian Bank Participation:** Tanzanian banks hold the privilege to request authorization from authorized Indian banks to establish their distinct Special Rupee Vostro Accounts within India. This request subsequently undergoes approval from the Reserve Bank of India (RBI). Notably, Bank of Baroda has already secured

approval for this framework for its foreign branches and subsidiaries operating in 18 countries, including Tanzania.

- **Transaction Procedure:** Within this mechanism, Indian importers perform transactions using the Indian Rupee (INR), channeling payments to the correspondent bank of the partner nation. The correspondent bank then credits these payments to their specialized Special Vostro account. In parallel, Indian exporters receive INR payments from the funds available within the correspondent bank's designated Special Vostro account.

India's Rice Export Ban Impacts Asian and African Nations Most

Context: Indian government's decision to ban the export of non-basmati white rice to "ensure adequate availability in the Indian market and to allay the rise in prices in the domestic market." It did not restrict the export of the other types of semi/wholly milled rice — basmati and parboiled rice.

Key Highlights

Chart 1 shows the quantity of the three different types of semi/wholly milled rice exported by India (in tonnes) over time.

- The exported share of non-basmati white rice surpassed the share of basmati rice in the last two fiscal years.
- In FY23, India exported around 64 lakh tonnes of non-basmati white rice and close to 45 lakh tonnes of basmati rice.
- The most widely exported type was parboiled rice (78 lakh tonnes). Now, non-basmati white rice, which formed over a quarter of semi/wholly milled rice, has been taken off the market.
- Over 140 countries bought non-basmati white rice from India in FY23.

Chart 2 shows the average quantity of non-basmati white rice bought by the top 50 importers per year between FY19 and FY23.

- The effect of the ban will be most pronounced in the neighbouring countries of Nepal and Bangladesh, the African countries of Madagascar, Benin, Kenya, and Ivory Coast, the Asian countries of Malaysia and Vietnam, and the UAE, which are all the biggest buyers of this type of rice in absolute terms.
- Interestingly, the U.S. is ranked 34th on the list, with just over 27,000 tonnes of average imports per year.
- In contrast, Nepal bought 4.5 lakh tonnes per year in the considered period.
- Thirty three other countries are more impacted by the ban than the U.S. So, the hullabaloo over rice in the U.S. can be explained as a reporting bias.

Chart 1: The chart shows the quantity of the three different types of semi/wholly milled rice exported by India in lakh tonnes over time

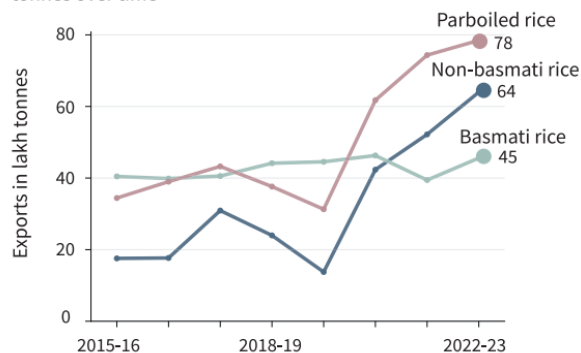


Chart 2: The chart shows the average quantity of non-basmati white rice bought by the top 50 importers per year between FY19 and FY23

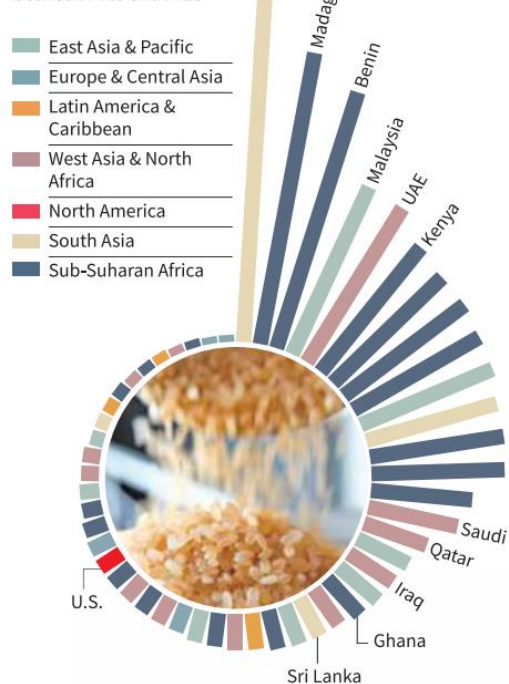


Chart 3 shows the average quantity of semi/wholly milled rice (all the three types together) bought per year between FY19 and FY23.

- The U.S., which bought over 2 lakh tonnes of such rice from India per year in the period, is ranked 11th. The bigger the circle, the higher the dependency of a country on India for rice.
- Here too the U.S.'s dependency on India for semi/wholly milled rice was only 20% compared to Nepal's 99%. In fact, the dependency was over 50% in 23 countries — eight of them in West Asia and nine in sub-Saharan Africa.
- The data hints that a part of the rush in the U.S., which sources 80% of its needs from elsewhere (mostly Thailand), could also be due to panic buying or the preference of NRIs for Indian brands.
- Back in India, the decision may bring relief to consumers as many of them, especially in the southern States, were paying over ₹50 for a kilo of rice as shown in **Table 5**.
- Climate change-related disasters such as extreme flooding in the north and relatively poor rainfall elsewhere have also impacted rice sowing this year.

Chart 3: The chart shows the average quantity of semi/wholly milled rice bought per year between FY19 and FY23 (in tonnes). The bigger the circle the more the dependency

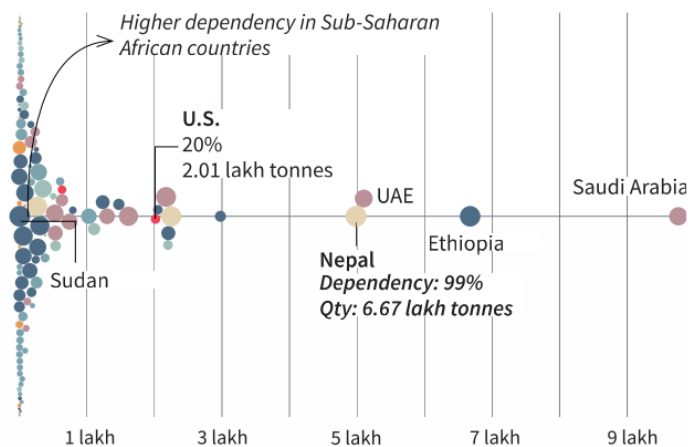


Table 4 shows the usual area covered under rice (FY18 to FY23 average) for the week ending July 13 and July 20 compared to the actual area covered this year (FY24). Chhattisgarh and Odisha are running high deficits. Overall sowing has gone down, which is why the government is restricting rice exports.

Table 4: The table shows the usual area covered by rice (lakh ha) compared to the actual area covered this year

State	For week ending July 13		For week ending July 20	
	Usual area covered	Actual area	Usual area covered	Actual area
Chhattisgarh	21.37	11.01	25.6	19.5
Odisha	10.22	2.89	13.7	5.0
Punjab	28.73	23.97	29.9	29.2
Assam	6.09	2.72	7.9	5.7
WB	4.10	2.84	8.3	5.6
Bihar	8.48	8.07	13.8	14.0
MP	8.56	8.30	12.5	20.8
Haryana	8.35	8.80	11.0	10.4
UP	31.24	31.86	41.1	39.1
All India	151.68	123.18	198.3	180.2

Table 5: The table shows the retail price of rice (₹ per kg) for select cities

	July 24, 2018	July 24, 2020	July 24, 2022	Jan. 24, 2023	June 24, 2023	July 17, 2023	July 24, 2023
Chennai	36	53	57	57	59	59	59
Hyderabad	28	44	46	41	53	53	53
Bengaluru	52	52	43	50	54	53	55
Mumbai	30	33	35	35	38	42	42
Delhi	34	35	32	37	38	39	39
Patna	31	30	36	38	38	38	38
Lucknow	28	25	31	31	35	36	36
Bhopal	30	27	30	29	33	36	36

Over 140 countries bought non-basmati white rice from India in FY23. The ban will hurt India's neighbours, African countries and Asian countries

Mekong Ganga Cooperation

Context: Peace and prosperity in Mekong region play pivotal role in India's Act East policy, says External Affairs Minister S Jaishankar in 12th Mekong Ganga Cooperation (MGC) Mechanism meeting.

About Mekong River

- The Mekong or Mekong River is a transboundary river in East Asia and Southeast Asia.
- It is the world's twelfth-longest river and the third-longest in Asia.
- It covers the distance of around 5,000 km from the source i.e. the Tibetan Plateau in China to the Mekong Delta.
- It flows through six countries namely China, Myanmar, Thailand, Lao PDR, Cambodia and Viet Nam.

The Mekong - Ganga Cooperation (MGC) was established in 2000 to promote economic cooperation and connectivity among MGC countries, namely Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam and India.

- The MGC is the first cooperation framework between the Mekong sub-region and external partner.
- MGC initiative aims to facilitate closer contact among the people inhabiting two major river basins of Ganga and Mekong.

Military Exercises, Defence & Security

India & Mongolia Exercise: Nomadic Elephant-23

Context: Indian and Mongolian troops will take part in the 15th edition of a bilateral military exercise in Ulaanbaatar from July 17 to 31 aimed at exchanging best practices and developing interoperability, the Ministry of Defence said.

Key Highlights

- An Indian Army contingent comprising 43 personnel reached Ulaanbaatar on an Indian Air Force C-17 aircraft to take part in the exercise, "Nomadic Elephant-23".
- "The **aim** of this exercise is to build positive military relations, bonhomie, camaraderie and friendship between the two Armies.
- The primary **theme** of the exercise will focus on counter-terrorism operations in mountainous terrain under United Nations mandate.
- "Nomadic Elephant" is an annual training exercise that is conducted alternatively in Mongolia and India. Soldiers of the Mongolian Armed Forces Unit 084 and the Indian Army's Jammu and Kashmir Light Infantry Regiment will participate in the exercise.



India-Australia Antisubmarine Warfare Exercise

Context: The Australian Air Force's long range maritime patrol aircraft P-8A landed at INS Rajali Naval air station in Tamil Nadu for an anti-submarine warfare exercise with the Indian Navy's P-8I aircraft from June 30 to July 6.

- Maritime and subsurface domain awareness, apart from anti-submarine warfare, has been the major focus areas for the Quad group of countries comprising India, Australia, Japan and the U.S.

P-8I Aircraft

- Long-range Maritime Reconnaissance and Anti-Submarine Warfare Aircraft.

- Indian variant of the P-8A Poseidon aircraft that Boeing company developed as a replacement for the US Navy's ageing P-3 fleet.
- Maximum speed: 907 kmph
- Operating range: over 1,200 nautical miles
- P-8Is detect threats and neutralize them if required, far before they come anywhere near Indian shores.
- The Indian Navy became the first international customer for the P-8 aircraft in 2009.
- The Navy had procured eight P-8Is in 2009. The aircraft are part of the 312A Naval Air Squadron based at Arakkonam in Tamil Nadu.
- In 2016, the Navy exercised the optional clause for four more P-8Is.
- Further in May 2021, the US State Department approved the possible sale of six additional P-8I aircraft and related equipment, to India.
- The six P-8Is will come installed with encrypted communication systems since India has now signed the foundational agreement Communications Compatibility and Security Agreement (COMCASA) with the US.

IAF Plans Its Biggest Air Exercise

Context: The exercise, named Tarang Shakti, is slated to be the biggest air exercise to be conducted in India.

Participating countries will join the exercise with both military combat jets and transport aircraft, among other assets.

Key Highlights

- The Indian Air Force (IAF) is preparing to host a significant multinational air exercise named 'Tarang Shakti'.
- This exercise intends to boost military cooperation and collaboration with air forces from 12 nations, making it the largest of its kind ever conducted in India.

Participating Countries and Schedule

- Air forces from France, Australia, the United States, and the United Kingdom are among those anticipated to join 'Tarang Shakti'.
- Scheduled for October-November of this year, the exercise will feature six active participating nations, while the remaining countries will attend as observers.
- The final authorization for the exercise is pending government approval.

Objectives and Significance

- 'Tarang Shakti' holds several key objectives and significance, including:
- Strengthening military cooperation among participating air forces.
- Enhancing interoperability and synergy in joint operations.
- Facilitating the exchange of best practices and lessons learned.
- Demonstrating a shared commitment to regional security and stability.
- Cultivating trust and fostering strategic partnerships.

Focus Areas and Training Scenarios

The exercise encompasses various focus areas and training scenarios:

Fighter Operations

Transport Aircraft Operations

Joint Exercises

- **Fighter Operations:** Integrated combat, air-to-air engagements, and simulated dogfights, as well as offensive and defensive counter-air operations.

- **Transport Aircraft Operations:** Airlift, air-drop missions, formation flying, tactical maneuvers, and air logistics interoperability.
- **Joint Exercises:** Air-to-ground coordination with ground forces, search and rescue operations, humanitarian assistance, and disaster relief drills.

‘Sagar Nidhi’ Participation in Colombo Security Conclave

Context: Maiden embarkation of scientists onboard India’s research vessel ‘Sagar Nidhi’ – Colombo Security Conclave.

Key Highlights

- Landmark maritime collaboration event within Colombo Security Conclave (CSC) framework between the nations of Indian Ocean Region.
- Scientists from Bangladesh and Mauritius on India’s research vessel ‘Sagar Nidhi’ (June 29, 2023).
- Joint ocean expedition lasting nearly 35 days.
- Conducted by Indian National Centre for Ocean Information Services (INCOIS) under Ministry of Earth Sciences.
- Result of maiden CSC Oceanographers and Hydrographers conference (November 2022, Goa and Hyderabad).
- Scientists collaboratively researching ocean data for predicting and managing marine environment changes and ocean parameter variations.

ORV Sagar Nidhi

- Commissioned in 2008 for the nation's marine research initiative.
- The third research vessel following Sagar Purvi and Sagar Paschimi.
- Equipped for geo-scientific, meteorological, and oceanographic research.
- Ministry of Earth Sciences (MoES) operates 6 ships: Sagar Nidhi, Sagar Manjusha, Sagar Kanya, Sagar Sampada, Sagar Tara, and Sagar Anveshika.
- These vessels contribute to various ocean studies and applications, including ocean observations.
- The ice-strengthened multidisciplinary vessel ORV Sagar Nidhi is operated by India's National Institute of Ocean Technology.
- Constructed at Fincantieri in Italy.
- The 104-meter-long vessel features automatic diesel-electric propulsion, a dynamic positioning system, azimuth thrusters, and a 60-tonne-capable winch for depths of 6,000 meters.
- Capable of geo-scientific, meteorological, and oceanographic research.
- Designed for blue-water operations with a range of up to 10,000 nautical miles (19,000 km) and voyages lasting up to 45 days.
- Intended for research in the Indian and Antarctic Oceans.
- Expected roles include deep-sea mining, launching ROVs, AUVs, manned/unmanned submersibles, and exploring gas hydrates.

Colombo Security Conclave

- India aims to enhance security cooperation via the Colombo Security Conclave (CSC), a new 'minilateral' group.
- Led by National Security Advisors (NSAs), CSC includes India, Sri Lanka, Maldives, Mauritius, Bangladesh, and Seychelles (observers).
- Active security-focused group in the Indian Ocean region.

- CSC addresses maritime security, counterterrorism, and cybersecurity.
- Offers a platform for India and island/littoral nations to tackle strategic and regional challenges.
- Emerged from trilateral meetings among NSAs and Deputy NSAs, expanded to include Mauritius and observers.
- Established a secretariat in Colombo in 2021.
- Conducts regular security exercises on topics like maritime search and rescue, cybersecurity, coastal security, and terrorism investigations.

INS Visakhapatnam Recently Entered Oman

Context: Indian Navy authorities have conveyed that on Sunday, the domestically constructed destroyer INS Visakhapatnam arrived in Oman, with the aim of strengthening the maritime collaboration between the Indian Navy and the Royal Oman Navy.

INS Visakhapatnam

- INS Visakhapatnam is the lead ship of the Visakhapatnam-class stealth guided-missile destroyers in the Indian Navy.
- Commissioned on November 21, 2021.
- Guided-missile destroyers are equipped with guided missiles for anti-aircraft warfare fleet protection.

Physical Specifications	<ul style="list-style-type: none"> ○ Length: 163 meters ○ Breadth: 17 meters ○ Displacement: 7,400 tonnes ○ High-speed capability: Propelled by four powerful Gas Turbines, achieving speeds over 30 knots. ○ Enhanced Stealth Features: Reduced Radar Cross Section achieved through hull shaping, superstructure design, plated masts, and radar-transparent materials.
Indigenous Design	<ul style="list-style-type: none"> ○ It is around 65 percent indigenous, showcasing India's shipbuilding capability. ○ Promotes the 'Make-in-India' initiative and supports 'Atmanirbhar Bharat'.
Technological Features	<ul style="list-style-type: none"> ○ Total Atmosphere Control System (TAC) for air conditioning and ventilation. ○ Equipped with 8 Brahmos missiles and Ukrainian Zorya gas turbines. ○ Features Israeli Multi-Function Surveillance Threat Alert Radar (MF-STAR). ○ Integration with Long Range Surface to Air Missile system through Multi-Function Surveillance Threat Alert Radar. ○ Utilizes Ship Data Network (SDN), Automatic Power Management System (APMS), and Combat Management System (CMS) for comprehensive network capabilities.
Motto and Symbolism	<ul style="list-style-type: none"> ○ The ship's motto is 'Yasho Labhasva,' which translates to 'Attain Glory' in Sanskrit. ○ Represents India's advancement in shipbuilding and the pursuit of self-reliance through 'Make-in-India' initiative.

IN-USN SALVAGE AND EXPLOSIVE ORDNANCE DISPOSAL EXERCISE - SALVEX

Context: The seventh iteration of the collaborative naval exercise between the Indian Navy (IN) and the United States Navy (USN), known as the Salvage and Explosive Ordnance Disposal (EOD) exercise, or SALVEX, took place from June 26 to July 6, 2023. This exercise was conducted at the naval base in Kochi, India.

About SALVEX Exercise

- The inaugural IN-USN SALVEX exercise took place in 2005, marking the beginning of collaborative efforts.
- In 2011, a series of joint Salvage and Explosive Ordnance Disposal (EOD) exercises named SALVEX were initiated by US and Indian Navy divers.
- SALVEX exercises are dedicated to enhancing the proficiency of US and Indian divers in diving and salvage techniques.

Highlights of the 2023 SALVEX Exercise

- Participation from both Indian and United States navies was observed in the exercise.
- Naval vessels included INS Nireekshak and USNS Salvor, accompanied by Specialist Diving and EOD teams.
- The exercise spanned over a period of 10 days, during which the diving teams from both nations shared their experiences in maritime salvage and underwent joint training in various aspects of EOD operations on both land and at sea.
- The 2023 SALVEX exercise also facilitated collaborative training exercises aimed at improving interoperability and cohesiveness between the two navies.
- The exercise served as a platform for the exchange of best practices in maritime salvage and EOD operations, contributing to mutual learning and enhanced capabilities.
- The constructive engagements during the exercise played a crucial role in elevating the skill sets of the diving teams across a diverse range of disciplines, including mine detection and neutralization, wreck location, and salvage operations.

INS Sahyadri and INS Kolkata, Engage in Bilateral Maritime Exercise with Indonesian Naval Forces

Context: The Indian Navy's flagship ships, INS Sahyadri and INS Kolkata, arrived in Jakarta to participate in a bilateral maritime exercise alongside the Indonesian Naval Forces.

Key Highlights

- Throughout their stay in port, personnel from both the Indian and Indonesian navies will actively participate in a diverse array of activities aimed at fostering mutual cooperation and understanding.
- These activities include engaging in professional interactions, partaking in joint yoga sessions, participating in sports events, and exchanging visits between the ships.
- The primary purpose of these interactions is to strengthen the bonds of partnership between the two navies.
- Following the necessary operational procedures, the ships will engage in a Maritime Partnership Exercise (MPX) at sea alongside the Indonesian Navy.
- This exercise is designed to further enhance the already significant level of interoperability shared between the two naval forces.

Recent Bilateral Exercise and Participation

- Prior to this, the Indian and Indonesian naval forces conducted the bilateral exercise "Samudra Shakti 2023" in the South China Sea.
- From May 17 to 19, 2023, the sea phase of the exercise involved multiple naval assets.
- INS Kavaratti, an Anti Submarine Warfare corvette equipped with a Chetak helicopter and a Dornier Maritime Patrol Aircraft, participated in the complex exercises.
- The Indonesian Navy's assets, including KRI Sultan Iskandar Muda with a Panther helicopter and a CN 235 Maritime Patrol Aircraft, engaged in a series of intricate exercises during the South-Eastern Indian Ocean Region (IOR) mission.

INS Sahyadri and INS Kolkata

- INS Sahyadri is the third vessel belonging to the indigenous Project-17 class stealth frigates.
- INS Kolkata stands as the inaugural ship of the indigenously designed and constructed Project-15A class stealth destroyers.
- Both of these advanced warships were built at the prestigious Mazagon Dock Shipbuilders Ltd, situated in Mumbai, India.

Environment

Turtles Help Clean the Ganga

Context: Under the Namami Gange Programme, large-scale human efforts have been undertaken since 2014 to clean the Ganga and rejuvenate the nearly 2,600-km river network. In this, marine life, especially turtles, has been playing a key role as well.

Key Highlights

- In 2014, the Wildlife Institute of India (WII) and the Ministry of Forest joined hands with the National Mission for Clean Ganga (NMCG), the agency implementing the Namami Gange Programme.
- Since 2017, they have been running the turtle breeding and rehabilitation centre in Uttar Pradesh's Varanasi.
- About a dozen of the 29 turtle species in India, both herbivorous and carnivorous, help by clearing rotten or half-burnt human bodies as well as flowers dumped into the river here.
- Roughly 5,000 turtles have been released since 2017. This year, 1,000 more will be released to strengthen the programme.

Role of Turtles

- The turtles feed on meat and waste products thrown in the river.

Observations

- Improvements in biochemical oxygen demand (BOD), fecal coliform (FC) and dissolved oxygen (DO) levels were seen during river water quality checks.
- During the assessment of the river's pH levels (i.e. acidic nature) at various locations, officials found that the water quality was suitable for bathing.

Facts

- At the rehabilitation centre, roughly a dozen species are nurtured.
- The Forest and Wildlife Department's team brings turtle eggs from the coastal areas of the Chambal region.
- The turtle eggs, which are monitored for 70 days, are kept in a room that is fully adapted for hatching.
- After filling the ground with water and placing bricks atop, the eggs are buried inside sand in wooden boxes. Only 30 eggs are kept in a box.
- Hatching is completed at temperatures ranging from 27 to 30 degrees Celsius between June and July, and after which the turtles are monitored in an artificial pond for two years before they are released in the river.

- In 20 locations, they found improved levels of DO, BOD and FC at 16, 14 and 18 locations, respectively.
- “It is a long-term biological process and it will take time to know whether these species are playing a major role or not, after 10-15 years.

Primary Forest Cover

Context: Tropical areas lost 4.1 million hectares of forest cover- equivalent to losing an area of 11 football fields per minute – in 2022, new research quoted by the World Resources Institute’s (WRI) Global Forest Watch has said.

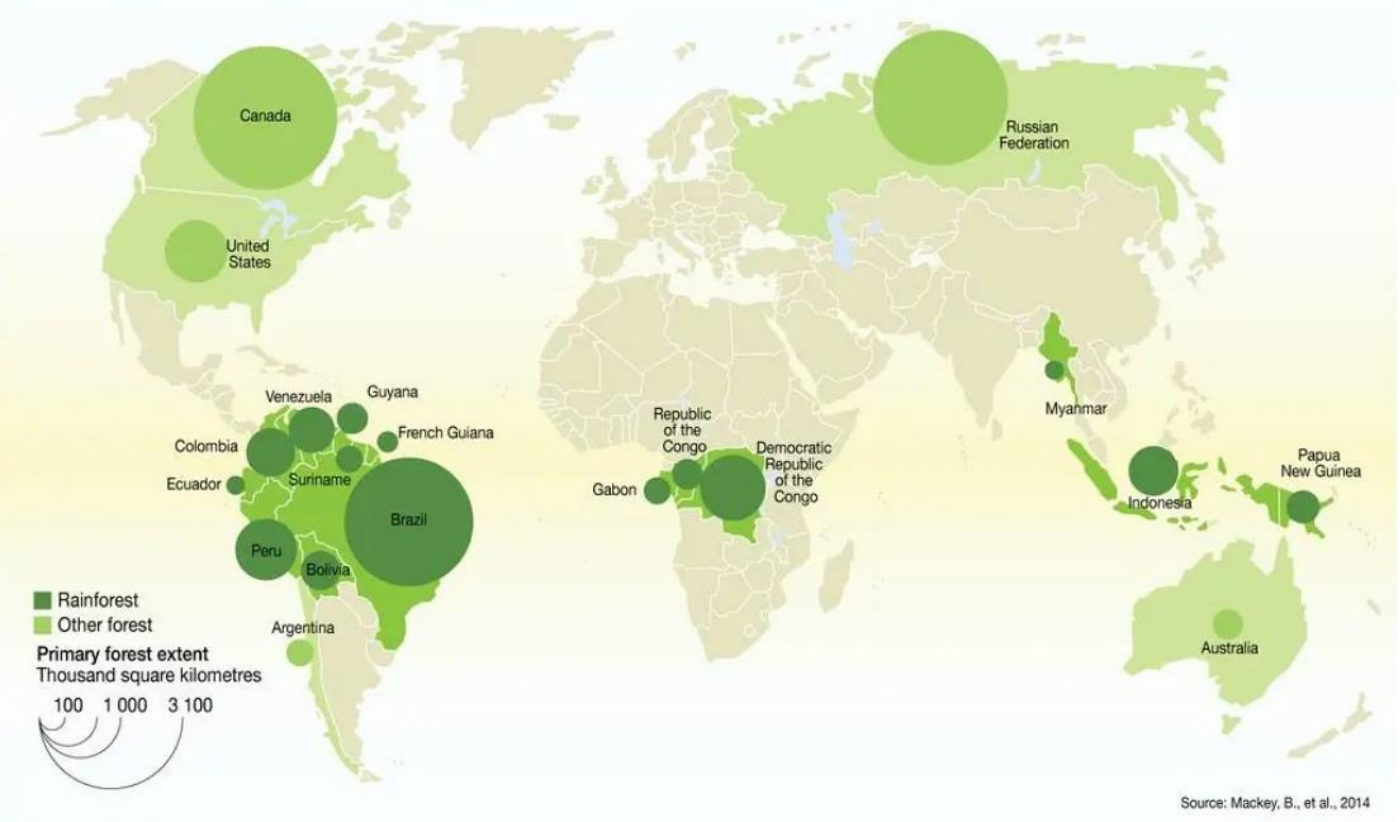
- This forest loss produced 2.7 billion tonnes of carbon dioxide emissions, which is around the same as India’s annual emissions due to the combustion of fossil fuels.

Primary Forests

Primary forests are mature, natural forests that have remained undisturbed in recent history.

- ✓ They often store more carbon than other forests and are rich sources of biodiversity.
- ✓ Primary forest loss is almost irreversible in nature.
- ✓ Even if the green cover regrows, a secondary forest is unlikely to match the extent of biodiversity and carbon sequestering capabilities of a primary forest.

Primary forest top 20 countries



Key Highlights

- WRI measures progress on two goals – ending deforestation by 2030, and restoring 350 million hectares (mha) of lost and degraded forests by 2030 – that represent multiple global forest pledges.
- We need to reduce global deforestation by at least 10% every year to meet the 2030 target.
- In 2022, although the global deforestation rate was 3.1% lower than the baseline from 2018-2020, it was still over one million hectares above the level needed. This puts the world off track to meet the 2030 goal.
- To meet the target of restoring 350 mha of forests globally by 2030, the world needs to increase tree cover by 22 mha per year, between 2021 and 2030.
- Despite registering some gains, the overall change in tree cover in the past 20 years was a net loss of 100 mha.
- This means that we are still losing forests and not restoring them at the required rate.
- According to Global Forest Watch, **India** lost 43.9 thousand hectares of humid primary forest between 2021 and 2022, which accounts for 17% of the country's total tree cover loss in the period.
 - The total tree cover loss in India between 2021 and 2022 was 255, 000 hectares.
- The total global tree cover loss in 2022 declined by 10%. This includes primary, secondary, and planted forests.
 - This decrease, according to Global Forest Watch, is a direct result of a decrease in fire-related forest losses which decreased 28% from 2021. Non-fire losses in 2022 increased by slightly less than 1%.

- Brazil and the Democratic Republic of Congo are the two countries with the most tropical forest cover, and both registered losses of this resource in 2022.
- Ghana and Bolivia also rapidly lost their primary forest cover.
- On the other hand, Indonesia and Malaysia managed to keep their primary forest cover loss to record-low levels in 2022.

One More Cheetah Dies at Kuno National Park

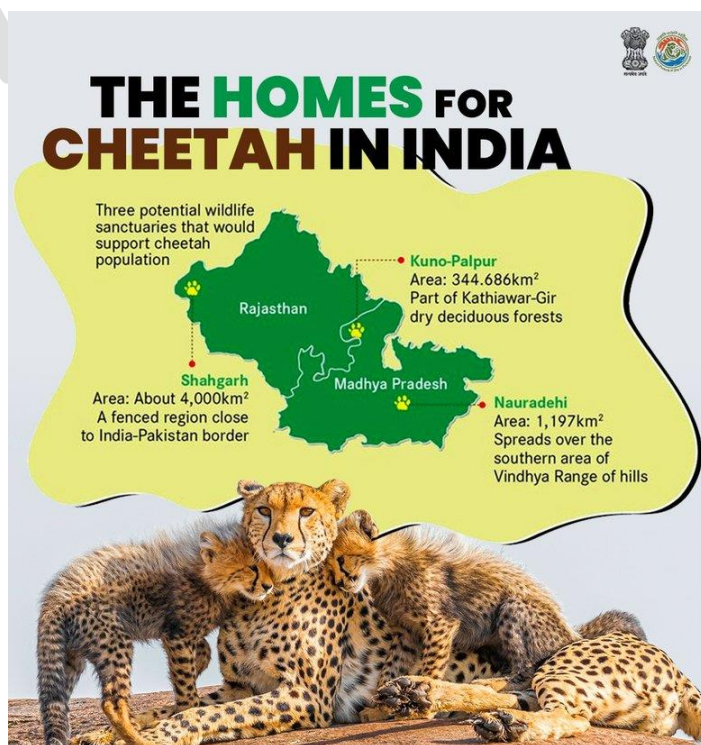
Context: Another cheetah has been found dead in Kuno National Park, Madhya Pradesh. This marks the fifth adult cheetah to have died since 20 cheetahs were translocated from Namibia and South Africa a year ago.

Key Highlights

- The Environment Ministry, in charge of Project Cheetah, has not provided an explanation for the recent death.
- A post-mortem is currently being conducted, and a meeting involving senior officials is underway.
- The cheetah that died is named Surya, and its death occurred two days after another cheetah named Tejas was found dead.
- Surya was one of the 12 cheetahs that were released to roam freely in the wild.

Project Cheetah

- The Government of India has launched Project Cheetah with the aim of reintroducing cheetahs to the country.



Admission Help Line: +91 9823256625 & 9579247470
(WhatsApp)

Email: info@iqraias.com, support@iqraias.com

- The project is being implemented by the National Tiger Conservation Authority (NTCA) in collaboration with the Madhya Pradesh Forest Department, Wildlife Institute of India (WII), and cheetah experts from Namibia and South Africa.
- The project follows an action plan for introduction in India and is overseen by a Steering Committee consisting of experts and officials involved in successful tiger reintroduction projects in Sariska and Panna Tiger Reserves.
- As part of the project, 20 radio-collared cheetahs were translocated from Namibia and South Africa to Kuno National Park in Madhya Pradesh.
- After a quarantine period, the cheetahs were shifted to larger acclimatization enclosures, with 11 currently in free-ranging conditions and 5, including a cub born in India, within quarantine enclosures.
- A dedicated monitoring team ensures 24/7 monitoring of the free-ranging cheetahs.
- The NTCA has deployed a team of officials to work closely with field officials at Kuno National Park to analyze real-time field data and make management decisions, including health interventions, for better management of the cheetah population.

Kuno National Park

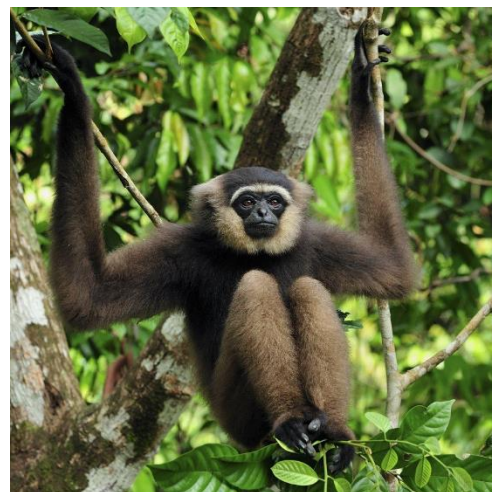
- Kuno National Park is a protected area in Madhya Pradesh that was established in 1981.
- It became a national park in 2018.
- The park is known for its diverse wildlife and is being considered as a potential habitat for cheetahs and Asiatic lions.
- Currently, the park is home to leopards and striped hyenas, and efforts are underway to make it a second home for the Asiatic lion in India.

Hoolock Gibbon

Context: The conservation status of India's only ape was a cause for concern at a global event on gibbons held a week ago in China.

Key Highlights

- Gibbons, the smallest and fastest of all apes, live in tropical and subtropical forests in the south-eastern part of Asia.
- The hoolock gibbon, unique to India's northeast, is one of 20 species of gibbons on Earth.
- The estimated population of hoolock gibbons is 12,000.
- The Global Gibbon Network (GGN), which had its first meeting at Haikou in China's Hainan province from July 7-9 said,
 - Like all apes, they are extremely intelligent, with distinct personalities and strong family bonds.
 - Unfortunately, the current conservation status of gibbon species is alarming – all 20 species are at a high risk of extinction.
 - Since 1900, gibbon distribution and populations have declined dramatically, with only small populations in tropical rainforests.
 - The hoolock gibbon faces threats primarily from the felling of trees for infrastructure projects.
 - GGN was founded with a vision to safeguard and conserve a key element of Asia's unique natural heritage – the singing gibbon and their habitats, by promoting participatory conservation policies, legislations, and actions.



- American naturalist R. Harlan was the first to describe the hoolock gibbon, characterized by their vigorous vocal displays, from Assam in 1834.
- Over the decades, zoologists thought the Northeast housed two species of the ape
 - The eastern hoolock gibbon (*Hoolock leuconedys*) found in a specific region of Arunachal Pradesh.
 - It lives in certain areas of Arunachal Pradesh and Assam in India, as well as in parts of southern China and northeastern Myanmar.
 - The western hoolock gibbon (*Hoolock hoolock*) distributed elsewhere in the northeast.
 - It is found in all the states of North-East India, but its range is limited to the area between the south of the Brahmaputra river and the east of the Dibang river. Outside of India, it can be found in eastern Bangladesh and north-west Myanmar.

A study led by Hyderabad-based Centre for Cellular and Molecular Biology (CCMB) in 2021 proved through genetic analysis that there is only one species of ape in India. It debunked earlier research that the eastern hoolock gibbon was a separate species based on the color of its coat.

Conservation Status

- ✓ International Union for Conservation of Nature's Red List:
 - Western Hoolock Gibbon: Endangered
 - Eastern Hoolock Gibbon: Vulnerable
- ✓ Both the species are listed on **Schedule 1 of the Indian (Wildlife) Protection Act 1972.**

Cicada Species

Context: A 'foreign' cicada that is commonly found in several parts of South India has assumed an Indian identity.

Key Highlights

- The insect species has been named **Purana cheeveeda** (after its **Malayalam name Cheeveedu**).
 - Previously, it was mistaken for *Purana tigrina*, a species described in Malaysia in 1850.
- The Association for Advancement in Entomology has corrected the taxonomic identification error and excluded the Malaysian species from the South Indian cicada fauna.
- The researchers in Kerala **observed differences in the structure of the male genitalia and operculum**, leading to the discovery.
- The **gradual disappearance** of these cicadas, once a common sight in homesteads, could be an indicator of the **deteriorating quality of soil and vegetation**, according to their cautionary note.



Purana cheeveeda

What are Cicadas?

Title	Description
About	<ul style="list-style-type: none"> • Insects that belong to the order Hemiptera and the superfamily Cicadoidea. • Also called true bugs, have mouthparts used for piercing and sucking and have two pairs of wings. • Large eyes, transparent wings and loud calls that are produced by special organs called tymbals.

Habitat	<ul style="list-style-type: none"> • Most cicadas are canopy dwellers and are found in natural forests with large trees; found in every continent except Antarctica. • The generic diversity of cicadas in India and Bangladesh ranks the highest in the world, followed by China.
Life Cycle & Dietary Pattern	<ul style="list-style-type: none"> • Mostly herbivorous and feed on plant sap. • Complex life cycles: involve long periods of underground development and short periods of adult emergence.
Threats	<ul style="list-style-type: none"> • Human development activities reduce the number of trees that cicadas depend on for feeding and reproduction. • Climate change may disrupt the timing and synchronization of cicada emergence. • Pesticides, herbicides and fungicides contaminate the soil and water and affect the health and survival of cicadas and their host plants.
Significance	Cicadas are important for biodiversity because they provide food for many predators, pollinate flowers, aerate the soil, recycle nutrients and indicate environmental health.

Captive-Bred Vultures

Context: In 2020, eight critically endangered oriental white-backed captive-bred vultures were released into the wild for the first time in India from the Jatayu Conservation Breeding Centre in Pinjore, Haryana.

- Close to three years later, five survive and two have paired and successfully nested, in the untamed habitat of the Shivalik range in the foothills of the Himalayas.
- This has received a hurrah from wildlife enthusiasts working towards protecting the vultures that have been under threat of extinction since the 1990s.



Key Highlights

There has been no report of deaths due to veterinary non-steroidal anti-inflammatory drugs (NSAIDs). This too is a relief for ornithologists, who had over the years been worried about the uncontrolled use of these drugs on cattle, especially the illegal use of the banned diclofenac. Vultures feeding on their carcasses die as the drugs are toxic to them.

- Nesting is a very important milestone and an encouraging sign for the re-induction programme. Also, the fact that there has been no mortality is inspiring and indicates increasing vulture-safe zones.
- After the release from Pinjore, 31 oriental white-backed vultures were released in batches in West Bengal in 2021. All the birds fly every day and have started locating their own food. Our teams have been monitoring the released birds. Of the 31, as many as 29 are surviving.
- The BNHS and Royal Society for Protection of Birds (RSPB) have been managing four Jatayu conservation breeding

In 1993, there was an estimated 40 million vultures in India, a BNHS study said. The population of three species — the oriental white-backed, the long-billed, and the slender-billed — has declined by over 97% since the 1990s.

- The oriental white-backed vulture's prevalence has gone down by an astonishing 99.9%.
- All three species are classified as critically endangered by the International Union for the Conservation of Nature (IUCN), composed of both government and civil society bodies.
- The species come under Schedule 1 of the Wildlife Protection Act, 1972, meaning they enjoy the highest level of protection.

centres across the country in partnership with the State governments of Haryana, Madhya Pradesh, West Bengal, and Assam. Through this conservation breeding programme, the BNHS-RSPB has bred more than 700 birds in captivity since 2004.

- The birds “wear” tracking devices, through which the team has found that one of the oriental white-backs released from Rajabhatkhawa in West Bengal flew into Nepal, re-entered India, and then reached Bhutan, and is now back in India. “So, this bird is moving between Nepal, Bhutan, and India.

Soft release centres

Prompted by the success, the BNHS has already started the construction of soft release centres in Madhya Pradesh, Assam, Rajasthan, and at three tiger reserves in Maharashtra. Mr. Rithe said tiger reserves had become free from humans and livestock, and had sufficient wild prey that were free from NSAIDs. Hence the BNHS now intends to use these areas to release the captive-bred vultures. A vulture-safe zone is an area of 30,000 sq. km that is declared free from the drug diclofenac, says the IUCN.

Lightning Not a Natural Disaster, says Centre

Context: The number of deaths due to lightning has been increasing of late; if it joins the list of natural disasters, victims will be entitled to compensation under the State Disaster Response Fund; but an official says Centre is not in favour of it as deaths can be prevented through awareness programmes.

Key Highlights

- India is among only five countries in the world that has an early warning system for lightning — the forecast is available from five days to up to three hours.
- The States such as Bihar and West Bengal have been demanding that lightning deaths be covered as a natural disaster. Once this is notified, the victims will be entitled to compensation from the State Disaster Response Fund (SDRF). The Centre makes 75% of the contribution to the SDRF.
- Cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslip, avalanche, cloudburst, pest attack, frost and cold wave are now considered disasters under the SDRF.
- In the past few years, there has been a spurt in deaths due to lightning. It is possible that climate change is one of the reasons.
- There are times when people acknowledge the message and take adequate precautions, but during peak farming season, sometimes people tend to ignore the warnings.
- National Crime Records Bureau (NCRB) data show that 2,880 people died in lightning strikes in 2021.
 - The deaths made up 40% of all accidental deaths caused by “forces of nature”.
 - While 2,862 people died in 2020, the number stood at 2,876 in 2019.
- A presentation made by the Director-General, India Meteorological Department (IMD) at the National Platform for Disaster Risk Reduction Conference (NPDRR) in March said the frequency of lightning was the highest in northeastern States and in West Bengal, Sikkim, Jharkhand, Odisha and Bihar, but the number of deaths is higher in the central Indian States of Madhya Pradesh, Maharashtra, Chhattisgarh and Odisha.

India’s Tiger Population

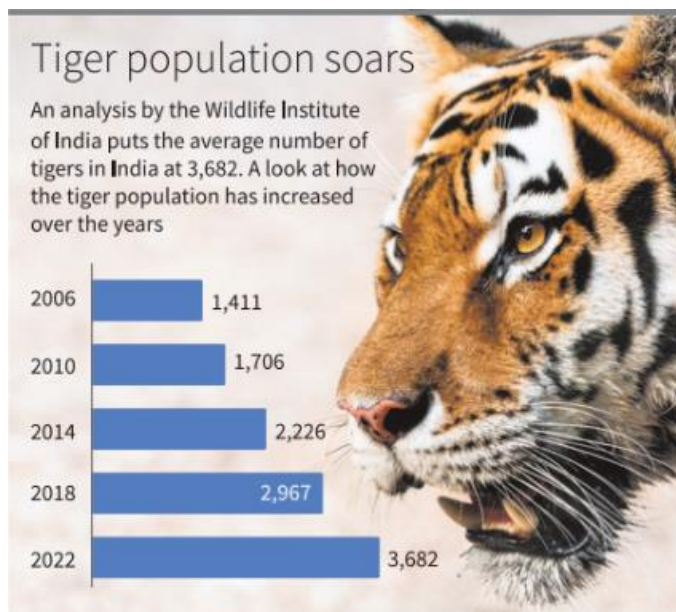
Context: India’s tiger population increased to 3,682 in 2022, up from 2,967 in 2018.

- This is an upward revision from April, when a minimum of 3,167 animals were estimated by the Wildlife Institute of India (WII), which coordinates the quadrennial tiger census.

- This also indicates growth over the past decade — there were 2,226 tigers reported in 2014, up from 1,706 in 2010.

Key Highlights

- In 2022, the highest number of tigers, 785, were reported to be in Madhya Pradesh, followed by Karnataka (563), Uttarakhand (560), and Maharashtra (444). Nearly a quarter of the tigers were reportedly outside protected areas.
- India's tigers are largely concentrated in 53 dedicated tiger reserves spread across 75,796 square km, spanning about 2.3% of India's total land area.
- The reserves with the most number of tigers were the Corbett National Park in Uttarakhand, which reported 260 animals, followed by Bandipur (150), and Nagarhole (141), both in Karnataka.
- Central India, the Shivalik Hills, and the Gangetic plains witnessed increases in tiger population, particularly in the States of Madhya Pradesh, Uttarakhand, and Maharashtra.
- Certain regions, such as the Western Ghats, experienced localised declines, needing targeted monitoring and conservation efforts.
- Some States, including Mizoram, Nagaland, Jharkhand, Goa, Chhattisgarh, and Arunachal Pradesh, have reported "disquieting trends" with smaller tiger populations.
- In general, reserves that have applied good conservation practices, such as ensuring enough prey is available for tigers, have done well.
- Approximately 35% of the tiger reserves urgently required enhanced protection measures, habitat restoration, ungulate (deer, chital, blackbuck) augmentation, and subsequent tiger reintroduction.
- The estimated number of 3,682 is an average figure for a population that likely ranges between 3,167 and 3,925. Tiger numbers are estimated based on the number of unique tigers captured on camera, plus an estimate of animals that may not have been photographed.
- Since 2014, India's tiger numbers have been increasing at 5% to 6% each year.



Economy

Rupee Internationalisation

Context: The Government of India presses ahead with its plan to internationalise the Indian Rupee (INR), an Inter-Departmental Group (IDG) of officials of the Reserve Bank of India (RBI) have in a report cautioned that internationalisation may result in increased volatility in the rupee's exchange rate in the initial stages.

A volatile proposition

Internationalising the rupee may result in increased exchange rate volatility in the initial stages, the IDG cautioned



- A global rupee may accentuate external shocks as funds can freely flow in and out of India
- Internationalisation can offer benefits such as limited exchange rate risk, lower cost of capital
- However, the RBI said the IDG's observations do not reflect its official position on the issue



Key Highlights

- “This would further have monetary implications as the obligation of a country to supply its currency to meet the global demand may come in conflict with its domestic monetary policies, popularly known as the Triffin dilemma,” the IDG wrote.
- “Also, the internationalisation of a currency may accentuate an external shock, given the open channel of the flow of funds into and out of the country and from one currency to another.
- However, the IDG held that the overall benefits of internationalisation in terms of limited exchange rate risk, lower cost of capital due to better access to international financial markets, high seignior age benefits and reduced requirement of foreign exchange reserves far outweighed the concerns.

Demand to Trade in The Indian Rupee

- Very little international demand The rupee is far from being internationalised — the daily average share for the rupee in the global foreign exchange market hovers around ~1.6%, while India’s share of global goods trade is ~2%.
- India has taken some steps to promote the internationalisation of the rupee (e.g., enable external commercial borrowings in rupees), with a push to Indian banks to open Rupee Vostro accounts for banks from Russia, the UAE, Sri Lanka and Mauritius and measures to trade with ~18 countries in rupees instituted.
 - However, such transactions have been limited, with India still buying oil from Russia in dollars. Ongoing negotiations with Russia to settle trade in rupees have been slow going, with Russia expected to have an annual rupee surplus of over \$40 billion — reports indicate that Russian banks have been averse to the trade, given the risk of further currency depreciation and a lack of awareness among traders about local currency facilities.

In short, there is very little international demand to trade in the Indian rupee. For a currency to be considered a reserve currency, the rupee needs to be fully convertible, readily usable, and available in sufficient quantities.

- India does not permit full capital account convertibility (i.e., allowing free movement of local financial investment assets into foreign assets and vice versa), with significant constraints on the exchange of its currency with others — driven by past fears of capital flight (i.e., outflow of capital from India due to monetary policies/lack of growth) and exchange rate volatility, given significant current and capital account deficits.

Background

- In the 1950s, the Indian rupee was legal tender for almost all transactions in the United Arab Emirates (UAE), Kuwait, Bahrain, Oman and Qatar, with the Gulf monarchies purchasing rupees with the pound sterling.
- In 1959, to mitigate challenges associated with gold smuggling, the Reserve Bank of India (Amendment) Act was brought in, enabling the creation of the “Gulf Rupee”, with notes issued by the central bank for circulation only in the West Asian region.
 - Holders of the Indian currency were given six weeks to exchange their Indian currency, with the transition happening smoothly.
- However, by 1966, India devalued its currency, eventually causing some West Asian countries to replace the Gulf rupee with their own currencies.
- Flagging confidence in the Indian rupee’s stability combined with an oil revenue linked boom, slowly led to the introduction of sovereign currencies in the region.
- The move, in 2023, to withdraw the ₹2,000 note has also impacted confidence in the rupee. The demonetisation of 2016 also shook confidence in the Indian rupee, especially in Bhutan and Nepal.
 - Both countries continue to fear additional policy changes by the RBI (including further demonetisation). The rupee’s internationalisation cannot make a start without accounting for the concerns expressed by India’s neighbours.

Reforms Required

- It must be made more freely convertible, with a goal of full convertibility by 2060 – letting financial investments move freely between India and abroad.
 - This would allow foreign investors to easily buy and sell the rupee, enhancing its liquidity and making it more attractive.
- Additionally, the RBI should pursue a deeper and more liquid rupee bond market, enabling foreign investors and Indian trade partners to have more investment options in rupees, enabling its international use.
- Indian exporters and importers should be encouraged to invoice their transactions in rupee — optimising the trade settlement formalities for rupee import/export transactions would go a long way.
- Additional currency swap agreements (as with Sri Lanka) would further allow India to settle trade and investment transactions in rupees, without resorting to a reserve currency such as the dollar.
- Additionally, tax incentives to foreign businesses to utilise the rupee in operations in India would also help.
- The RBI and the Ministry of Finance must ensure currency management stability (consistent and predictable issuance/retrieval of notes and coins) and improve the exchange rate regime.
- More demonetisation (or devaluation) will impact confidence. A start could be made to push for making the rupee an official currency in international organisations, thereby giving it a higher profile and acceptability.
- The Tarapore Committees' (in 1997 and 2006) recommendations must be pursued including a push to reduce fiscal deficits lower than 3.5%, a reduction in gross inflation rate to 3%-5%, and a reduction in gross banking non-performing assets to less than 5%.

Dark Patterns

Context: The Department of Consumer Affairs and the Advertising Standards Council of India (ASCI) recently held a joint consultation with stakeholders on the menace of 'dark patterns'. The ASCI has come up with guidelines for the same, with the central government also working towards norms against 'dark patterns'.

A dark pattern refers to a design or user interface technique that is intentionally crafted to manipulate or deceive users into making certain choices or taking specific actions that may not be in their best interest.

Many believe that the use of dark patterns is a business strategy. The legality of dark patterns is a complex matter as distinguishing between manipulation and fraudulent intent can be challenging.

On June 30, 2023, as per information by the PIB, major Indian online marketplaces received a letter from the Department of Consumer Affairs warning them against engaging in "unfair trade practices" by implementing "dark patterns" in their user interfaces to influence consumer choice.

What Are Dark Patterns?

Harry Brignull, a user experience researcher in the U.K., introduced the phrase 'dark pattern' in 2010 to characterise deceptive strategies used to trick clients.

- A dark pattern refers to a design or user interface technique that is intentionally crafted to manipulate or deceive users into making certain choices or taking specific actions that may not be in their best interest.
- It is a deceptive practice employed to influence user behaviour in a way that benefits the company implementing it.

What Are the Different Types?

Businesses are using various techniques and deceptive patterns to downgrade the user experience to their own advantage. Some of the common practices are

- Creating a sense of urgency or scarcity while online shopping;
- Confirm shaming wherein a consumer is criticised for not conforming to a particular belief;
- The forced action of signing up for a service to access content;
- Advertising one product or service but delivering another, often of lower quality, known as the bait and switch technique;
- Hidden costs where the bill is revised or costs are added when the consumer is almost certain to purchase the product;
- Disguised advertisements of a particular product by way of depicting it as news and many more.

Such deceptive patterns that manipulate consumer choice and impede their right to be well-informed constitute unfair practices that are prohibited under the Consumer Protection Act 2019.

Are Dark Patterns Illegal?

Many believe that the use of dark patterns is a business strategy. The legality of dark patterns is a complex matter as distinguishing between manipulation and fraudulent intent can be challenging.

- As of now, there are no specific regulations in place in most nations against dark patterns. Nonetheless, individuals who have experienced harm as a result of dark patterns may potentially seek compensation for damages.
- In 2022, Google and Facebook faced repercussions due to their cookie banners.
 - These companies violated EU and French regulations by making it more difficult for users to reject cookies as compared to accepting them.

How Do We Address Dark Patterns in India?

The Department of Consumer Affairs and the ASCI have identified the issue and recently taken certain steps to handle the same.

- As of now, companies are being asked to desist from using such tactics in the e-market and on June 30, 2023, as per information by the PIB, major Indian online marketplaces received a letter from the Department of Consumer Affairs warning them against engaging in “unfair trade practices” by implementing “dark patterns” in their user interfaces to influence consumer choice and infringe on “consumer rights” as stated in Section 2(9) of the Consumer Protection Act, 2019.
- However, with the growing use of e-platforms, a robust legal mechanism is a demand.
- The Indian government should also amend existing laws to specifically address dark patterns.
 - To do this, new rules aimed against deceptive design practices may need to be introduced along with updated consumer protection laws and data protection legislation.

What Are Global Regulators Saying?

Major international authorities are acting and formulating rules to address the issue.

- In a letter to U.K. businesses, the Competition and Markets Authority (CMA) of the U.K. lists different pressure selling techniques that the CMA believes would likely violate consumer protection laws and for which actions will be taken.
- Guidelines from the European Data Protection Board were released in 2022 and offered designers and users of social media platforms practical guidance on how to spot and avoid so called “dark patterns” in social media interfaces that are in violation of General Data Protection Regulation (GDPR) laws.



Non-Performing Assets

Context: Non-performing assets of Indian banks are at the lowest levels since 2015.

NPAs are bad loans that the borrower is not in a position to repay at the moment. A loan turns bad or becomes an NPA if it is overdue for over 90 days. The NPA ratio is the proportion of such NPAs in total loans.

Key Highlights

- Four years ago, Indian banks' non-performing assets (NPA) ratio was the worst among most emerging economies. In the second quarter of 2019, the NPA ratio of Indian banks was 9.2%, i.e., almost one in 10 loans had turned bad.
- Between 2016 and 2019, the NPA ratio remained high. It began to decline later and continued to do so even during the pandemic. There could be several reasons for this fall.
 - First, the Insolvency and Bankruptcy Code helped the recovery of sick loans.
 - Second, banks stopped lending big money to industries and increased their share of personal loans.
- In FY20, the Gross NPAs (GNPAs) written off by public sector banks reached a six-year high.
- **Chart 1:** shows that GNPAs and Net NPAs continued to decline and in March 2023, reached 3.9% and 1%, respectively, the lowest levels since 2015.
- **Chart 2:** shows that the profitability of the banking sector has seen a marked improvement, with the Return on Assets (RoA) climbing to 1.1% in 2023, up from a negative 0.2% in 2018.
 - RoA is calculated by dividing the net income of a bank by its total assets. An RoA of $\geq 1\%$ is generally considered good.
 - This positive shift has contributed to the Capital to Risk-Weighted Assets Ratio (CRAR) hitting a record peak of 17.1% in 2023.
 - A key indicator of a bank's health is its capital position, especially its CRAR that measures the bank's exposure to riskier loans.

Chart 1

The chart 1 shows that GNPAs and Net NPAs continued to decline and in March 2023, reached 3.9% and 1%, respectively, the lowest levels since 2015

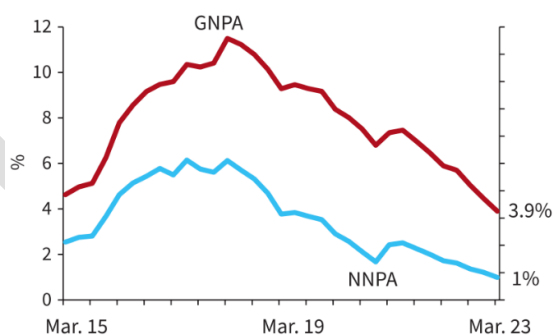
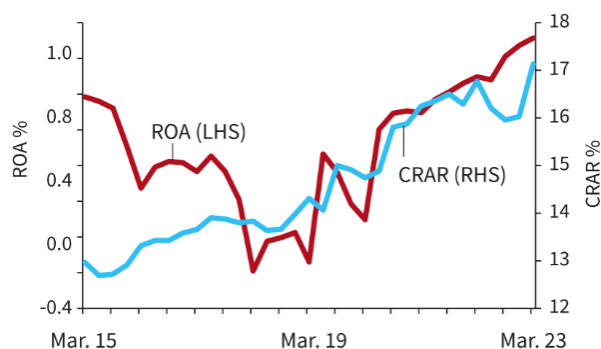


Chart 2

The chart shows the Return on Assets (RoA) and the Capital to Risk-Weighted Assets Ratio (CRAR). RoA is calculated by dividing the net income of a bank by its total assets



- **Chart 3:** illustrates the ratio of write-offs to GNPAs, which had been on a consistent downward trend during 2020-21 and 2021-22. However, there was a rise in this ratio in 2022-23, primarily due to substantial write-offs by private sector banks.
- **Chart 4:** shows the GNPA ratio of personal loans by category. The ratio has declined against all types of personal loans such as housing, credit cards, vehicle loans, and education loans.

Chart 3

The chart illustrates the ratio of write-offs to GNPA's, which had been on a consistent downward trend during 2020-21 and 2021-22, only to rise in 2022-23

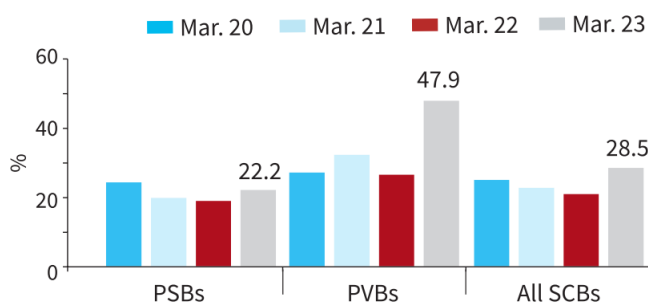
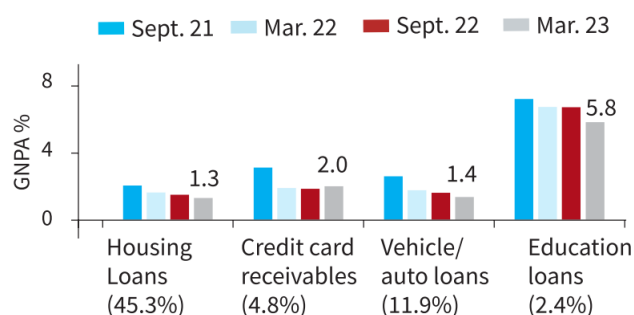


Chart 4

The chart shows the GNPA ratio of personal loans by category. The figures in brackets indicate the share of each segment in the total outstanding personal loans



These charts show that at the moment, the recovery of banks is consistent and their health continues to improve. This hints at the fact that the moratoriums during COVID-19 did not later lead to a significant bump in NPAs, as expected. The portfolio change to personal loans is also working with fewer NPAs in that segment. But the fact that write-offs continue to play a significant part in the reduction of NPAs is a cause for concern.

Science & Technology

Genome-Sequencing

Context: New born screening programmes are now in vogue in different countries, and have been deployed in India as well. They are based on the fact that an early diagnosis could allow use of effective treatments and save an infant from death or disability; in the U.S., healthcare workers screen for around 30 diseases, including treatable ones.

Key Highlights

- There are 6,000 or so genetic diseases, of which around 3,500 diseases have been documented, and a much smaller number have had their molecular and/or genetic defects mapped.
- For example, in the U.S., healthcare workers screen for around 30 diseases, including treatable ones of the blood, the endocrine system, and metabolism. Then again, in many cases, they lose the window of opportunity because standard new-born-screening programmes are limited on the menu of genetic tests they cover.
- Genomic sequencing is now available, accessible, and in many ways more affordable. It also offers a much better coverage of genetic diseases to screen for.
 - Importantly, this could help healthcare workers make a fast and effective diagnosis, helped by the fact that sequencing is also a 'single' test, versus the multitude of tests performed as part of routine new born screening.

Why Is It Important?

- The rarity of many genetic diseases, the narrow window of opportunity, the long diagnostic paths, and the unfortunate deaths of ill babies makes it very difficult to document and understand these diseases.
- However, population scale genome-sequencing efforts have provided insights into the prevalence of many of these diseases in an unbiased manner.
- Discoveries in the past three decades have also allowed a small but significant number of diseases to be treated or managed effectively.
- This in turn opened up a newer opportunity: to diagnose and treat genetic diseases through genomic sequencing in new born babies, especially sick ones.

- Researchers at the Rady Children’s Institute, led by Stephen Kingsmore, earlier showed that whole-genome sequencing could provide a much higher number of positive cases with a diagnosis, around 40% (compared with standard genetic tests at 10%), with 26% of the diagnosed children benefiting from reduced severity of illness due to the rapid diagnosis and, consequently, a significant reduction in the cost of treatments.

Smart Bandage

Context: In March 2023, a study published in Science Advances offered to help accelerate healing of chronic wounds using a wearable, wireless, flexible ‘smart bandage’ as big as a finger. This device can deliver drugs while monitoring healing status and transmitting to a smartphone.

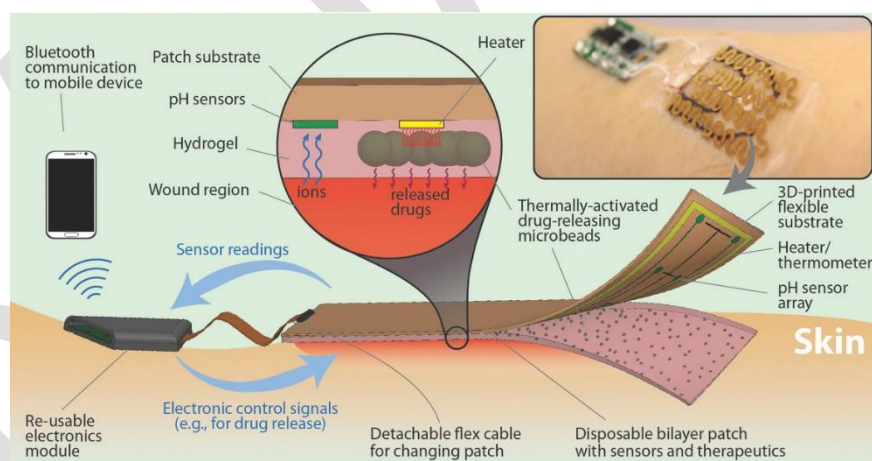
Key Highlight

Sometimes, complications from conditions like diabetes, insufficient blood supply, nerve damage, and immune system dysfunction can impair wound healing, resulting in chronic wounds. And irrespective of the underlying cause, all chronic wounds exhibit a disordered healing process and an inability to heal within the expected duration.

- In March 2023, a study was published in Science Advances that offered to help accelerate healing in such cases – using a wearable, wireless, mechanically flexible “smart bandage” as big as a finger.
- This device, according to researchers, can deliver drugs while monitoring the healing status and transmitting data to a smartphone.

What is a smart bandage?

- Chronic non healing wounds affect tens of millions of people around the world and cause a staggering financial burden on the health care system.
- Personalised wound management demands both effective wound therapy and close monitoring of crucial wound healing biomarkers in the wound exudate.
- The device, is assembled on a soft, stretchable polymer that helps the bandage maintain contact with and stick to the skin.
- The bio-electronic system consists of biosensors that monitor biomarkers in the wound exudate.
- Data collected by the bandage is passed to a flexible printed circuit board, which relays it wirelessly to a smartphone or tablet for review by a physician.
- A pair of electrodes control drug release from a hydrogel layer as well as stimulate the wound to encourage tissue regrowth.
- While scientists have previously used biosensors to track wound-healing, they have monitored a single feature of the wound bed. The new setup, in contrast, can monitor multiple features, building the sort of picture required to fully understand the wound status. In the past, the exudates have limited the biosensors’ sensitivity. In the new design, the researchers enclosed the sensors in a porous membrane, protecting their parts and increasing their operational stability.
- Biosensors determine the wound status by tracking the chemical composition of the exudates, which changes as the wound heals.



- Additional sensors monitor the pH and temperature for real time information about the infection and inflammation.
- A pair of electrodes – the same electrodes that stimulate the tissue – control the release of drugs from a hydrogel layer.
- The wireless nature of the device sidesteps the problems of existing electrical stimulation devices, which usually require bulky equipment and wired connections, limiting their clinical use.

LMV-3

Context: The LVM-3 launch vehicle is used for the Chandrayaan 3 mission.

- The Indian Space Research Organisation (ISRO) has three classes of launch vehicles: the Polar Satellite Launch Vehicle (PSLV), the Geosynchronous Satellite Launch Vehicle (GSLV), and the new Small Satellite Launch Vehicle (SSLV).
 - Of these, ISRO has launched the PSLV the most. It has a famous reputation as a “workhorse”, with a very low failure rate. The PSLV can lift up to 3.8 tonnes to low-earth orbit.
 - ISRO developed and uses the GSLV to launch heavier payloads, and if required into higher orbits. Like the PSLV, the GSLV also has multiple configurations.
 - The most powerful configuration is LVM-3, short for ‘Launch Vehicle Mark 3’; it can lift up to 10 tonnes to low-earth orbit.

About LMV-3

The LVM-3 has three stages.

- ✓ The first (or bottom-most) stage is in the form of two S200 boosters strapped to the sides of the rocket body.
 - They combust a solid fuel called hydroxyl-terminated polybutadiene.
- ✓ The second stage is powered by two Vikas engines, which combust a liquid fuel –either nitrogen tetroxide or unsymmetrical dimethylhydrazine.
- ✓ The uppermost final stage is powered by a cryogenic engine.
 - It combusts liquefied hydrogen with liquefied oxygen.
- ✓ Hydrogen has a very high specific impulse as rocket fuels go, but using it in an engine requires it to be liquefied first, which in turn means it must be stored at very low temperature, and with special pumping and transport systems.

Webb Space Telescope Rediscovered Star-Forming Region

Context: NASA has released an image obtained by the James Webb Space Telescope of the Rho Ophiuchi cloud complex, the closest star-forming region to earth, as the space agency marked one year since it unveiled the telescope’s first scientific results.

- The Webb telescope was launched in 2021 and began collecting data last year.
- The Rho Ophiuchi image was an example, showing a nebula, a humongous cloud of interstellar gas and dust that serves as a nursery for new stars, located in the Milky Way galaxy, roughly 390 lightyears from earth. The nebula is only about a million years old.
- “Here, we see how new suns are forming, along with planet-forming disks appearing as small dark silhouettes. These are very similar to what we think the solar system looked like more than 4.5 billion years ago,” former Webb project scientist Klaus Pontoppidan, now a research scientist at the Jet Propulsion Laboratory, said.



The Rho Ophiuchi cloud complex as seen by the James Webb Space Telescope. AP

- “As the stars and planetary systems assemble, they blow apart the dusty cocoon from which they formed in violent outbursts, as seen in red jets ploughing through the cloud.
- The Rho Ophiuchi core is completely obscured by huge amounts of dust, so it is essentially invisible to telescopes working in visible light, like the Hubble telescope.
- Yet, Webb peers through the dust to reveal the young stars within, showing the very first stages in the life of every star,” Dr. Pontoppidan added.
- The image, obtained, shows how the jets of material emanating from young stars affect the surrounding gas and dust while lighting up molecular hydrogen. In one part of the image, a star is seen inside a glowing cave that its stellar winds carved out in space.

James Webb Space Telescope

- Webb has revealed the existence of the earliest-known galaxies and black holes.
- It has observed large and mature but remarkably compact galaxies teeming with stars that had formed within a few hundred million years of the Big Bang event.
- The orbiting observatory was designed to be more sensitive than the Hubble space telescope. Webb looks at the universe mainly in the infrared, while Hubble has examined it primarily at optical and ultraviolet wavelengths.
- Webb is able to look at greater distances and thus farther back into time.

Health

The Irrevocable Connection Between Anaemia and Maternal Health

Context: A study conducted on anaemic pregnant women of low and middle-income countries has found that there is a strong link between anaemia and postpartum haemorrhage, with the risk of death or near miss very high.

- Of late anaemia has been in the news in India, what with the government proposing to remove a question on it from the National Family Health Survey (NFHS) and instead do a more elaborate test to determine haemoglobin levels in the blood as part of the Diet and Biomarker (DAB) survey.

Anaemia and Pregnancy

- Anaemia has a very strong link with postpartum haemorrhage (excessive vaginal bleeding after delivery), and the risk of death or near miss is very high.
- As per the study, by the WOMAN (World Maternal Antifibrinolytic) 2 trial collaborators, worldwide, more than half a billion women of reproductive age are anaemic.

Anaemia

- Anaemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiological needs, which vary depending on age, sex, altitude, smoking status, and pregnancy status.
- The most common cause of anaemia is iron deficiency, however other conditions such as folate, vitamin B12, and vitamin-A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can also cause anaemia.
- It is associated with fatigue, weakness, dizziness, and drowsiness in its severe form. Women who are pregnant and children are particularly vulnerable.
- Pregnant women and children are particularly vulnerable.
- According to the National Family Health Survey 2019-20, Indian women and children are overwhelmingly anaemic.
- According to the World Health Organization (WHO), women in the reproductive age group and having haemoglobin levels lower than 12 g/dL, as well as children under five with haemoglobin levels lower than 11.0 g/dL are considered anaemic.

- Each year, about 70,000 women who give birth die from postpartum haemorrhage, almost all of them in low and middle income countries.

About the recent study

- In this study conducted in Pakistan, Nigeria, Tanzania, and Zambia, researchers recruited over 10,000 women who had moderate or severe anaemia and gave birth vaginally in hospitals.
- These countries were chosen due to the high prevalence of anaemia in pregnancy, which had been established by previous trials.
- The objective of the study was to investigate the relationship between pre-birth haemoglobin levels and the risk of postpartum haemorrhage in a large cohort of women from low- and middle-income countries.
- The researchers chose to analyze anaemia as a continuous variable because they believed that demonstrating a consistent biological gradient would provide stronger evidence of a causal relationship.
- The primary outcome measured was the occurrence of postpartum haemorrhage, which was defined in three ways:
 - "clinical postpartum haemorrhage" (estimated blood loss of ≥ 500 mL or any amount of blood loss that compromised the woman's hemodynamic stability),
 - "WHO-defined postpartum haemorrhage" (estimated blood loss of at least 500 mL), and
 - "calculated postpartum haemorrhage" (blood loss of $\geq 1,000$ mL)

Postpartum Haemorrhage

- Postpartum hemorrhage (PPH) is a significant and potentially life-threatening complication that can occur after childbirth.
- It refers to excessive bleeding from the birth canal (vagina), uterus, or other parts of the reproductive system within the first 24 hours after delivery.
- PPH is a leading cause of maternal mortality worldwide, particularly in developing countries where access to healthcare may be limited.

Blood loss and Shock

- There was clear evidence from the study that lower haemoglobin values had a direct relationship with volume blood loss, and clinical postpartum haemorrhage. "We found that with decreasing maternal haemoglobin concentration, the risk of postpartum haemorrhage increases monotonically,".
- Anaemia reportedly reduces the oxygen-carrying capacity of blood, and therefore, women with anaemia cannot tolerate the same volume of bleeding as healthy women, and become shocked after a smaller volume blood loss.
- The risk of clinical postpartum haemorrhage was 6.2% in women with moderate anaemia and higher, 11.2% in women with severe anaemia.
- Severe anaemia was associated with seven times higher odds of death or near miss than was moderate anaemia.

Preventing Anaemia: Government Initiatives

The Indian government has a well-structured project to provide weekly iron and folic acid supplements to adolescent girls (and boys), in order to tackle the looming crisis of anaemia.

Anaemia Mukt Bharat (AMB): It is a program launched in 2018 as part of the Intensified National Iron Plus Initiative (NIPI) Program. Its aim is to accelerate the decline of anaemia by increasing the annual rate of decline from one to three percentage points.

- The target groups for AMB include children aged 6-59 months, 5-9 years, adolescent girls and boys aged 10-19 years, women of reproductive age (15-49 years), pregnant women, and lactating mothers.

Weekly Iron and Folic Acid Supplementation (WIFS) program: It addresses the high prevalence and incidence of anaemia among adolescent girls and boys. It involves the supervised weekly ingestion of iron folic acid tablets to combat anaemia.

The operationalization of **blood banks in district hospitals and blood storage units in sub district facilities** is another government initiative to tackle complications arising from severe anaemia. This initiative aims to ensure timely access to blood transfusions and related services.

Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA): It is a government initiative that focuses on conducting special antenatal check-ups on the 9th of every month. Medical officers and obstetricians/gynecologists are involved in this program to detect and treat cases of anaemia among pregnant women.

Understanding Leptospirosis

Context: Leptospirosis has emerged as an important infectious disease in the world today. It is a potentially fatal zoonotic bacterial disease that tends to have large outbreaks after heavy rain or flooding.

- The disease is more prevalent in warm, humid countries and in both urban and rural areas.
- It affects an estimated 1.03 million people every year, killing around 60,000.
- The burden of leptospirosis is expected to increase in the future as the urban poor population in many tropical countries increases even as sanitary infrastructure falls short.

Key Highlights

- The disease has been called “ili jwara” in Kannada and “eli pani” in Malayalam, both meaning “rat fever”.
 - This usage has fed a common belief that rats are the sole cause of the disease, which is not true.
 - Leptospirosis has a spectrum of reservoir hosts, including pigs, cattle, water buffaloes, goats, dogs, horses and sheep
- In India, thousands of people are affected by leptospirosis every year. However, the numbers at the global and regional levels are not exact because of misdiagnosis (its symptoms mimic those of dengue, malaria, and hepatitis), limited access to reliable diagnostics, lack of awareness among treating physicians, and lack of environmental surveillance.
 - Within India, studies have found that leptospirosis is more common in the south, although this could be due to the region’s better healthcare and thus better disease detection.

Causes of Leptospirosis

- The disease is caused by a bacterium called *Leptospira interrogans*, or leptospira.
- It is a contagious disease in animals but is occasionally transmitted to humans in certain environmental conditions.
- The carriers of the disease can be either wild or domestic animals, including rodents, cattle, pigs, and dogs.
- The cycle of disease transmission begins with the shedding of leptospira, usually in the urine of infected animals.
- According to the U.S. Centers for Disease Control and Prevention, infected animals can continue to excrete the bacteria into their surroundings for a few months, but sometimes up to several years.

Who are at risk?

- Humans become part of the cycle when they come in direct contact with this urine or indirectly, through soil and water that contain leptospira bacteria.
- A person is more likely to contract leptospirosis if they have cuts or abrasions on their skin.
- The disease is also considered an occupational hazard for people working in agricultural settings, with animals, or in sanitary services that bring them into contact with contaminated water.
- Recreational activities in contaminated lakes and rivers are also reported to increase the risk of leptospirosis.

Symptoms

- The severity of a leptospirosis infection ranges from a mild flu-like illness to being life threatening.
- The infection can affect many organs, reflecting the systemic nature of the disease.
- In **milder cases**, patients could experience a sudden onset of fever, chills, and headache – or no symptoms at all.
- In severe cases, the disease can be characterised by the dysfunction of multiple organs, including the liver, kidneys, lungs, and the brain.
- Animals exhibit a variety of clinical symptoms and indications: In cattle and pigs, the disease can potentially cause reproductive failure, stillbirths, and weak calves or piglets. Dogs experience a range of symptoms, including fever, jaundice, vomiting, diarrhoea, renal failure, and even death.

What are the misconceptions?

- Preventing leptospirosis requires appropriate and adequate health education, community health empowerment, and preventive habits.
- The disease has been called “ili jwara” in Kannada and “eli pani” in Malayalam, both meaning “rat fever”. This usage has fed the common belief that rats are the sole cause of the disease, which is not true.
- Leptospirosis has a spectrum of reservoir hosts, including pigs, cattle, water buffaloes, goats, dogs, horses, and sheep.
- Further, seasonal patterns such as the onset of the monsoon can also potentially facilitate the disease’s incidence and transmission.
- Ambient air that is more humid can help the pathogenic leptospira survive longer in the environment, thus increasing the risk of disease exposure in the community.
- The incidence of the disease is also linked to extreme weather events like floods and hurricanes, when people are exposed to contaminated water.
- Similarly, poor waste management, a high density of stray animals, faulty drainage systems, and unhygienic sanitation facilities are major drivers of the disease in urban areas.
- In rural parts, these are contaminated paddy fields, dirty livestock shelters, and poor water quality and sanitation.

Despite this complexity, the use of “rat fever” as a colloquial term for leptospirosis undermines a more holistic understanding of the disease’s causes. If we are to protect people, we must use the correct terms, study the ecology of the disease and use the findings to inform healthcare policy, improve health literacy, and engage with people’s concerns.

Preventing Leptospirosis?

Leptospirosis control can benefit from a ‘One Health’ approach.

- ‘One Health’ is an interdisciplinary approach that recognises the interconnections between the health of humans, animals, plants, and their shared environment.
- People who frequently interact with animals or their urine should exercise particular caution, such as by wearing personal protective equipment like gloves and boots.

- The same goes for workers in flooded fields where there's a chance of being exposed to contaminated water. They should take extra care if they have cuts or abrasions on their lower extremities.
- Preventing animals from getting infected is also important to reduce the risk of leptospirosis spreading and to limit farmers' economic losses (when the disease causes reproductive failures in pigs and cattle).
 - This in turn requires sanitary animal keeping conditions, which is also desirable to improve the animals' health and to prevent the spread of many diseases.
- Given the spike in leptospirosis during the monsoons, it is best to take precautions, including washing one's arms and legs with an antiseptic liquid after handling animal waste and after working in water.

Palliative Care

Context: The revised operational guidelines of the National Programme for Prevention & Control of Non-Communicable Diseases limit palliative care to only cancer patients, leaving out those with any other chronic and debilitating ailments.

What is palliative care?

Palliative care is the branch of medicine focusing on improving the quality of life and preventing suffering among those with life-limiting illnesses.

- ✓ It **aims** to identify patients at risk of over-medicalisation at the expense of quality of life and financial burden on the family.
- ✓ It is often misinterpreted as end-of-life care. However, palliative care **aims** to improve the quality of life by addressing the physical, psychological, spiritual, and social domains of the health of people suffering from life-limiting diseases like heart failure, kidney failure, certain neurological diseases, cancer, etc.
- ✓ Palliative care also includes bereavement support for the caregivers in case of the death of the patient.

Non-Communicable Disease & India

- ✓ India is home to nearly 20% of the world's population, two-thirds of which reside in rural areas.
- ✓ Apart from a rising population, India has experienced a steep rise in the burden of lifestyle-related non-communicable diseases.
- ✓ Nearly 1.4 million people are diagnosed with cancer in India every year while diabetes, hypertension, and respiratory diseases are also on the rise.
- ✓ All these diseases need palliative care sooner or later in the disease trajectory.

Palliative Care Status

Palliative care in India has largely been available at tertiary healthcare facilities in urban areas. Due to skewed availability of services, it is accessible to only 1-2% of the estimated 7-10 million people who require it in the country. As many as 7 out of the 10 patients daily need palliative care.

Palliative Care Programme

The National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS), now the National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD), includes chronic diseases whose treatment contributes the most to health-related expenses.

- Launched in 2010 to counter the rising burden of non-communicable diseases in the country, the programme envisaged the provision of promotive, preventive, and curative care from primary to tertiary institutes, thus providing health services delivery across the continuum of care.
- The revised operational guidelines of NP-NCD were expected to strengthen the programme. However, it has not succeeded in addressing certain gaps in palliative care in India.

Gaps in the Guidelines

As per the Global Atlas of Palliative Care, in 2020, the need for palliative care was higher for non-cancer illnesses. However, the revised NP-NCD operational guidelines, released in May 2023, mention palliative care in synonymy with just cancer.

- This is a step back from the previous operational guideline, in which chronic and debilitating conditions also fell under the ambit of palliative care.
- Previously, the programme guidelines mentioned support being provided to facilitate home-based palliative care services. However, palliative care service delivery starts only from the district hospital in the revised guidelines, with no mention of home-based care.
- The guidelines mention the linking of 11 programmes to promote the convergence of services focusing on the care of non-communicable diseases.
 - One of these is the National Programme for Palliative Care (NPPC). NPPC was announced in 2012; however, the lack of a dedicated budget has prevented the implementation of the programme since its inception.
- Paediatric palliative care has been neglected: The guidelines have also skipped an opportunity to bring focus on children suffering from chronic diseases.
 - An estimated 98% of children facing moderate to severe suffering during their end of life reside in lower and middle-income countries like India. This could be due to diseases like cancer, birth defects, neurological conditions etc.

Middle Eastern Respiratory Syndrome coronavirus (MERS-CoV)

Context: The World Health Organization (WHO) confirmed that a man had been infected with the deadly Middle Eastern Respiratory Syndrome coronavirus (MERS-CoV) in the United Arab Emirates (UAE).

About Middle East Respiratory Syndrome (MERS)

- Middle East Respiratory Syndrome (MERS) is a severe respiratory illness that mainly involves the upper respiratory tract.
- Symptoms are fever, coughing, and shortness of breath.
- Mortality rate is about 30% of people who have gotten this illness have died.
- MERS is caused by the Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Coronaviruses are a family of viruses that can cause mild to severe respiratory infections.
- MERS was first reported in Saudi Arabia in 2012 and then spread to many countries.
- MERS-CoV virus mainly spreads from animals to humans. The virus has been found in camels, and exposure to camels is a risk factor for MERS. The virus can spread between people in close contact.
- Right now, there is no vaccine for MERS and no specific treatment. Supportive care is given.

A New Diarrhoea-Causing Parasite Found

Context: A three-year surveillance study from March 2017 to February 2020 in Kolkata found.

Key Highlights

- An amoeba pathogen, **Entamoeba moshkovskii**, previously not causing amoebiasis in humans, has become pathogenic.
- *E. moshkovskii* has become the leading cause of amoebic infections in humans, accounting for over half of the cases.

- Infections caused by the previously predominant pathogen, *E. histolytica*, were decreasing.
- Mutations were identified that indicate the new pathogenic parasite's adaptation to the human gut environment or acquisition of other enteric pathogens.
- The study was published in the journal PLOS Neglected Tropical Diseases.
- Diarrhoea can be caused by bacteria, viruses, and amoeba pathogens.
- Dr. Sandipan Ganguly and a team of researchers from NICED led the study.
- Nearly 5% of diarrheal patients had different *Entamoeba* species infections, and over 3% were infected with *E. moshkovskii*.
- Infections were more prevalent in children aged 5-12 years.
- *E. histolytica* infections peaked during the wet season and decreased during the dry season, while *E. moshkovskii* showed two infection peaks during summer and post-fall season.
- Non-seasonal *E. histolytica* infections were observed during the two-decade-long surveillance study.
- Molecular identification confirmed that morphologically similar trophozoites were *E. moshkovskii*, not *E. histolytica*.
- Infection with *E. moshkovskii* alone was statistically associated with diarrhoea.
- Light microscopy has limited sensitivity and specificity for differentiating between *E. histolytica* and *E. moshkovskii*.
- PCR-based molecular identification was used to identify *E. moshkovskii* in over 50% of diarrhoea cases caused by amoebic parasites.
- Drug-susceptibility tests for *E. moshkovskii* have not been conducted yet.

Amoebiasis

Amoebiasis is also known as amoebic dysentery. It is caused by a protozoan parasite of the human large intestine, *Entamoeba histolytica*.

Symptoms of Amoebiasis

An individual infected with *E. histolytica* may have mild to severe symptoms. Sometimes a person may show no symptoms of the disease. The symptoms are:

1. Fever
2. Chills
3. Nausea
4. Weight loss
5. Abdominal discomfort
6. Diarrhoea that may include blood or mucus with periods of constipation

Tuberculosis & Bedaquiline

Context: Bedaquiline has now become the cornerstone to cure drug-resistant tuberculosis (DR-TB). Last week, a major barrier for drug resistant TB care ended, when Johnson & Johnson's patent on bedaquiline expired on July 18. This long-awaited expiry will allow generic manufacturers to supply the drug, but J&J appears intent on maintaining its monopoly over the bedaquiline market.

What has J&J done?

- J&J has filed secondary patents over bedaquiline till 2027, which were granted in 66 low-and middle-income countries. It includes 34 countries with high burden of TB, multidrug-resistant TB (MDR-TB), and TB/HIV.

THE GIST

■ Last week, a major barrier for drug resistant TB care ended, when Johnson & Johnson's patent on bedaquiline expired on July 18.

■ J&J has filed secondary patents over bedaquiline till 2027, which were granted in 66 low-and middle-income countries. It includes 34 countries with high burden of TB, multidrug-resistant TB (MDR-TB), and TB/HIV.

■ In India, a 'pre-grant opposition' was filed by a patient group and two TB survivors. As a result of their legal challenge, in a landmark decision before World TB Day, the Indian Patent Office rejected the U.S. corporation J&J's secondary patent.

- Over the past week, J&J has faced public outrage for seeking to extend its patent on bedaquiline.
- A first of its kind deal between J&J and the Global Drug Facility (GDF), a non-profit distribution agency housed in the WHO, could expand access to the drug.
- Researchers estimate that, with the introduction of competition from India, the price of bedaquiline will reduce in the range of \$48-\$102 for a six-month treatment course — which is three to six times lower than the current globally negotiated price paid by countries (\$272) when it is procured through the GDF.

What is the threat from tuberculosis?

Tuberculosis was the world's deadliest infectious disease, as declared by the WHO, before COVID-19 swept the world.

- Each year, nearly half a million people develop drug-resistant TB and nearly 10.4 million people develop drug-sensitive TB.
- One-third of the world's population has latent TB, a version of the disease that can turn active as immunity falls.
- Nearly 2.8 million patients, the most in the world, live in India making it a national public health emergency.
- Globally, DR-TB is a major contributor to antimicrobial resistance and continues to be a public health threat.

Will the drug be available in India?

Other DR-TB drugs like linezolid have decreased in prices by over 90% with generic competition once Pfizer's patent expired in 2015. Therefore, national TB programmes are waiting for the generic supply of bedaquiline from Indian manufacturers to reduce prices.

In a landmark decision before World TB Day, the Indian Patent Office rejected the U.S. corporation J&J's secondary patent which would have extended its monopoly for four more years. Indian manufacturers will now be able to supply affordable, quality assured generic versions of bedaquiline in India as the primary patent expired on July 18.

ICMR Argues for Controlled Human Infection Studies

Context: India has taken its first step to introduce controlled human infection studies (CHIS) that is used in many countries for vaccine and treatment development. New model for vaccine and treatment development promises to be efficient and cost-effective, it says; the technique involves exposing healthy volunteers to pathogens in a controlled environment.

- The ICMR's Bioethics Unit has introduced a consensus policy statement which is now open for comment and argues the case for bringing in CHIS. The document talks of the need, benefits, and challenges associated with CHIS.
- "This paper is aimed at addressing a variety of ethical issues so that research can be conducted in India without compromising on ethical principles while ensuring the protection of human participants," notes the ICMR.

Ethically sensitive

- The ICMR notes that India has so far stayed away from CHIS, because regardless of the potential scientific benefits, these studies are ethically sensitive and raise concerns about contentious research ethics — issues like deliberate harm, possible disproportionate payment and hence inducements, third-party risk, withdrawal from the study and research with vulnerable participants.
- Hence these studies need a streamlined ethics review process with additional ethical oversight and safeguards to protect the study participants.
- The paper adds that the deterrents include technical, clinical, ethical and legal contentions, amid unique socio-cultural context.

High burden

- India carries a high burden of morbidity and mortality from infectious diseases. They contribute about 30% of the disease burden in the country.
- Finding novel, efficient, and cost-effective alternatives to existing methods of research in these diseases and their prevention is imperative to reduce this burden.
- CHIS is a relatively new research model that helps provide unique insights into disease pathogenesis and can accelerate the development of novel medical interventions, said the ICMR.
- It further states that CHIS offers accelerated, cost-effective, and efficient outcomes using smaller sample sizes in comparison to large clinical trials.
- Its social value includes potential contributions to public health response to diseases of concern, healthcare decision-making, policies and economic benefits, improved pandemic preparedness, and community empowerment.
- The ICMR has also cautioned that CHIS is a highly complex area and may require collaborations at different levels between researchers, institutions, organisations and/or between different countries.
- Collaborations should be encouraged to get the right expertise which may not be available with one centre/research team.

Crimean-Congo Haemorrhagic Fever (CCHF) Virus

Context: According to the World Health Organization (WHO), Climate change is aiding the spread of the deadly Crimean-Congo haemorrhagic fever (CCHF) virus in Europe.

About Crimean-Congo haemorrhagic fever (CCHF) virus

- Crimean-Congo haemorrhagic fever (CCHF) is a viral haemorrhagic fever usually transmitted by ticks.
- It can also be contracted through contact with viraemic animal tissues (animal tissue where the virus has entered the bloodstream) during and immediately post-slaughter of animals.
- CCHF outbreaks constitute a threat to public health services as the virus can lead to epidemics, has a high case fatality ratio (10–40%), potentially results in hospital and health facility outbreaks, and is difficult to prevent and treat. CCHF is endemic in all of Africa, the Balkans, the Middle East and in Asia.
- The disease was first described in the Crimean Peninsula in 1944 and given the name Crimean haemorrhagic fever.
 - In 1969 it was recognized that the pathogen causing Crimean haemorrhagic fever was the same as that responsible for an illness identified in 1956 in the Congo Basin. The linkage of the two place names resulted in the current name for the disease and the virus.

Symptoms of CCHF

- Following infection by a tick bite, the incubation period is usually 1–3 days, with a maximum of 9 days. Following contact with infected blood or tissues, the incubation period is usually 5–6 days, with a maximum of 13 days.
- Onset of symptoms is sudden and can include fever, muscle ache, dizziness, neck pain, backache, headache, sore eyes and photophobia (sensitivity to light).
- There may be nausea, vomiting, diarrhoea, abdominal pain and sore throat early on, followed by sharp mood swings and confusion. After 2–4 days the agitation may be replaced by sleepiness, depression and lassitude, and the abdominal pain may localize to the upper right quadrant, with detectable hepatomegaly (liver enlargement).

- Other clinical signs include tachycardia (fast heart rate), lymphadenopathy (enlarged lymph nodes), and a petechial rash (a rash caused by bleeding into the skin) on internal mucosal surfaces, such as in the mouth and throat, and on the skin.
- The petechiae may give way to larger rashes called ecchymoses, and other haemorrhagic phenomena. There is usually evidence of hepatitis, and severely ill patients may experience rapid kidney deterioration, sudden liver failure or pulmonary failure after the fifth day of illness.

Treatment of CCHF

- General supportive care with treatment of symptoms is the main approach to managing Crimean-Congo haemorrhagic fever (CCHF) in people.
- The antiviral drug ribavirin has been used to treat CCHF infection with apparent benefit. Both oral and intravenous formulations seem to be effective.
- The mortality rate from CCHF is approximately 30%, with death occurring in the second week of illness. In patients who recover, improvement generally begins on the ninth or tenth day after the onset of illness.
- It is difficult to prevent or control CCHF infection in animals and ticks as the tick-animal-tick cycle usually goes unnoticed and the infection in domestic animals is usually not apparent.
- Furthermore, the tick vectors are numerous and widespread, so tick control with acaricides (chemicals intended to kill ticks) is only a realistic option for well-managed livestock production facilities.
- There are no vaccines widely available for human or animal use. In the absence of a vaccine, the only way to reduce infection in people is by raising awareness of the risk factors and educating people about the measures they can take to reduce exposure to the virus.

How Climate change is contributing to its spread?

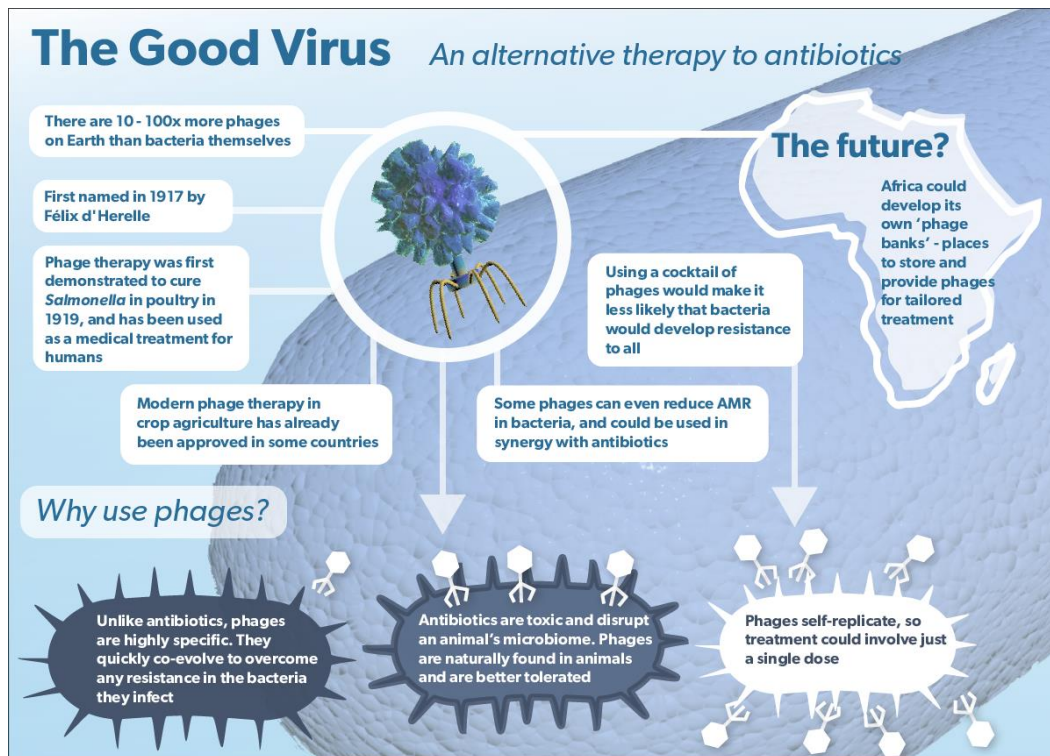
Rising temperatures and disrupted climate patterns have created favourable conditions for viruses not typically found in colder climates. Climate change contributes to the spread of diseases by expanding the habitat of disease-carrying insects, altering water habitats, and causing changes in animal migration patterns, increasing human contact with infected animals.

Bacteriophages

Context: With antibiotic resistance rising, scientists think bacteriophages — which hunt and kill bacteria — could cure bacterial infections. Not all viruses are killers as with bacteria, “good” or “friendly” viruses (bacteriophages) can be beneficial for health.

About Bacteriophages

- The vast majority of viruses inside us are bacteriophages.
- Bacteriophages are viruses that kill bacteria in our microbiomes.
- Bacteriophages, also known as phages, are harmless to human cells as they do not recognize them as their bacterial prey.
- They work by hunting down bacteria and attaching themselves to the surface of a bacterial cell, before injecting viral DNA material into the cell.
- The viral DNA then replicates inside the bacteria, sometimes by borrowing the DNA replication hardware of the bacteria.
- Once enough new viruses have been created inside the bacterial cell, the cell then bursts to release the new viral particles.



Significance of Phage therapy

- The advantages of phages lie in their effectiveness against every multi-resistant pathogen.
- Phages are extremely precise in their elimination of bacterial strains — so much so that it don't disturb the gut microbiome, as is the case with antibiotics.
- In theory, then, phages could be a huge boon in the fight against antibacterial resistance.
- For eg., Georgia has developed into one of the global centers of phage therapy, hosting one of the largest therapeutic collections of bacteriophages in the world.

Challenges

- A central problem is that there is no standardization of therapy.
- Phage therapy must be precisely tailored to the bacteria that cause an infection in a patient.
- Infections can be caused by bacteria with various properties, so you need a cocktail of different phages as a therapy, and that mix of phages has to be available very quickly before the infection gets out of hand.
- Bacteria do also develop resistance to phage therapies.

Report & Index

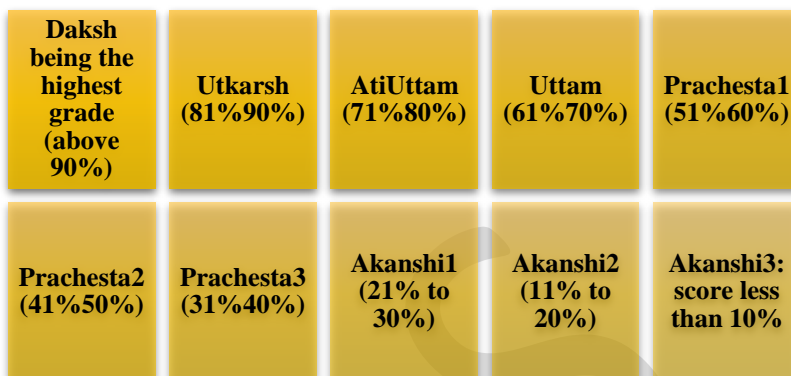
Performance Grading Index

Context: The pandemic led to a decline in the educational performance of many districts in the country, reveals the Performance Grading Index for Districts (PGID) from the Education Ministry.



Key Highlights

- The Performance Grading Index for Districts (PGID) released by the Ministry as a combined report for 2020-21 and 2021-22 assesses the performance of school education system at the district level.
- This report too has 10 grades under which districts are categorised.
- While none of the districts were able to earn Daksh and Utkarsh, in the latest report, 121 districts were graded as Ati-Uttam for 2020-21, though this number fell by more than half in 2021-22, with just 51 districts making the grade.
- Further attesting to the pandemic effect, while 2020-21 had 86 districts under Prachesta-2 (sixth highest grade), this number rose to 117 in 2021-22.
- In 2021-22, Chandigarh retained its Ati-Uttam status, as well as some districts of Delhi and Gujarat.
- In Maharashtra, Satara, Kolhapur, Nashik and Mumbai achieved this status as did Kolkata.
- Tamil Nadu has several districts in the fourth-best grade (Uttam) and three — Ramanathapuram, Pudukkottai and Theni — in Prachesta-1.
- Uttar Pradesh has several districts under Uttam and Prachesta-1, and four under Prachesta-2.
- Most of the districts of Jammu and Kashmir fall under the Prachesta 1 and 2 grades.
- South SalmaraMankachar district was the only district in Assam under Akanshi-1 for 2021-22, grade) while the two grades at the bottom had no districts.



None of the districts attained the top two grades according to the Performance Grading Index for Districts (PGI-D) combined report for 2020-21 & 2021-22. The table summarises the scores achieved by districts in the two years

Score range (%)	Number of districts in 2020-21	Number of districts in 2021-22
>90	0	0
81 to 90	0	0
71 to 80	124	51
61 to 70	277	271
51 to 60	229	290
41 to 50	86	117
31 to 40	24	18
21 to 30	0	1
11 to 20	2	0
upto 10	0	0

About the PGID Report

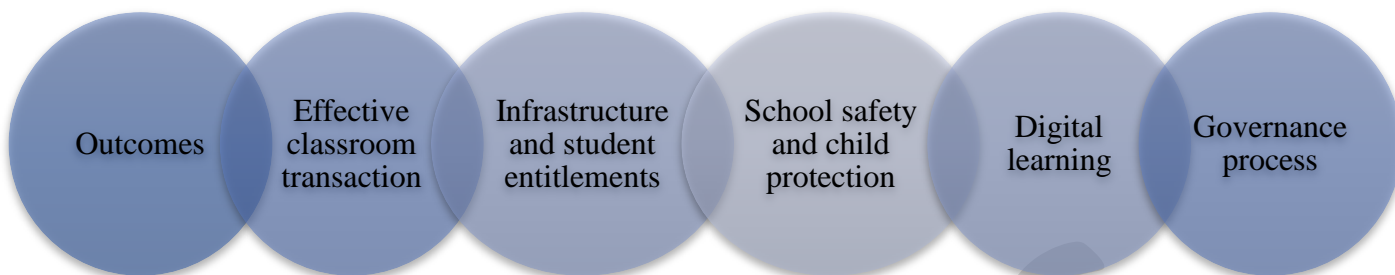
Aim: The main objective of PGI-D is to help the districts to prioritise areas for intervention in school education and thus improve to reach the highest grade.

Significance of Report

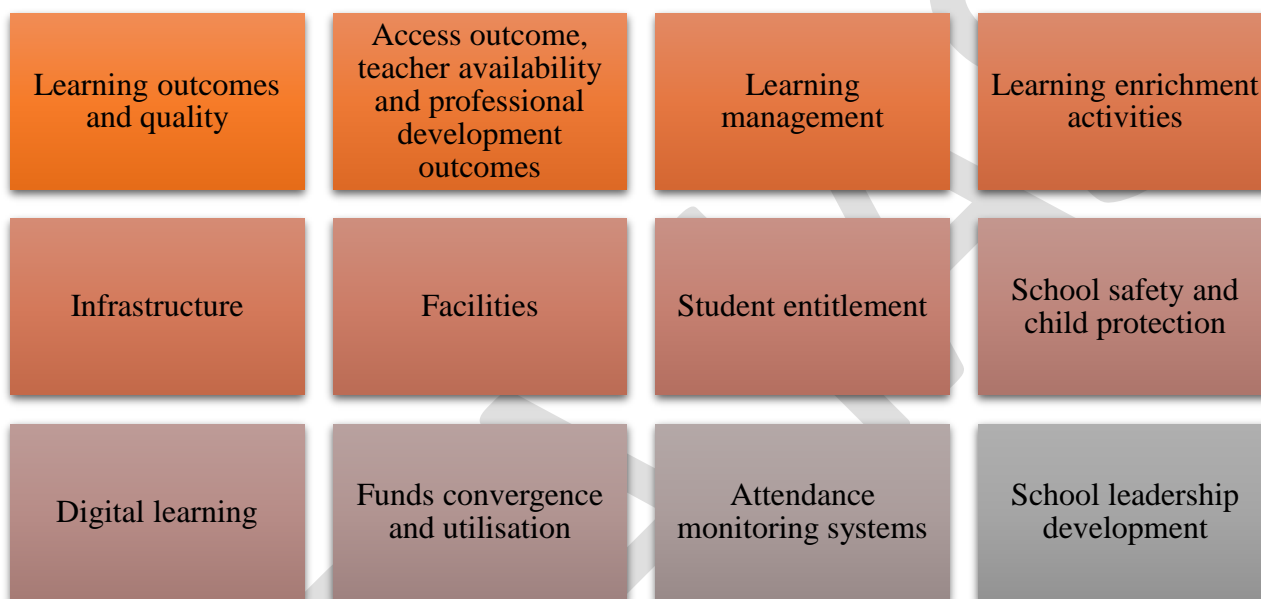
- The PGI-D report is expected to help State education departments identify gaps at the district level and improve their performance in a decentralised manner.
- There are indicator-wise PGI scores that show the areas where a district needs to improve.

The PGI-D structure

- It has a total weightage of 600 points comprising 83 indicators under six categories:



- These categories are further divided into 12 domains:



Global Report on the Food Crises (GRFC) 2023 released

Context: The Global Report on the Food Crises (GRFC) 2023 released recently estimated that between 691 million and 783 million people in the world suffered from hunger in 2022.

Key Highlights

- The Global Report on the Food Crises (GRFC) 2023 released recently estimated that between 691 million and 783 million people in the world suffered from hunger in 2022. While the two pandemic years did not record a growth in food insecurity, the data for 2022 shows levels far higher than pre-pandemic 2019.
- This year's report records the historic moments that had an impact on the assessment — a pandemic and ensuing economic crisis, a war (in Ukraine), soaring prices of food, and agricultural inputs.
- The GRFC is produced by the Food Security Information Network in support of the Global Network against Food Crises, and involves 16 partners to achieve a joint consensus-based assessment of acute food insecurity in countries.

What is food security?

Food security is defined (from the World Food Summit of 1996) thus: “When all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active, and healthy life”. The prevalence of moderate or severe food insecurity in the population is based on the Food Insecurity Experience Scale (FIES).

What are the key findings?

- The Global Report starts with a qualified assertion that hunger is no longer on an alarming path upwards at the global level, but still far above pre-COVID pandemic levels, and that the world is far off track towards achieving Sustainable Development Goal 2 — Zero Hunger.
- It sets the global contexts preceding and during the year under assessment, particularly paying attention to the increasing phenomenon of urbanisation, and its effects on food security.
- New estimates of FIES, as per the report, “confirm that for 2022, no progress was made on food insecurity at the global level. Following a sharp increase from 2019 to 2020, the global prevalence of moderate or severe food insecurity remained unchanged for the second year in a row, but remained far above pre-COVID-19-pandemic levels.”
- In 2022, an estimated 2.4 billion people did not have access to adequate food. This is still 391 million more people than in 2019. Global hunger, measured by yet another metric — the prevalence of undernourishment — remained relatively unchanged from 2021 to 2022 but is, again, far above pre-COVID-19-pandemic levels, affecting around 9.2% of the world population in 2022 compared with 7.9% in 2019, according to the report.
- Some good news is that stunting, another key metric, defined as the condition of being too short for one’s age, among children under five years of age has declined steadily, from 204.2 million in 2000 to 148.1 million in 2022.
- Simultaneously, child wasting, caused by insufficient nutrient intake or absorption, declined from 54.1 million in 2000 to 45 million in 2022. In terms of children who are overweight or obese, the study indicated a non-significant increase from 5.3% (33 million) in 2000 to 5.6 % (37 million) in 2022.
- The revised analysis presented in this year’s report shows that almost 3.2 billion people worldwide could not afford a healthy diet in 2020, with a slight improvement in 2021.
- The cost of a healthy diet increased globally by 6.7% between 2019 and 2021. It also projects that almost 600 million people will be chronically undernourished in 2030.

What are the key drivers of food insecurity?

The report notes the following reasons as being responsible: slowing down, thanks to lockdowns, economic downturns, and other pandemic-related disruptions in 2020 that led to job losses and reduced incomes for many people; the Ukraine war; governmental policies that may not be entirely favourable; and increasing urbanisation that drives changes through the agrifood systems. The report’s comparison of food insecurity among rural, peri-urban and urban populations reveals that global food insecurity is lower in urban areas.

What are the solutions ahead?

- The report helps “identify vulnerable population groups, contributing to evidence to inform decision-making and effective action through the appropriate targeting and design of policies and programmes.”
- Sound nutrition is fundamental to the achievement of the Sustainable Development Goals and must be central in government policy and supported by civil society and the private sector.
- Some of the recommendations include supporting healthier food outlets as key for enabling access to healthy diets.
- Policy incentives are necessary to encourage shops to sell greater amounts of fresh and minimally processed foods.
- Another key input is on street foods, which an estimated 2.5 billion people worldwide consume every day, thanks to the convenience and cost factor. The report calls for addressing multiple infrastructure and regulatory gaps to improve nutritional safety and quality of street food.

- The GRFC also suggests building rural infrastructure, including quality rural and feeder roads to connect remote farms and enterprises to main road networks.
- Other public investments to support linkages between (mainly small) farms and small and medium enterprises could include warehousing, cold storage, dependable electrification, access to digital tools and water supply.

It underlines several times the role of local governments as fundamental actors in leveraging multilevel and multi-stakeholder mechanisms that have proved effective in implementing essential policies for making healthy diets available and affordable for all.

National Multi-Dimensional Poverty Index

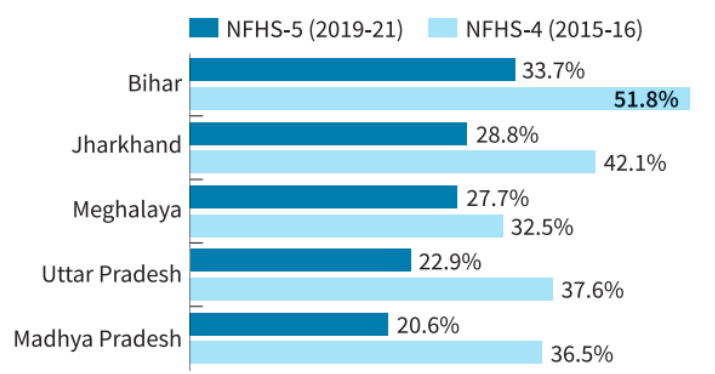
Context: India has registered a significant decline of 9.89 percentage points in the number of multidimensionally poor, from 24.85% in 2015-16 to 14.96% in 2019-2021, says the “National multidimensional poverty index: a progress review, 2023”, released by NITI Aayog.

Key Highlights

- The study says nearly 13.5 crore people came out of multidimensional poverty during the period, assessed by identifying “acute deprivations in health, education and standard of living” using United Nations-approved parameters.
- The report said rural areas witnessed the fastest decline in poverty from 32.59% to 19.28%, mainly due to a decrease in number of multidimensionally poor in States such as Bihar, Uttar Pradesh, Madhya Pradesh, Odisha, and Rajasthan. Delhi, Kerala, Goa, and Tamil Nadu have the least number of people facing multidimensional poverty, along with the Union Territories. Bihar, Jharkhand, Meghalaya, Uttar Pradesh, and Madhya Pradesh top the chart where the percentage of population which is multidimensionally poor is high. Multidimensional poverty in urban areas, during the same period, saw a decrease from 8.65% to 5.27%.
 - Uttar Pradesh registered the largest decline in number of poor with 3.43 crore people escaping multidimensional poverty.
- The report has been prepared based on the latest National Family Health Survey of 2019-21 and is the second edition of the National Multidimensional Poverty Index (MPI).
- The broad methodology followed is in consonance with the global methodology. It said 12 parameters of health, education, and standard of living are examined in the report.
 - These include nutrition, child and adolescent mortality, maternal health, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing, assets, and bank accounts.
- According to the report, between 2015-16 and 2019-21, the MPI value has nearly halved from 0.117 to 0.066 and the intensity of poverty has reduced from 47% to 44%.
- With our own national MPI, India is poised to gain a deeper understanding of poverty’s complexities and forge solutions that ensure inclusivity for all.

Poverty score

The chart shows the top-five States with the highest share of population with multidimensional poverty, according to the latest NITI Aayog report



- The district-wise estimation of the national MPI will also prioritise reaching out to the furthest behind first through focused efforts on specific indicators and dimensions.

The results and findings of the index provide valuable insights for both policymakers and the wider community, as it will help the country to achieve the target of reducing multidimensional poverty as per UN's Sustainable Development Goals.

WHO and UNICEF Estimates for National Immunisation Coverage

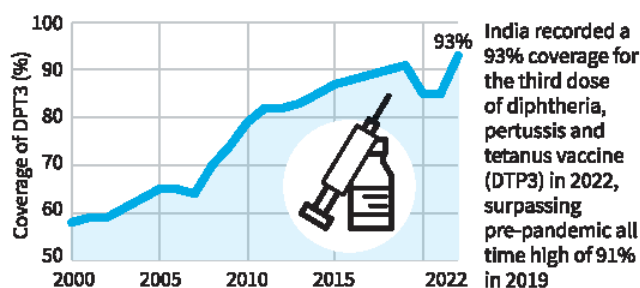
Context: India reports a record 93% DPT3 immunisation coverage in 2022: WHO.

Key Highlights

- The coverage rate for DPT3, the third dose of diphtheria, pertussis and tetanus vaccines, in India rose to an all-time of 93% in 2022, surpassing the previous pre-pandemic best of 91% recorded in 2019, and also marking a sharp increase from the 85% recorded in 2021, the World Health Organization (WHO) has said.
- The WHO and UNICEF estimates for national immunisation coverage for 2022, showed that in the WHO South-East Asia Region, the coverage rate for DPT3 recovered to the pre-pandemic level of 91%, a sharp increase from the 82% recorded in 2021.
- The region also witnessed a 6% improvement in the coverage of the measles vaccine, rising to 92% in 2022 from 86% in 2021.
- The number of zero-dose children (those that have not received even the first dose of DPT vaccine) halved to 2.3 million in 2022 from 4.6 million in 2021.
- Similarly, the number of partially vaccinated children (those that have received at least one dose of DPT vaccine but did not complete the primary series of three doses) reduced to 6.5 lakh in 2022 from 1.3 million in 2021.
- The region had the best immunisation recoveries among all the WHO regions. This can be majorly attributed to the efforts being made by India and Indonesia.
- Indonesia reported a DPT3 coverage of 85% in 2022, the same as in 2019, but rising sharply from the 67% recorded in 2021.
- Bhutan recorded 98% and the Maldives 99%, surpassing their pre-pandemic rates.
- Bangladesh with 98% and Thailand 97% demonstrated consistency in routine immunisation coverage throughout the COVID-19 pandemic and beyond, the report said.

All-time high

A look at DTP3 coverage rate over the years, according to WHO estimate of national immunization coverage in India



Passport Index

Context: India climbs seven points to 80 on Passport Index; Singapore at top position.

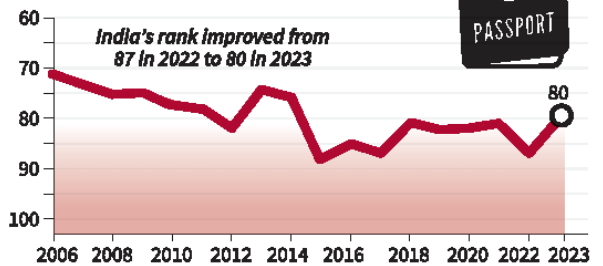
Key Highlights

- India has climbed seven places on the Henley Passport Index, 2023, reaching the 80th rank from 87 last years, with no change in the number of countries allowing visa-free access to Indian passport holders.
- The Henley Passport Index ranks all world passports based on the number of destinations their holders can access without a prior visa. It includes 199 passports and 227 travel destinations.
- The index is published by Henley and Partners.

- In 2014, India ranked 76 with 52 countries allowing visa-free access, but its performance has been fluctuating over the years.
- Japan, previously at the top position on the index for five years, dropped to third place. Singapore replaced Japan and is now the most powerful passport in the world, offering visa-free access to 192 travel destinations out of 227.
- Germany, Italy, and Spain share the second place. Third place is occupied by Japan, Austria, Finland, France, Luxembourg, South Korea, and Sweden.
- The U.K. moved up two places to fourth place, while the U.S. dropped two places to the eighth spot, continuing its decline over the past decade.
- Henley & Partners also introduced the Henley Openness Index, which measures how many nations a country allows visa-free access to. India was ranked 94 out of 97 ranks, allowing visa-free access to only four countries.
- The bottom four countries on the Openness Index, scoring zero for not permitting visa-free access to any passport, are Afghanistan, North Korea, Papua New Guinea, and Turkmenistan.

Slight uptick

A look at India's ranking over the years, according to the Henley Passport Index



Important Days

World Population Day

Context: World population day was celebrated on July 11 with the 'Unleashing the power of gender equality: Uplifting the voices of women and girls to unlock our world's infinite possibilities'.

About World Population Day

World Population Day is celebrated every year on July 11th to raise awareness and educate individuals about the challenges and consequences associated with global population growth.

- It serves as a reminder to continuously work towards addressing these issues and improving the lives of everyone on the planet.
 - Various challenges include gender inequality, economic crises, and poverty.
- The observance of World Population Day aims to promote understanding and encourage collective efforts in tackling the impacts of population growth.
- The United Nations celebrates World Population Day with a vision of creating a future where everyone has equal opportunities and limitless potential.
 - Moreover, it works towards building a sustainable world in line with the goals outlined in the 2030 Agenda for Sustainable Development.

World Hepatitis Day, July 28

Context: World Hepatitis Day is an annual event that takes place on July 28 to raise awareness about viral hepatitis and its impact on global health.

- ✓ The main goal of this day is to promote prevention, testing, and treatment while showing support for those affected by hepatitis.
- ✓ Theme 2023: One life, one liver

What is Hepatitis?

Hepatitis refers to any inflammation of the liver or the irritation or swelling of the liver cells due to any cause. It can be acute i.e. inflammation of the liver that presents with sickness — jaundice, fever, vomiting or chronic i.e. inflammation of the liver that lasts more than six months, but essentially showing no symptoms.

Types of Hepatitis

Hepatitis A virus (HAV)

- It is an inflammation of the liver that can cause mild to severe illness.
- It is transmitted through ingestion of contaminated food and water or through direct contact with an infectious person (sex practices).
- Almost everyone recovers fully from hepatitis A with a lifelong immunity (few people with HAV could die from fulminant hepatitis).
- A safe and effective vaccine is available to prevent hepatitis A.

Causes of Hepatitis

Usually caused by a group of viruses known as the “hepatotropic” (liver directed) viruses, including A, B, C, D and E.

- Other viruses may also cause it, such as the varicella virus that causes chicken pox.
- SARS-CoV-2, the virus causing Covid-19 may injure the liver too.
- Other causes include drugs and alcohol abuse, fat buildup in the liver (fatty liver hepatitis) or an autoimmune process in which a person’s body makes antibodies that attack the liver (autoimmune hepatitis).

Hepatitis B virus (HBV)

- It is a viral infection that attacks the liver and can cause both acute and chronic disease.
- It is most commonly transmitted from mother to child during birth, in early childhood, during sex with an infected partner, unsafe injections.
- Hepatitis B can be prevented by vaccines.

Hepatitis C virus (HCV)

- The virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness to a serious, lifelong illness including liver cirrhosis and cancer.
- It is a bloodborne virus and most infection occurs through exposure to unsafe health care, blood transfusions, injection drug use and sexual practices.
- Direct-acting antiviral medicines (DAAs) can cure more than 95% of persons with hepatitis C infection, but access to diagnosis and treatment is low.
- There is currently no effective vaccine against hepatitis C.

Hepatitis D virus (HDV)

- It is a virus that requires hepatitis B virus (HBV) for its replication. It affects globally nearly 5% of people who have a chronic infection with HBV.
- Hepatitis B and D can infect people together (co-infection) or one after the other (super-infection). This is more common in native people, dialysis patients and drug users. Having both viruses is very bad for the liver and can cause cancer or death.
- Hepatitis D infection can be prevented by hepatitis B immunization, but treatment success rates are low.

Hepatitis E virus (HEV)

- It is an inflammation of the liver caused by infection with the HEV. It is found worldwide, but most common in East and South Asia.
- The virus is transmitted via the fecal-oral route, principally via contaminated water.
- A vaccine to prevent hepatitis E virus infection has been developed and is licensed in China but is not yet available elsewhere.

Kargil Diwas

Context: Every year on July 26, India observes Kargil Vijay Diwas, a significant day that honors India's decisive victory in the Kargil War against Pakistan in 1999.

About Kargil Diwas

- The 1999 Kargil War emerged against the backdrop of growing tension due to militant activities in Kashmir and nuclear tests conducted by both India and Pakistan in 1998.
- The Lahore Declaration of February 1999 aimed to defuse the situation, but Pakistani forces secretly crossed the Line of Control under Operation Badr.
- In response, the Indian Army launched Operation Vijay, deploying 30,000 soldiers over two months.
- On July 26, 1999, the Kargil War reached its conclusion, marking the beginning of the annual Kargil Vijay Diwas, celebrating the valor and dedication of Indian armed forces.

GST Day

Context: The inaugural GST Day took place on July 1, 2018, marking the one-year anniversary of the initiation of the new tax structure.

Launch of GST

- GST was officially launched on the night of June 30 and July 1, 2017.
- The launch event occurred within the central hall of the Indian Parliament.
- GST superseded the previous complex system of indirect taxes in India.
- GST embodies the principle of "One Nation, One Market, One Tax."

What is GST?

What is GST?	
Full Form	Goods and Services Tax
Indirect Tax System	GST is an indirect, multi-stage, and consumption-oriented taxation structure.
Unification of Taxes	It amalgamates various domestic indirect taxes like service tax, purchase tax, value-added tax, and excise duty under a unified framework.
CGST and SGST/UTGST	In the Goods and Services Tax (GST) framework, intra-state transactions attract two components: Central Goods and Services Tax (CGST) and State/Union Territory Goods and Services Tax (SGST/UTGST).
IGST for Inter-State Transactions	For inter-state supplies, an integrated GST (IGST) is imposed.

Other Important Days

Date	Event	Details and Significance
6 July	World Zoonoses Day	Celebrated to raise awareness about diseases transmitted from animals to humans.
10 July	Global Energy Independence Day	Focuses on promoting renewable energy sources, energy diversification, and technological advancements in sustainable energy solutions.
12 July	Paper Bag Day	Celebrated to raise awareness of the environmental benefits of using paper bags over plastic bags.

Date	Event	Details and Significance
14 July	Bastille Day/ French National Day	Anniversary of the Storming of the Bastille on 14 July 1789 which is a turning point of the French Revolution.
15 July	World Youth Skills Day	Celebrates the strategic importance of equipping young people with skills for employment, decent work, and entrepreneurship.
17 July	World Day for International Justice	This day commemorates the anniversary of the Rome Statute's adoption as the ICC's founding statute, which aims to safeguard people from genocide, crimes against humanity, war crimes, and acts of aggression.
22 July	National Flag Day	Celebrates the adoption of the Indian tricolour as the National Flag of India.
28 July	World Nature Conservation Day	Observed to recognise that a healthy environment is a foundation for a stable and productive society and for future generations.
29 July	International Tiger Day	Observed to spread awareness about the need for the conservation of Tigers and promote the protection of the natural habitat of tigers. This day is also known as Global Tiger Day.

Important Editorials of the Month

Potable Water & Jal Jeevan Mission

Context: Roughly 25 crore households in India (2016), a tap water connection that delivers 55 litres per capita every day of potable water is a rarity in most of rural India, which accounts for about 19.5 crore households.

Key Highlights

- In August 2019, Prime Minister Narendra Modi promised that rural households would be assured of piped, potable water by 2024 — before his government's tenure ended. When he made that commitment, only about 3.2 crore, or about 16% of rural households, were so connected.
- Those figures stand at 64%, a substantial increase but still below the target. In recent years, the Jal Shakti Ministry, which has labelled this plan of providing piped water connections as the 'Har Ghar Jal' missions, has consistently underlined the scale of the exercise.
- Since 2019, about nine crore households have their own exclusive access to piped water. This is apart from connections to village schools, anganwadis and community buildings.
- It is unlikely that all of rural India will be connected by April 2023, as per Prime Minister's claim. The COVID-19 pandemic and the Russia-Ukraine war reportedly caused the mission to slow down considerably, government officials claim, by impeding access to pipes and civil construction necessary to the enterprise.
- It is unlikely that even 75% of households will be connected by this time. While this too, by no means, is an insignificant achievement, the challenge is the reliability of these numbers.
- Figures reported by the Jal Shakti Ministry are solely based on data reported by States. One proxy that presents a discouraging picture is the number of villages that have been certified as 'Har Ghar Jal', or having all houses fully connected.
- Only 1,68,157 villages have been reported by States as 'Har Ghar Jal' and only 59,000 or about 35% have been 'certified' — meaning their gram panchayats have formally acknowledged compliance.

- The overwhelming fraction of villages have somewhere between half or three-fourths of their households connected. An independent assessment commissioned by the Jal Shakti Ministry sampled about 300,000 households in 13,300 villages and reported 62% households as connected in October last year.
- It also emerges that the large States with 100% compliance, i.e., Gujarat, Haryana, Punjab, already started on a fairly high base in 2019. The Centre must put in place a mechanism that discloses the scheme's performance on the ground in a transparent way.

Har Ghar Jal Mission/Jal Jeevan Mission

The mission strives to ensure that every rural community has access to an adequate quantity of safe drinking water on a regular and long-term basis, all while keeping the service charges affordable.

Vision

The vision of the Jal Jeevan Mission is to improve the living standards of rural communities by ensuring that every rural household has access to an adequate quantity of safe drinking water of prescribed quality. This water supply should be available regularly and on a long-term basis, with affordable service delivery charges.

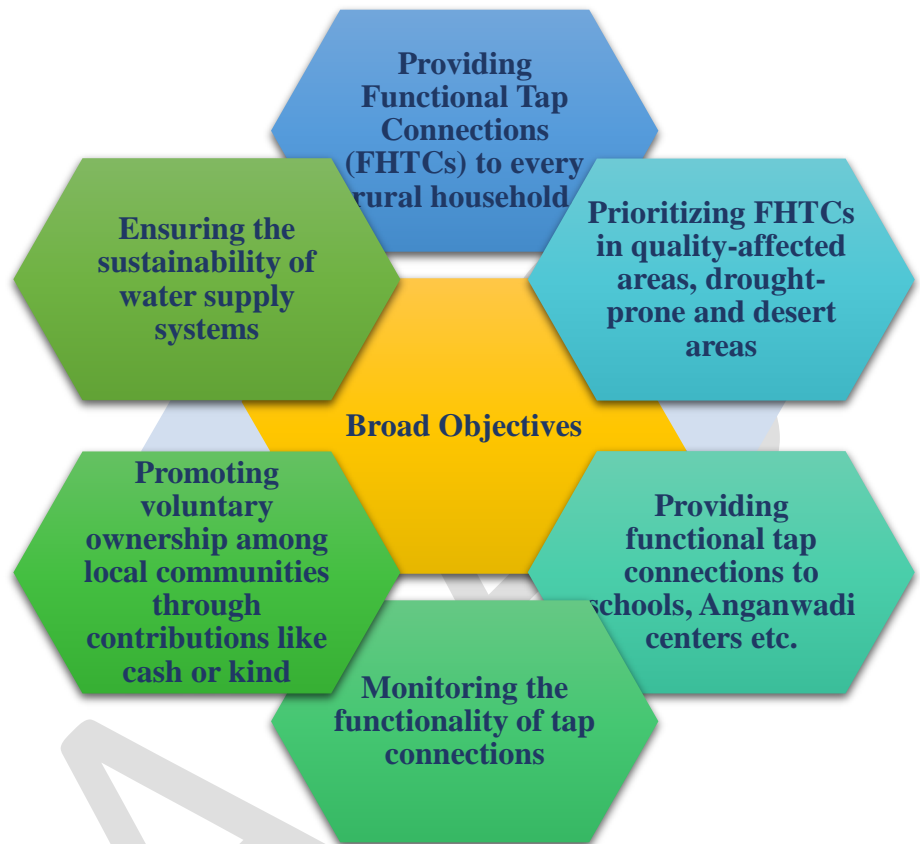
Objectives

The Jal Jeevan Mission has the following objectives:

- **Planning:** Assist and empower states/union territories (UTs) in developing a participatory rural water supply strategy. This strategy aims to ensure the long-term provision of potable drinking water to every rural household and public institution, including government buildings, schools, health centers, and more.
- **Infrastructure Creation:** Support states/UTs in creating water supply infrastructure to ensure that every rural household has a Functional Tap Connection (FHTC) by the year 2024. The infrastructure should provide water in the required quantity and quality on a regular basis.
- **Drinking Water Security:** Help states/UTs in planning for their drinking water security, considering the specific needs and challenges of each region.
- **Community Ownership:** Encourage Gram Panchayats (GPs) and rural communities to plan, implement, manage, own, operate, and maintain their in-village water supply systems.



- **Institutional Development:** Assist states/UTs in developing robust institutions that focus on service delivery and financial sustainability in the water sector. This includes promoting a utility approach.
- **Capacity Building and Awareness:** Conduct capacity building programs for stakeholders and create awareness in communities about the significance of water for improving the quality of life.
- **Financial Assistance:** Provide provisions and mobilize financial assistance to states/UTs for the effective implementation of the mission.



Components of the Jal Jeevan Mission

The following components are supported under the Jal Jeevan Mission:

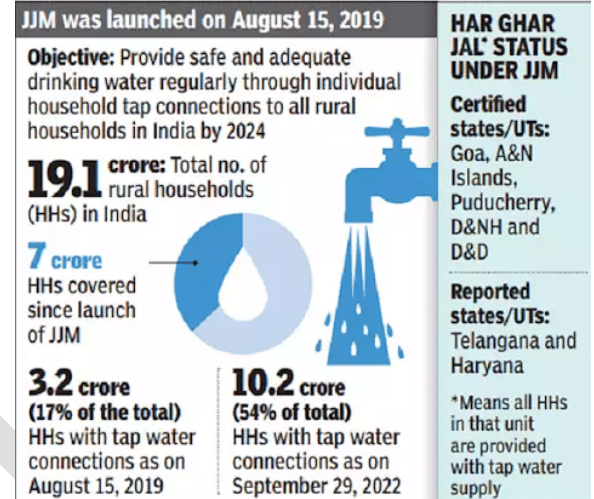
- Development of in-village piped water supply infrastructure to provide tap water connections to every rural household.
- Development of reliable drinking water sources or augmentation of existing sources to ensure long-term sustainability of the water supply system.
- Establishment of bulk water transfer systems, treatment plants, and distribution networks to cater to every rural household where necessary.
- Technological interventions to address water quality issues and remove contaminants.
- Retrofitting of completed and ongoing schemes to provide Functional Tap Connections (FHTCs) with a minimum service level of 55 liters per capita per day (lpcd).
- Implementation of grey water management systems to efficiently handle wastewater.
- Support activities including Information, Education, and Communication (IEC) programs, Human Resource Development (HRD), training initiatives, development of utilities, water quality laboratories, water quality testing and surveillance, research and development (R&D), the establishment of knowledge centers, capacity building of communities, and other relevant measures.
- Addressing any unforeseen challenges or issues arising from natural disasters or calamities that may affect the goal of providing Functional Tap Connections (FHTCs) to every household by 2024, as per the guidelines of the Ministry of Finance on Flexi Funds.



Status of Jal Jeevan Mission

- ✓ At the time of the JJM announcement, only 3.23 Crore households (17%) had tap water connections.
- ✓ However, significant strides have been made since then, with approximately 7.43 Crore rural households being provided tap water connections under the mission.
- ✓ As of December 5, 2022, out of the total 19.36 Crore rural households in the country, around 10.66 Crore households (55%) now have access to tap water supply in their homes.
- ✓ States like Maharashtra, Gujarat, and Tamil Nadu have made considerable progress in providing tap water connections and supply. On the other hand, states like Arunachal Pradesh, Meghalaya, and Nagaland are facing challenges in accelerating the implementation process. It is essential to address the specific obstacles in each state to ensure equitable access to tap water supply.
- ✓ Some states have witnessed substantial growth in tap water supply, while others show varying levels of progress. It is crucial to consider the different factors that influence the pace of implementation, such as geographical challenges, infrastructure development, and financial resources.

STATUS OF JAL JEEVAN MISSION



Geographical Challenges

• States with diverse topographies and geographical features may face challenges in implementing tap water supply projects. For instance, hilly regions like Himachal Pradesh or mountainous areas in Arunachal Pradesh may require more complex infrastructure and techniques for water supply, leading to slower progress compared to states with flatter terrains.

Infrastructure Development

• The existing infrastructure, including water sources, pipelines, and storage facilities, plays a crucial role in the implementation of tap water supply projects. States with well-developed infrastructure, such as Gujarat and Maharashtra, may have an advantage in accelerating the progress due to the availability of pre-existing systems that can be upgraded or expanded.

Financial Resources

• Adequate funding is essential for the successful implementation of tap water supply projects. States that have allocated sufficient financial resources and secured funding from central government schemes or external sources can make faster progress. For instance, Andhra Pradesh and Tamil Nadu have made substantial strides in tap water supply, partly due to their effective financial planning and resource allocation.

Government Prioritization

• The commitment and prioritization of the state government towards tap water supply initiatives can greatly impact the progress. States like Telangana and Odisha, which have given significant attention to the Jal Jeevan Mission and made it a priority, have witnessed notable advancements in tap water supply.

<p>Village Water & Sanitation Committee (VWSC) Formation and Village Action Plans (VAPs)</p> <ul style="list-style-type: none"> ✓ More than 5.17 lakh Village Water and Sanitation Committees (VWSCs)/ Paani Samitis have been formed. ✓ VWSCs/Paani Samitis are responsible for managing and maintaining the in-village water supply systems, including local water sources. ✓ A total of 5.08 lakh Village Action Plans have been created, outlining the specific water supply scheme needed, cost estimates, implementation schedule, operation and maintenance arrangements, and household contributions towards partial capital costs. 	<p>National WASH Expert</p> <ul style="list-style-type: none"> ✓ The National Centre for Drinking Water, Sanitation, and Quality is responsible for empaneling and deploying National WASH Experts (NWEs) to provide ground truthing and technical assistance to states in implementing the Jal Jeevan Mission. ✓ Currently, 46 NWEs have been empaneled. ✓ During the year, 62 teams visited approximately 1,035 villages to assess the implementation work under the JJM. ✓ Based on the implementation status, NWEs provide star ratings to villages and offer feedback to states in three categories: Satisfactory, Satisfactory but improvement needed, and Unsatisfactory, immediate action needed. ✓ After each visit, NWEs provide feedback to the respective state authorities.
<p>Implementation Support Agencies (ISAs)</p> <ul style="list-style-type: none"> ✓ States and Union Territories (UTs) are supporting Panchayats by engaging Implementation Support Agencies (ISAs). ✓ ISAs assist in the formation of Village Water and Sanitation Committees (VWSCs) through participatory rural appraisal, support in creating Village Action Plans, and carry out activities after infrastructure construction. ✓ Around 14,000 ISAs have been engaged and are actively involved in fieldwork. 	<p>Capacity Building through Key Resource Centers</p> <ul style="list-style-type: none"> ✓ To enhance capacity and provide guidance to various stakeholders, 100 reputable governmental and non-governmental academic institutions, agencies, firms, organizations, think tanks, and training institutions are involved as Key Resource Centers (KRCs). ✓ Through these KRCs, 104 training programs have been conducted during the fiscal year 2022-23, training approximately 4,000 individuals on different aspects of drinking water under the Jal Jeevan Mission (JJM).

Status of Water Quality Monitoring and Surveillance

Importance of Monitoring Water Quality

- Under the Jal Jeevan Mission, ensuring the quality of water is a primary objective.
- To achieve this, the program emphasizes regular testing of water samples at both the source and delivery points.
- This comprehensive approach aims to guarantee that the supplied water meets the necessary quality standards.

Availability of Water Testing Laboratories

- Across the country, there are a total of 2,074 water testing laboratories. Of these, 1,005 laboratories have received accreditation from the National Accreditation Board for Testing and Calibration Laboratories (NABL).
- This accreditation ensures the laboratories meet the required standards for conducting accurate water quality testing. Moreover, the water testing labs operated by the states and union territories are now open to the public, allowing individuals to have their water samples tested at affordable rates.

Extensive Testing Efforts

- In the fiscal year 2022-23, up to the present date, more than 27 lakh water samples have been tested in various laboratories. This rigorous testing process enables authorities to gain a comprehensive understanding of the overall water quality situation across the country.

Reduction of water borne diseases

- As per the report from National Centre for Disease Control (NCDC), with the availability of safe and potable drinking water at the doorstep of every rural household, the water-borne disease has been drastically reduced.
- The details of reduction in water borne diseases in previous three years is tabulated herewith.

Year	Water-borne diseases
2019	177 Lakhs
2020	89 Lakhs
2021	59 Lakhs

Source: National Centre for Disease Control (NCDC)

Empowering Women through Field Test Kits (FTKs)

- To foster women's participation in water quality monitoring, a minimum of five women in each village are being trained to utilize Field Test Kits (FTKs) for testing water quality at the local level. So far, over 16.21 lakh women have received training in 1.95 lakh villages.
- In the current fiscal year, more than 57.99 lakh water samples have been tested using FTKs. This approach not only promotes inclusivity but also enhances the reach and effectiveness of water quality monitoring efforts.



Funds Allocation for Jal Jeevan

Mission

Estimated Outlay and Allocation of Funds

- The Jal Jeevan Mission, as part of the 'Har Ghar Jal' program, has an estimated outlay of Rs. 3.6 lakh crore for a five-year period from 2019 to 2024.
- Recognizing the significance of water supply and sanitation, the 15th Finance Commission has identified it as a national priority.

- Consequently, funds of Rs. 2.36 lakh crore have been allocated to Rural Local Bodies/Panchayat Raj Institutions (RLBs/PRI) for the period from 2021-22 to 2025-26.

Utilization of Funds

- Of the allocated funds, 60% amounting to Rs. 1.42 lakh crore has been provided as Tied Grants exclusively for drinking water, rainwater harvesting, sanitation, and the maintenance of open-defecation free (ODF) villages.
- This substantial investment in rural areas throughout the country serves to accelerate economic activities, boost the rural economy, and create employment opportunities in villages.
- This proactive approach aims to ensure that villages have access to safe drinking water along with improved sanitation facilities, ultimately transforming them into 'WASH enlightened' villages.

Release of Funds in 2022-23

- In the financial year 2022-23, the Government of India has thus far released Rs. 22,975.34 crore to 21 eligible states for the implementation of the Jal Jeevan Mission. These funds are disbursed based on the utilization of available central funds and the matching state share, following a transparent process.

Monitoring and Financial Management

- To ensure effective monitoring and transparent financial management, the Integrated Management Information System (IMIS) and JJM-Dashboard have been implemented for online monitoring purposes. Additionally, the Public Financial Management System (PFMS) facilitates transparent online financial management.

Technologies for Drinking Water Supply and Water Quality

Jal Jeevan Mission recognizes the importance of leveraging various technologies to enhance the community-led implementation of initiatives related to drinking water supply and water quality. The mission employs the following technologies:

- ✓ **Source Sustainability Measures:** Technologies such as aquifer recharge, rainwater harvesting, increased storage capacity of water bodies, reservoirs, and de-silting are utilized to improve the lifespan of water supply systems.
- ✓ **Water Budgeting and Audits:** Water budgeting and audits help in effective water management by monitoring and optimizing water usage.
- ✓ **Operation and Maintenance:** Technological solutions aid in the operation and maintenance of water supply systems, ensuring their smooth functioning.
- ✓ **Grey Water Management:** Techniques are employed to manage greywater, which includes wastewater from sources other than toilets. This helps in efficient water reuse and conservation.
- ✓ **Water Quality Monitoring and Surveillance:** Technologies are utilized for monitoring and assessing water quality to ensure that the supplied water meets the required standards.
- ✓ **Pre-positioned Emergency Water Supply Kits:** Kits equipped with necessary water supply resources are strategically positioned to provide transitional services during emergencies or in temporary camps.
- ✓ **Solar-based Water Supply Schemes:** Solar energy is harnessed to power water supply systems, reducing carbon footprints and promoting sustainable energy practices.
- ✓ **IoT, Remote Sensing, GIS, and Design Software:** Technologies like the Internet of Things (IoT), remote sensing, geographic information systems (GIS), and design software are utilized for tasks such as water accounting, water quality control, water use efficiency, water resource planning, and impact assessment. IoT pilots are being implemented in 118 villages across 14 states and union territories.

- ✓ **Innovative Projects:** The Technical Committee recommends 25 innovative projects related to water treatment, water quality monitoring, IoT-based battery vehicles, and software for hydraulic design in rural India.

Non-Revenue Water and Address Grievances

In addition to technology deployment, efforts are made to reduce non-revenue water and address grievances related to water supply through the following means:

- **Water Audits and Water Security Planning:** Community-led water audits and water security planning help identify and mitigate losses in the water supply distribution system and non-revenue water. This includes the use of IoT-based technology, water metering, installation of flow control valves, water budgeting, community surveillance, and water conservation measures.
- **Grievance Redressal Mechanism:** A Grievance Redressal Cell is established to address water supply-related grievances. Citizens can lodge complaints through the Centralized Public Grievances Redress and Monitoring System (CPGRAMS). Feedback and suggestions from recipients and stakeholders are actively sought to improve service delivery and enhance the responsiveness of the Department.

By leveraging technology and implementing effective management strategies, the Jal Jeevan Mission aims to ensure reliable and quality drinking water supply while addressing challenges related to water conservation, sustainability, and customer satisfaction.

What Is The Present Status Of Potable Water?

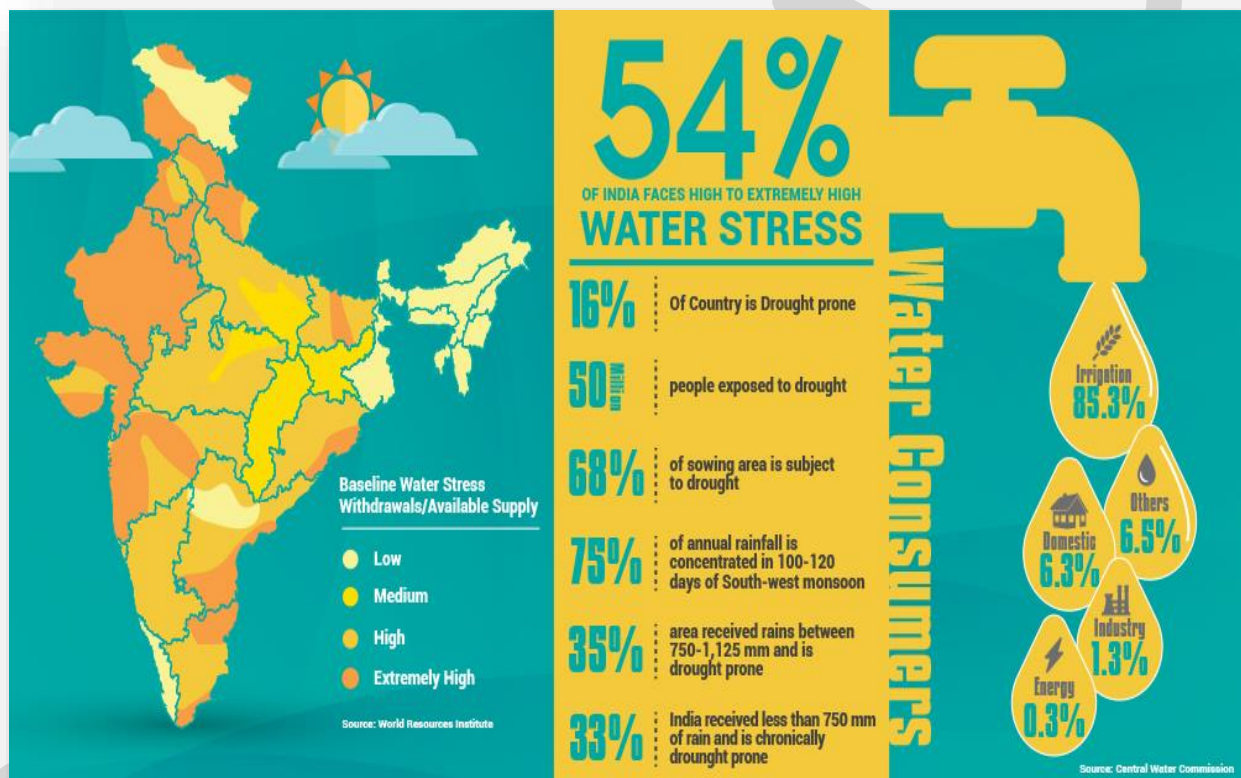
As per the Government's Management Information System for the Jal Jeevan Mission, between August 2019 and May 2022, as a result of the programme, coverage of functional household tap connections in rural areas has increased from 17 percent to over 49 percent. Tap water has also been provided to almost all schools and pre-schools in the country.

Situation of Water and Sanitation in India

A few numbers from the World Bank highlight the plight the country is facing:

- 163 Million Indians lack access to safe drinking water
- 210 Million Indians lack access to improved sanitation
- 21% of communicable diseases are linked to unsafe water
- 500 children under the age of five die from diarrhea each day in India
- More than half of the rivers in India are highly polluted with numerous others at levels considered unsafe by modern standards. The waters of the Yamuna, Ganga and Sabarmati flow the dirtiest with a deadly mix of pollutants both hazardous and organic.
- It is estimated that waterborne diseases have an economic burden of approximately USD 600 million a year in India. This is especially true for drought- and flood-prone areas, which affected a third of India's population in the past couple of years.
- Moreover, two-thirds of India's 718 districts are affected by extreme water depletion. One of the challenges is the fast rate of groundwater depletion in India, which is known as the world's highest user of this source due to the proliferation of drilling over the past few decades. Groundwater from over 30 million access points supplies 85 per cent of drinking water in rural areas and 48 per cent of water requirements in urban areas.
- In 2015, India achieved 93 per cent coverage of access to improved water supply in rural areas. However, with the shift from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) the new baseline estimates that less than 49 per cent of the rural population is using safely managed drinking water (improved water supply located on-premises, available when needed and free of contamination).

- NITI Aayog estimates that 21 major cities, including Delhi, would run out of groundwater by 2030.
- India draws nearly 25% of the world's groundwater – that's more groundwater than China and the USA combined.
- India receives an annual rainfall of 4000 billion cubic metres (bcm), but only 1869 bcm remains after accounting for evaporation. This means that the actual availability of water is reduced to 1137 bcm.
- However, even within this reduced amount, there are significant temporal and regional variations in water availability across the country.
- While states like Uttar Pradesh and Himachal Pradesh experience water surplus, others like Maharashtra (Vidarbha, Beed), Karnataka, Tamil Nadu, Rajasthan, and parts of Gujarat face water scarcity. Additionally, states known for their water abundance, such as Punjab and Haryana, also encounter their own water-related challenges.



Recent Water Crisis in India

Maharashtra's Unprecedented Water Crisis

- Years of drought have led to a severe water crisis in Maharashtra.
- River currents have diminished, and dams and reservoirs have depleted.
- Over-exploitation of groundwater raises concerns about long-term water availability.

Chennai's Water Shortage Impacting IT Firms

- Chennai's IT firms are enforcing work-from-home policies due to a lack of water.
- The city has not received significant rainfall for almost 200 days.

- Adequate rain is not expected for the next three months, exacerbating the water crisis.

Rajasthan's Thar Desert: Paying for Water

- In the arid Thar Desert of Rajasthan, residents are purchasing 2500 litres of water for Rs. 2500.
- This water is shared not only for personal use but also for their livestock.

Punjab's Struggle with Desertification and Agricultural Shift

- Punjab faces the threat of desertification and is working to break away from the wheat-paddy cycle.
- Farmers have adopted an underground pipeline system for irrigation.
- This scheme, implemented for a decade, helps address water scarcity issues in the state.

Central Government's Response and the Jal Shakti Ministry

- The Central government has established a dedicated Jal Shakti Ministry led by a full-fledged cabinet minister to tackle the water crisis.
- The ministry aims to address the challenges of water scarcity and management.
- Despite these efforts, more comprehensive actions are necessary to effectively resolve the water crisis in India.

India-SCO

Context: The Shanghai Cooperation Organisation-Council of Heads of State meeting, hosted by Prime Minister Narendra Modi on Tuesday, marked the first time India chaired the summit of regional countries. India became a full SCO member in 2017, along with Pakistan.

Key Highlights

- The government has held that joining the originally Eurasian group was important as member-countries make up a third of the global GDP, a fifth of global trade, a fifth of global oil reserves and about 44% of natural gas reserves.
- Its focus on regional security and connectivity — areas key to India's growth and making up its challenges, such as terrorism in Pakistan, and Chinese aggressions as well as the Belt and Road Initiative.
- Being "inside the tent" is important, especially as Pakistan is a member, even if that means conducting joint exercises under the SCO Regional Anti-Terrorist Structure.
- The SCO also gives India an interface with Central Asian markets and resources. Finally, joining the SCO was a key part of India's stated ambitions on "multi-alignment" and "strategic autonomy" while becoming a "balancing power" in the world.
- It seems no coincidence that India joined the revived Quad with the U.S., Japan and Australia in the same year that it took up the full SCO membership.
- Over the past year, this has become an economic necessity as India has chosen to be neutral on the Ukraine war, benefiting from fuel and fertilizer purchases from Russia.
- It was expected that India's turn to chair the SCO this year would be a major event, rivalling the expected pomp around the G-20 meet in September.
- In addition, given Russia's and China's blocks on the G-20 joint communiqué that India is keen to find consensus on, the SCO summit would have been a convenient venue for Mr. Modi to negotiate a resolution with his counterparts.

- However, India’s decision to postpone the SCO summit due to the Prime Minister’s U.S. State visit, and then to turn it into a virtual summit may have been a dampener on the SCO outcomes.
- India’s concerns with hosting Xi Jinping given the LAC hostilities, or Pakistan Prime Minister Sharif’s possible ‘grandstanding’, or even the optics of welcoming Russian President Vladimir Putin may have been factors.
- Whatever the reason, while the members hammered out a New Delhi declaration and joint statements on radicalisation and digital transformation, the government was unable to forge consensus on other agreements including one on making English a formal SCO language, while India, despite being Chair, did not endorse a road map on economic cooperation, presumably due to concerns over China’s imprint.
- With its SCO chairpersonship ending, the government may now be feeling the law of diminishing returns over its SCO engagement — one that might make its task of hosting the G-20 even more difficult.
- More importantly, these were “India-specific” waivers not available to other non-NPT countries such as Pakistan, and were crucial indicators of the shift in U.S. alignment in South Asia.

About Shanghai Cooperation Organization



Topic	Details
Name	Shanghai Cooperation Organization (SCO)
Formation	Established on June 15, 2001
Founding Members	China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan
Current Member States	China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Pakistan, India, Iran
Headquarters	Beijing, China
Observers	Afghanistan, Belarus, Iran, Mongolia
Dialogue Partners	Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka, Turkey
Aims and Objectives	Promote regional stability, security, and economic cooperation; combat terrorism, separatism, and extremism; foster cultural and educational ties
Decision-Making Body	Council of Heads of State (Summit)
Primary Working Bodies	Council of Ministers of Foreign Affairs, Council of National Coordinators, Regional Anti-Terrorist Structure
Areas of Cooperation	Security, counter-terrorism, economic cooperation, trade, investment, transportation, energy, cultural exchanges, joint military exercises
Key Agreements	Shanghai Cooperation Organization Charter, Treaty on Long-Term Good-Neighborliness, Friendship, and Cooperation
Regional Security Cooperation	Joint military exercises (e.g., Peace Mission, Tsentr), information sharing, intelligence cooperation, border control, anti-drug operations
Economic Cooperation	Trade facilitation, investment promotion, infrastructure development, connectivity projects, energy cooperation, joint economic initiatives
Interactions with Other Organizations	Cooperation with the United Nations, Association of Southeast Asian Nations (ASEAN), Collective Security Treaty Organization (CSTO)
Expansion Efforts	Consideration of new membership applications, engagement with observer and dialogue partners
Major Achievements	Enhanced security cooperation, regional stability, joint efforts against terrorism, economic integration, cultural exchanges
Significance to India	Provides a platform for India to engage with Central Asian countries and major powers in the region; enhances India's connectivity and trade opportunities; strengthens regional security cooperation; facilitates counter-terrorism efforts; promotes cultural and educational exchanges with SCO member states.

Main Objective of SCO

- Promoting mutual trust and neighborly relations among member states.
- Encouraging effective cooperation in areas such as trade, politics, research, the economy, technology, and culture.
- Fostering collaboration in education, transportation, energy, environmental protection, tourism, and other relevant sectors.
- Working together to maintain security, stability, and peace in the region.
- Striving towards the establishment of a new international economic and political order that is democratic, rational, and fair.
- Guiding internal policies based on principles like mutual benefit, trust, consultations, equality, respect for cultural diversity, and a shared desire for development.
- Conducting external policies based on non-targeting and non-alignment principles.

Structure and Operations of SCO

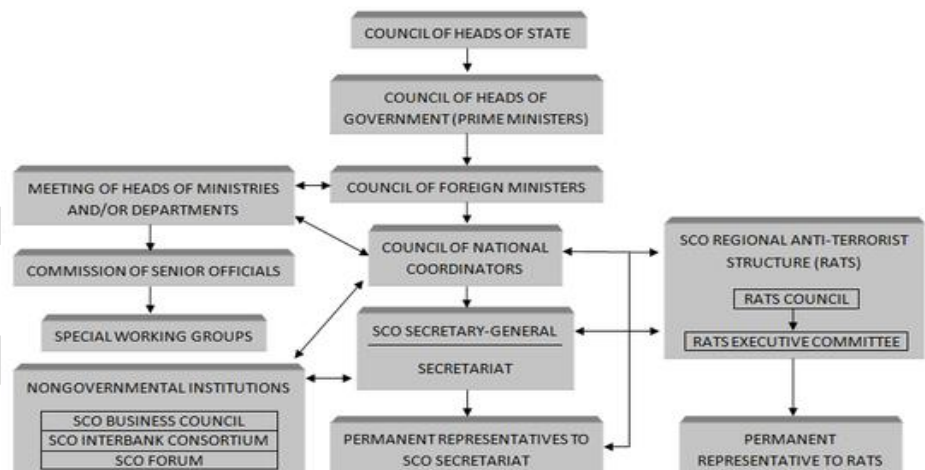
- The supreme decision-making body is the Heads of State Council (HSC), which convenes annually to discuss and make decisions on important matters.

- The Heads of Government Council (HGC) meets once a year to formulate the organization's multilateral cooperation strategy and address significant economic and other cooperation issues.

- The SCO has two permanent bodies: the Executive Committee of the Regional Anti-Terrorist Structure (RATS) located in Tashkent and the SCO Secretariat based in Beijing.

- The Director of the Executive Committee of SCO RATS and SCO Secretary-General are appointed by the Council of Heads of State for a term of three years.

THE STRUCTURE OF THE SHANGHAI COOPERATION ORGANISATION



Strengths of the Shanghai Cooperation Organization

- The SCO represents approximately 40% of the global population, nearly 20% of the global GDP, and covers 22% of the world's landmass.
- Its strategic geographical location gives it control over Central Asia and allows it to limit American influence in the region.
- The SCO is viewed as a counterweight to the North Atlantic Treaty Organization (NATO).

Challenges for the Shanghai Cooperation Organization Iran Becomes Full Member of SCO

- Security challenges faced by the SCO include combating terrorism, extremism, and separatism, as well as addressing issues such as drug and weapons trafficking and illegal immigration.

- Decision-making within the SCO can be challenging due to the diverse histories, backgrounds, languages, national interests, forms of government, wealth, and cultures of its member states, despite their geographical proximity.

Iran Becomes Full Member of SCO

Iran has formally joined the Shanghai Cooperation Organisation (SCO) as a full member during a virtual summit hosted by India. Prime Minister Narendra Modi extended his congratulations to Iranian President Ebrahim Raisi and the people of Iran on this significant development.

India's Role as the Summit Host

India, currently holding the chairmanship of the SCO, hosted the summit. Prime Minister Modi presided over the virtual meeting, which included the participation of leaders such as Chinese President Xi Jinping, Russian President Vladimir Putin, Pakistani Prime Minister Shehbaz Sharif, and other representatives from SCO member states.

Importance of Iran's Membership

Iran's inclusion in the SCO carries strategic significance. The SCO's recent focus has shifted towards regional connectivity, aligning with India's plans for connectivity through Iran's Chabahar port and the International North-South Transport Corridor. Iran's presence in the SCO ensures support for India's endeavors to bypass Pakistan and strengthens trade links with Central Asian countries. Moreover, Iran's participation allows India to engage with the region without becoming entangled in China's Belt and Road Initiative. Additionally, Iran's historical ties with India and mutual concerns regarding terrorism originating from Pakistan and Afghanistan will bolster India's call for action against terrorist safe havens.

Balancing Act for India

India faces the challenge of maintaining a delicate balance as the dynamics of the SCO evolve. India and the United States have significantly enhanced their partnership, establishing unprecedented levels of cooperation and trust. Recently, Prime Minister Narendra Modi concluded an official state visit to the US, during which the two countries signed significant technology and defense agreements. India also maintains historical ties with Iran. Traditionally, commercial relations between India and Iran have been dominated by Indian imports of Iranian crude oil. Iran used to be among India's major energy suppliers until May 2019. Following the expiration of the US waiver on sanctions on May 2, 2019, India suspended the import of crude oil from Iran.

India and SCO

India has a long history of connections with the SCO region, spanning thousands of years and involving civilization, culture, and spirituality. From Buddhist monks and spice traders to explorers and Sufi saints, people from India and SCO Member States have interacted, exchanging goods, ideas, and introducing new cuisines and art forms.

- India joined the SCO in 2017 to strengthen its historic ties with the region.
- In September 2022, India assumed the Chairmanship of the SCO Council of Heads of State for the first time, which will last for one year. During this period, the Indian Prime Minister will lead the SCO Summit.
- India has implemented initiatives announced by the Prime Minister at the 2019 Bishkek Summit, such as hosting the first-ever SCO Digital Exhibition on Shared Buddhist Heritage and translating Indian regional literary classics into Russian and Chinese languages.
- India has organized significant events like the first-ever SCO Young Scientists Conclave, the Consortium of SCO Economic Think Tanks, and the SCO Startup Forum (held virtually). The SCO Business Conclave, focused on cooperation between MSMEs of the SCO region, was also convened by FICCI. India aims to strengthen

trade, economic, and cultural cooperation within the SCO, prioritizing the well-being of individuals and promoting peace and prosperity in the region.

- The Ministry of External Affairs (MEA) has launched the official website of the Shanghai Cooperation Organisation (SCO) under the theme of SECURE SCO.
- The website aims to highlight the upcoming events and activities during India's chairmanship of the SCO.
- India assumed the rotating presidency of the SCO during the 22nd Head of State summit meeting in September 2022 in Samarkand, Uzbekistan.
- Prime Minister Narendra Modi introduced the concept of SECURE at the SCO summit in China in 2018.
- SECURE stands for:
 - 'S' for security of citizens
 - 'E' for economic development
 - 'C' for connectivity within the region
 - 'U' for unity among member states
 - 'R' for respect for sovereignty and integrity
 - 'E' for environmental protection
- The Shanghai Cooperation Organization consists of eight countries: Russia, China, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India, and Pakistan.

“

India launches official website of SCO 2023 with a theme of 'For a SECURE SCO'

”



Background SCO and India

- **India's as an observer in 2005:** In 2005, India became an observer at the Shanghai Cooperation Organization (SCO). The SCO is a regional intergovernmental organization comprising eight member states, namely China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India, and Pakistan. As an observer, India was granted the opportunity to participate in SCO meetings, contribute to discussions, and engage with member states on various issues.
 - Motivations for seeking observer status: India's decision to seek observer status in the SCO was driven by several factors.
 - Firstly, India recognized the growing importance of regional cooperation in addressing common challenges such as terrorism, separatism, and extremism. By engaging with the SCO, India aimed to enhance its regional security and counter-terrorism efforts.
 - Secondly, India saw the SCO as a platform to expand its economic opportunities by promoting trade, investment, and connectivity within the region. Lastly, India sought to strengthen its diplomatic ties with SCO member states and foster closer relations in areas of mutual interest.

What is the Significance of the SCO?

The objectives of the India-SCO relationship revolve around enhancing regional security, promoting economic cooperation, fostering cultural exchanges, engaging in multilateral initiatives, strengthening bilateral relations, and contributing to regional peace and stability. These objectives reflect India's commitment to regional integration, collaboration, and mutual development within the SCO framework.



Strengthening Regional Security

- **Collaborating with SCO member states:** India aims to work closely with other SCO member states to address common security challenges such as terrorism, extremism, separatism, and transnational crime. By pooling resources and expertise, the objective is to enhance regional security collectively.
- **Sharing intelligence and conducting joint exercises:** India seeks to share intelligence and engage in joint military exercises with SCO member states to improve coordination and readiness in countering security threats. This collaborative approach helps build trust and strengthens the regional security architecture.
- **Supporting regional stability:** By actively participating in the SCO, India contributes to the organization's efforts in maintaining peace and resolving conflicts in the region. The objective is to promote stability and create an environment conducive to development and prosperity.

Promoting Economic Cooperation

- **Expanding trade and investment opportunities:** India aims to tap into the economic potential of the SCO region by increasing market access and reducing trade barriers. The objective is to enhance bilateral and multilateral trade relations, which can lead to mutual economic growth and development.
- **Facilitating connectivity initiatives:** India seeks to participate in connectivity initiatives led by the SCO, such as transport infrastructure development, energy cooperation, and digital connectivity. By improving regional connectivity, the objective is to enhance economic integration and promote the flow of goods, services, and investments.
- **Exploring synergies with India's "Act East" policy:** India aims to explore synergies between its "Act East" policy and the SCO's regional economic initiatives. This alignment can lead to greater cooperation in areas such as trade, investment, technology transfer, and infrastructure development.

Cultivating Cultural Exchanges and People-to-People Ties

- **Promoting cultural diversity and mutual understanding:** India seeks to promote cultural exchanges, festivals, and exhibitions to foster appreciation for the diverse cultures of the SCO member states. The objective is to enhance mutual understanding and respect among the people of the region.
- **Encouraging tourism and educational exchanges:** India aims to promote tourism and educational exchanges between SCO member states to facilitate people-to-people connections. These interactions help foster cultural diplomacy, build personal relationships, and strengthen ties at a societal level.
- **Strengthening ties between academic and cultural institutions:** By fostering collaboration between academic and cultural institutions, India aims to promote knowledge sharing, research collaboration, and cultural cooperation. This contributes to the exchange of ideas, enhances academic excellence, and deepens cultural ties between member states.

Participating in Multilateral Initiatives

- **Actively engaging in SCO summits and meetings:** India actively participates in SCO summits, ministerial meetings, and working groups to address regional challenges. The objective is to contribute to discussions, share perspectives, and work collectively towards finding solutions to common issues.
- **Collaborating on security and other issues:** India supports and engages in multilateral initiatives within the SCO framework, such as the Regional Anti-Terrorist Structure (RATS). These collaborations aim to enhance cooperation on counter-terrorism, cybersecurity, disaster management, and other regional security concerns.
- **Supporting the SCO's regional initiatives:** India actively supports and contributes to the SCO's regional initiatives aimed at promoting peace, stability, and development. By aligning with these initiatives, India aims to strengthen collective security efforts within the SCO framework.

Bilateral Engagement with SCO Member States

- **Strengthening bilateral relations:** India aims to strengthen bilateral relations with individual SCO member states through regular high-level visits and diplomatic dialogues. The objective is to deepen political, economic, and cultural ties with each member state and foster mutual cooperation.
- **Expanding cooperation in various areas:** India seeks to expand cooperation with SCO member states in areas of mutual interest, such as defense, science and technology, agriculture, healthcare, and education. The objective is to leverage the strengths of each country and promote mutually beneficial collaborations.
- **Promoting people-centric initiatives:** India emphasizes people-to-people interactions by promoting cultural exchanges, business collaborations, and technological partnerships. The objective is to enhance understanding and goodwill among the people of SCO member states.

Contributing to Regional Peace and Stability

- **Working towards peaceful resolution of conflicts:** India aims to work diplomatically and through peaceful means to resolve regional conflicts and disputes. The objective is to contribute to the stability and security of the SCO region by fostering dialogue and understanding among member states.
- **Supporting confidence-building measures:** India supports initiatives that build trust and confidence among SCO member states. These efforts include confidence-building measures, conflict prevention mechanisms, and reconciliation initiatives.
- **Upholding principles of sovereignty and non-interference:** India is committed to upholding the principles of sovereignty, territorial integrity, and non-interference in the internal affairs of member states. The objective is to promote mutual respect, trust, and adherence to international norms within the SCO framework.

SCO Members	Conflict Details
China	India and China have had ongoing conflicts, particularly regarding border disputes, such as the recent clashes in the Galwan Valley. Economic competition and strategic rivalries also contribute to the tensions.
Pakistan	India and Pakistan, both SCO members, have a long-standing conflict over various issues, including cross-border terrorism and the disputed territory of Kashmir. This conflict often strains their relationship within the SCO.
Tajikistan	India's relations with Tajikistan have generally been positive, without any significant conflicts reported within the SCO framework. However, geopolitical dynamics in the region, including India's relations with Pakistan and China, may indirectly affect the bilateral relationship.
Uzbekistan	India and Uzbekistan have maintained friendly relations, focusing on economic cooperation, cultural exchanges, and counterterrorism efforts. No major conflicts have been reported between India and Uzbekistan within the SCO.
Kazakhstan	India and Kazakhstan enjoy warm relations, focusing on economic cooperation, energy partnerships, and cultural exchanges. No significant conflicts have been reported between the two countries within the SCO framework.
Kyrgyzstan	India and Kyrgyzstan maintain cordial relations, emphasizing cooperation in trade, education, and cultural exchanges. No major conflicts have been reported between India and Kyrgyzstan within the SCO.
Russia	India and Russia have a strong strategic partnership, and their relations within the SCO are generally cooperative. While there may be occasional divergences in their approaches to regional issues, no significant conflicts have been reported within the SCO framework.
Iran	While Iran is an SCO observer and not a member, it has close ties with both India and Pakistan. India's relations with Iran have faced challenges due to geopolitical dynamics and Iran's regional engagements, but these conflicts are not exclusive to the SCO platform.

Importance of SCO for India



Economic Cooperation

- For India, the SCO serves as a platform to bolster economic collaboration with Central Asian countries, which possess abundant reserves of natural resources. India aims to expand trade and investment ties with SCO nations to diversify its economic partnerships.

Energy Security

- Central Asia boasts significant reserves of oil and gas, and India seeks to tap into these resources to enhance its energy security. The SCO provides a valuable avenue for India to engage with energy-rich countries in Central Asia and explore cooperation opportunities in the energy sector. The recently signed Samarkand Declaration at the 22nd Summit emphasizes connectivity, energy security, and food security—priorities aligning with India's interests.

Cultural Cooperation

- The SCO encompasses a wealth of cultural heritage, including 207 UNESCO World Heritage Sites across member states, observers, and partners. As part of a rotating initiative, the SCO member countries have designated Varanasi (Kashi) as the first cultural capital of the organization, showcasing India's rich cultural heritage.

Counterterrorism

- Given India's unfortunate experience with terrorism, it stands to benefit from the SCO's strong emphasis on counterterrorism cooperation. The organization's collective efforts to combat terrorism in the region provide India with a valuable opportunity to address this pressing issue.

What are the Challenges?



China's Rise and External Pressures

- China's ascent in inner Asia is paving the way for its dominance in the region. However, this has sparked concerns from other regional powers, notably the United States, which aims to curb China's rise and limit its influence. They seek to contain China's growing power.

Limited Institutional Mechanisms

- Although the SCO possesses several bodies such as the Council of Heads of State, the Council of Ministers of Foreign Affairs, and the Council of National Coordinators, these entities lack the necessary decision-making and enforcement powers required for effective governance. Consequently, the absence of a formal mechanism to resolve disputes among member states becomes a significant shortcoming.

Divergent Interests and Disagreements

- The SCO accommodates member states with differing political systems, economic models, and strategic priorities, including projects like CPEC and border infrastructure initiatives. Consequently, this diversity can give rise to internal conflicts and disagreements on matters such as economic cooperation and security.

Limited Geographical Scope

- The SCO's focus is primarily on Eurasia and neighboring regions, thereby limiting its capacity to engage with global issues and challenges that extend beyond these areas.

Western Skepticism and Criticism

- The SCO faces criticism from Western nations due to its perceived lack of democratic credentials, support for authoritarian regimes, and internal conflicts and border disputes among its member states.

Conflicts Among Member Countries of SCO

- **Kyrgyzstan and Tajikistan Regarding Border Issues:** The escalating conflict between Kyrgyzstan and Tajikistan, witnessed in September and November 2022, poses a significant concern for the stability of Central Asia and neighbouring regions.
- **Taliban-led Afghanistan and Pakistan:** The border area between Taliban-led Afghanistan and Pakistan experiences several conflicts, contributing to its instability.

Way Forward for India at SCO

India should prioritize the following actions to advance its interests within the SCO:



- **Enhancing Connectivity:** India should focus on strengthening connectivity initiatives with SCO member countries. Leveraging projects like the Chabahar Port can facilitate trade and economic relations with Central Asian republics.
- **Diversifying Cooperation:** Besides economic ties, India can explore cooperation in sectors such as education, tourism, and medical tourism to deepen engagement within the SCO framework.
- **Broadening Agenda:** India should actively engage in discussions and initiatives related to economic cooperation, energy, connectivity, education, tourism, agriculture, trade, investment, security, and counterterrorism during SCO summits.
- **Balancing Political and Economic Diplomacy:** India's interest in SCO membership reflects a shift towards a more balanced approach, combining political necessities with economic diplomacy. India should continue to prioritize economic interests while engaging with the SCO.
- **Industry Engagement:** Indian industry plays a crucial role in guiding the country's engagement with SCO member countries. Strong partnerships and collaborations can contribute to the development of a robust ecosystem within the SCO.
- **Strengthening Institutional Relationships:** Building strong institutional relationships within the region is vital. Strengthening bilateral ties with SCO member countries can lay the foundation for meaningful economic partnerships and foster regional stability and prosperity.

Chandrayaan-3

Context: At 2.35 p.m. Indian Standard Time on July 14, the Indian Space Research Organisation (ISRO) plans to launch the Chandrayaan-3 mission to the moon onboard a Launch Vehicle Mark 3 from Sriharikota.

Key Highlights

- Chandrayaan-3 is largely a replica of its predecessor Chandrayaan-2, that was launched in July 2019 in the form of an orbiter and a lander ('Vikram') bearing a rover ('Pragyan'). While the orbiter entered into orbit around the moon, the surface mission failed in September when the lander crashed instead of executing a slow descent.
- In Chandrayaan-3, the rocket will place the payload in an elliptical orbit around the earth, where a propulsion module will take over and pilot the lander to a circular orbit around the moon.
- Finally, the lander will detach and begin a series of manoeuvres culminating in a gradual landing (on August 23-24 this year) over the surface.
- To improve the chances of success at this stage, ISRO has strengthened the lander's legs, lowered its minimum thrust, enhanced the availability of power, and upgraded the landing sequence.

This will be India's second attempt to soft-land a lander and rover on the lunar surface, and demonstrate end-to-end capability in the relevant technologies.

- Soft-landing on the moon is a complicated exercise and the possibility of failure exists, even if it may be lower — yet there is good reason to focus on the consequences of a complete success.
- The success of Chandrayaan-3 will also make it the surface mission closest to the lunar south pole to date, a region of the moon that has been found to be **geologically unique** and host to spots in permanent shadow.
 - To study these and other features, the mission has **six scientific payloads**. A seventh instrument, on the **propulsion module**, will profile the signs of life on earth to help scientists look for similar signs on planets beyond the solar system

The mission will play out with India's decision to join the **Artemis Accords** in the backdrop; in this group, if the mission succeeds, the country will be just the second to have soft-landed a rover on the moon.

- The importance of this feat cannot be overstated: a slew of public and private moon-landing missions is in the works worldwide as the establishment of permanent bases on the natural satellite has emerged as a major geopolitical goal.
- The **Accords define** the U.S.-led axis while China and Russia are working on an 'International Lunar Research Station'.

Artemis Accords

The Artemis Accords are a non-binding set of principles designed to guide civil space exploration and use in the 21st century. These principles will help to ensure the maintenance of a safe and predictable outer space environment.

NASA, in coordination with the U.S. Department of State, established the Artemis Accords in 2020, together with seven other founding member nations.

Artemis Accords signatories as of May 30, 2023: Australia, Bahrain, Brazil, Canada, Colombia, Czech Republic, France, Israel, Italy, Japan, Luxembourg, Mexico, New Zealand, Nigeria, Poland, the Republic of Korea, Romania, Rwanda, Saudi Arabia, Singapore, Spain, Ukraine, the United Arab Emirates, the United Kingdom, and the United States.

Principles of Artemis Accord: Peaceful Purposes, Transparency, Interoperability, Emergency Assistance, Registration of Space Objects, Release of Scientific Data, Protecting Heritage, Space Resources, Deconfliction of Activities, Orbital Debris and Spacecraft Disposal.

Taken together, Chandrayaan-3 offers opportunities for India to lead the world's response to the moon's growing importance in the scientific and the political milieu.

Mission Objectives

Chandrayaan-3, with its Lander and Rover configuration, is driven by several key objectives that aim to advance our understanding of the Moon and demonstrate India's capabilities in lunar exploration. The mission objectives of Chandrayaan-3 are as follows:

Demonstrate Safe and Soft Landing on Lunar Surface

- Showcase the ability to achieve a precise and controlled soft landing on the lunar surface.
- Establish India's competence in executing safe landings on extra-terrestrial bodies and enhance the success rate of lunar missions.
- Develop crucial technologies and techniques required for future missions, including crewed lunar landings and robotic exploration.

Demonstrate Rover Roving on the Moon

- Showcase the mobility and operational capabilities of the Rover module on the lunar surface.
- Validate the rover's ability to traverse the lunar terrain, withstand the harsh lunar environment, and perform scientific investigations.
- Lay the foundation for future rover missions, enabling extensive exploration, sample collection, and scientific analysis across the lunar surface.

Conduct In-situ Scientific Experiments

- Carry out scientific experiments to study the lunar surface and its environment.
- Gather data on the Moon's geological properties, composition, regolith characteristics, and potential resources.
- Enhance our understanding of the Moon's formation, evolution, and the processes that have shaped its surface. Provide valuable insights for future lunar missions, resource utilization, and potential human exploration.

Development and Timeline

Chandrayaan-3, the lunar mission by the Indian Space Research Organisation (ISRO), underwent a comprehensive development phase to ensure its success. The timeline of the mission showcases the efforts made to overcome challenges and prepare for its launch. Here are the key details:

- **Announcement and Design Phase: January 2020:** Chandrayaan-3 mission was

Destination moon

Chandrayaan-3 consists of a lander module (LM), a propulsion module (PM) and a rover. It was launched by the LVM3-M4 on July 14. The integrated module (comprising LM, PM and rover) was placed in an elliptical parking orbit (EPO) of size ~170 x 36500 km

LAUNCH VEHICLE	PROPULSION MODULE (PM)	LANDER
LVM3-M4	Mission life: PM will carry the lander and the rover from the injection orbit to a circular lunar orbit. Its payload will be operational for 3 to 6 months	Mission life: 1 lunar day (14 earth days)
Height: 43.5 m	Mass: 2,145 kg	Mass: 1,749.86 kg including rover
Lift-off mass: 642 t	Power: 738 W, summer solstice and with bias	Power: 738 W (winter solstice)
	Payload: 1	Payloads: 4

ROVER

Mission life: 1 lunar day.
Mass: 26 kg
Power: 50 W
Payloads: 2

INTEGRATED MODULE PHASE

Chandrayaan-3 will follow the same trajectory as its predecessor. The Propulsion Module will orbit the Earth several times before slingshotting towards the Moon. Once within the Moon's gravitational pull, the module will lower itself to a 100 x 100 km circular orbit. Subsequently, the Lander will detach and descend to the surface

Distance between earth and moon: 3,84,400 km

When the lander will land on the moon: The landing is scheduled for August 23-24

Where will the lander land?
 It is likely to land near the moon's south pole and operate for one lunar day, equivalent to 14 earth days

first announced, outlining the objective of developing and demonstrating new technologies for interplanetary missions.

Scientists and engineers initiated the design and assembly process for the spacecraft, including the Lander module with enhanced impact legs.

- **Impact of COVID-19 Pandemic:** The development and assembly process of Chandrayaan-3 faced delays due to the COVID-19 pandemic, which impacted manufacturing and testing schedules. The pandemic's first and second waves caused additional setbacks, despite the propulsion systems being nearly ready by May 2021.
- **Launch Preparation: July 14, 2023:** The much-anticipated launch of Chandrayaan-3 took place at 2.35 p.m. IST from the Satish Dhawan Space Centre, Sriharikota.
 - The launch vehicle used was the GSLV-Mk3, capable of delivering the integrated module to space.
- **Journey and Lunar Orbit:** After liftoff, the integrated module embarked on a journey of approximately one month to reach the Moon.
 - The propulsion module accompanied the Lander and Rover configuration until they reached a lunar orbit of 100 kilometers in a circular path.
- **Landing: August 23-24, 2023:** The landing of the Lander module is scheduled in the Moon's South Polar Region.
 - The descent is expected to be a crucial and nerve-wracking phase, often referred to as the "15 minutes of terror."
- **Operation Duration:** The Rover module, named 'Pragyan,' will operate on the lunar surface for approximately one lunar day, equivalent to 14 Earth days.
 - During this time, the Rover will carry out in-situ chemical analysis and scientific experiments, enhancing our understanding of the lunar environment.

Components of Chandrayaan-3: Lander and Rover Configuration

Chandrayaan-3 consists of two vital components: The Lander and Rover configuration. These components work to facilitate safe landing on the lunar surface and enable extensive exploration.

Lander Payloads

The Lander module of Chandrayaan-3 is equipped with a range of scientific payloads designed to carry out experiments and collect valuable data on the lunar surface. These payloads enable researchers to gain insights into various aspects of the Moon's environment and composition. Here are the details of the payloads:

Chandra's Surface Thermophysical Experiment (ChaSTE)

- **Objective:** Measure the thermal conductivity and temperature of the lunar surface.
- **Significance:** Provides valuable insights into the thermal properties of the Moon's regolith, helping understand heat distribution and effects of solar radiation.
 - Contributes to studying the Moon's geological processes, surface features, and geophysical characteristics.

Instrument for Lunar Seismic Activity (ILSA)

- **Objective:** Measure and analyze seismic activity around the landing site.
- **Significance:** Provides crucial information about the Moon's internal structure, subsurface composition, and tectonic activity.
 - Enhances our understanding of the Moon's geology, seismicity, and potential geological hazards.

Langmuir Probe (LP)

- **Objective:** Estimate plasma density and its variations in the lunar environment.
- **Significance:** Provides insights into the presence and behavior of plasma in the Moon's exosphere.
 - Contributes to the study of the Moon's interaction with the solar wind and its impact on the lunar surface.

Passive Laser Retroreflector Array

- **Objective:** Accommodated from NASA, used for lunar laser ranging studies.
- **Significance:** Allows for precise distance measurements between Earth and the Moon, aiding in the study of lunar dynamics and geodesy.
 - Supports ongoing scientific research and enhances our understanding of the Moon's orbit and gravitational interactions.

Advanced Technologies in Lander

These advanced technologies incorporated in the Lander module of Chandrayaan-3 enhance its capabilities and ensure precise landing, navigation, and control during the mission.

Technology	Description
Altimeters	Laser and RF-based altimeters used for precise measurement of altitude during descent.
Velocimeters	Laser Doppler Velocimeter and Lander Horizontal Velocity Camera to monitor landing velocity.
Inertial Measurement	Laser gyro-based Inertial referencing and Accelerometer package for precise navigation and control.
Propulsion System	Throttleable Liquid Engines (800N), attitude thrusters (58N), and Throttleable Engine Control Electronics.
Navigation, Guidance & Control	Powered Descent Trajectory design and associated software elements for precise control during descent.
Hazard Detection and Avoidance	Lander Hazard Detection & Avoidance Camera and Processing Algorithm to detect and avoid potential hazards.
Landing Leg Mechanism	Mechanism for the safe deployment and landing of the Lander module.

Rover Payloads

The Rover module of Chandrayaan-3 is equipped with advanced scientific payloads that enable in-situ analysis and examination of the lunar surface. These payloads provide valuable data on the elemental and chemical composition of the vicinity of the landing site. Here are the details of the rover payloads:

Alpha Particle X-ray Spectrometer (APXS)

- **Objective:** Determine the elemental composition of the lunar surface.

Laser Induced Breakdown Spectroscopy (LIBS)

- **Objective:** Derive the chemical composition of the lunar surface through laser-induced plasma spectroscopy.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Significance: Enables the identification and quantification of various elements present in the vicinity of the landing site. <ul style="list-style-type: none"> ◦ Contributes to our understanding of the Moon's geological history, surface processes, and the distribution of different elements. | <ul style="list-style-type: none"> • Significance: Provides detailed information about the chemical makeup of the lunar regolith. <ul style="list-style-type: none"> ◦ Helps in identifying specific minerals, analyzing geological processes, and assessing the potential resources available on the Moon. |
|--|---|

Significance of Chandrayaan-3



- **Advancing Lunar Exploration:** Chandrayaan-3 demonstrates India's commitment to furthering lunar exploration and expanding our knowledge of the Moon.
- **Technological Advancements:** The mission allows for the development and demonstration of new technologies required for interplanetary missions, including safe landing and roving capabilities.
- **Scientific Discoveries:** Chandrayaan-3's payloads enable the study of the Moon's surface, composition, thermal properties, seismic activity, and potential resources, contributing to our understanding of lunar geology and evolution.
- **Global Collaborations:** Collaborations with international partners, such as NASA and Indo-Japan initiatives, facilitate knowledge sharing, data exchange, and collective efforts in lunar research.

Future Plans



- **Resource Utilization:** Chandrayaan-3 and subsequent missions aim to explore the Moon's resources, such as water ice, which could potentially support future human missions and sustainable space exploration.
- **Lunar South Pole Exploration:** Chandrayaan-3's focus on the lunar South Pole region, with its permanently shadowed craters, holds promise for discovering water molecules and preserved records of the Moon's history.
- **Human Lunar Missions:** Chandrayaan-3's technological advancements lay the foundation for future crewed missions to the Moon, facilitating safe landings and providing crucial knowledge for human exploration and habitation.
- **Enhanced Scientific Missions:** ISRO plans to conduct more lunar missions, with advanced scientific payloads to explore different regions of the Moon and study its diverse geological features.
- **International Collaborations:** Collaborative efforts with international partners, space agencies, and scientific communities will foster knowledge sharing, joint missions, and comprehensive lunar research.
- **Deep Space Missions:** ISRO envisions undertaking deep space missions, including Mars exploration and planetary missions to expand our understanding of the solar system and beyond.

ISRO's vision extends beyond Chandrayaan-3, with plans to expand lunar research and exploration. The agency aims to build upon the mission's success and continue to contribute to scientific discoveries and technological advancements.

Conclusion

Chandrayaan-3, India's ambitious lunar mission, marks a significant milestone in the country's space exploration endeavours. With its focus on safe landing, roving capabilities, and in-situ scientific experiments, the mission showcases India's commitment to advancing lunar research, technological innovations, and international collaborations.

Chandrayaan-3 represents a significant achievement for India's space program, serving as a testament to the nation's scientific prowess and its quest to unravel the mysteries of the Moon. With its ambitious objectives, advanced technologies, and future plans, Chandrayaan-3 propels India forward in its pursuit of knowledge and exploration beyond Earth's boundaries.

Forest (Conservation) Amendment Bill, 2023

Context: The Forest (Conservation) Amendment Bill, 2023, is under deliberation by a Joint Committee of Parliament, addressing the challenge of balancing industrial development and forest conservation.

Key Highlights and Facts

- The Forest (Conservation) Act, 1980, has regulated industrial exploitation and imposed costs on forestland usurpation.
- The T.N. Godavarman Thirumalpad case broadened the scope of protection to even unclassified forests.
- India's forest cover has seen marginal increases, with stagnant or incremental growth inside officially recorded forests.
 - Tree cover in orchards, plantations, and village homesteads is on the rise, contributing to India's claim of 24% of its area being under forest and tree cover.
 - India aims to increase this to 33% and create a carbon sink of 2.5 billion to 3 billion tons of CO₂ by 2030 as part of its international climate commitments.
- The existing Forest (Conservation) Act, 1980, was deemed insufficient for incentivizing private agro-forestry and tree plantation activities.
- From 2019 to 2021, India added 1,540 sq. km of forest cover, with 1,509 sq. km outside recorded forest area.

The new amendments to the Forest Act define the limits of the 1996 judgment and incentivize afforestation for commercial purposes.

- Only land recorded as 'forest' in any government record on or after 1980 would invoke provisions of the Act.
- Forest land authorized by states for non-forestry uses between 1980-1996 would not invoke provisions of the Act.
- States can no longer classify unclassified forest land or patches of trees with forest-like characteristics as 'forest land' under the amendments.
- Forest land up to 100 km near India's borders can be appropriated for "strategic and security" purposes without central approval.
- Critics argue that these amendments do not contribute to regenerating natural forests and primarily encourage afforestation for commercial gains.
- The parliamentary committee has not expressed any opinion or suggestion on the way forward, despite its statutory privileges.
- Grooming private forests might appear beneficial, but relying on them as a permanent carbon stock is questionable due to market incentives favoring their use as 'carbon credits.'
- While climate realities may require changes to conservation laws, these changes should be supported by rigorous scientific evidence.

Forest Conservation Laws in India

Law	Purpose and Key Provisions
Indian Forest Act, 1927	<ul style="list-style-type: none"> Provides an overarching framework for forest management in India. Establishes three categories of forests: reserved forests, protected forests, and village forests.
Wildlife Protection Act, 1972	<ul style="list-style-type: none"> Single most significant statute on wildlife conservation in India. Creation and legal protection of over five hundred National Parks and Sanctuaries termed protected areas (PAs).
Constitution of India	<ul style="list-style-type: none"> Article 48-A (1976): The State shall endeavor to protect and improve the environment and safeguard forests and wildlife. Article 51-A(g) (1976): Fundamental duty of citizens to protect and improve the natural environment, including forests, lakes, rivers, and wildlife.
The Forest Conservation Act, 1980	<ul style="list-style-type: none"> Safeguards India's forests and regulates utilization of forest resources by industries and forest-dwelling communities. Covers resources like timber, bamboo, coal, and minerals.
The Environment Protection Act, 1986	<ul style="list-style-type: none"> Empowers the Central Government to take necessary measures for environmental protection and preventing environmental pollution. Grants power to issue directions, including closure or regulation of industries and services causing environmental harm.
The Forest Rights Act, 2006	<ul style="list-style-type: none"> Protects the rights of tribal and forest-dwelling communities dependent on forests for their livelihoods. Recognizes and secures individual and community rights over forest lands and resources.
The Biological Diversity Act, 2002	<ul style="list-style-type: none"> Enacted to comply with the United Nations Convention on Biological Diversity 1992. Aims to conserve biological diversity, promote sustainable use, and ensure equitable sharing of benefits arising from biodiversity. Establishes a three-tier structure of authorities: National Biodiversity Authority (NBA), State Biodiversity Boards, and Biodiversity Management Committees at the local level.

Challenges Associated with Forests

Shrinking Forest Cover

Resource Access Conflict

Climate Change Impact

- **Shrinking Forest Cover:** The current forest cover falls short of the recommended 33% set by the National Forest Policy, leading to concerns about ecological stability. The need to protect and expand forests is vital to maintain a healthy environment.
- **Resource Access Conflict:** Conflicts arise between local communities and commercial interests like pharmaceutical or timber industries, as they compete for access to forest resources. These conflicts can lead to social tensions and violence, making it crucial to find a balance between conservation and resource utilization.
- **Climate Change Impact:** Forests face disruptions due to climate change, such as insect outbreaks, invasive species, wildfires, and storms, which affect forest productivity and species distribution. By 2030, a significant portion of India's forests could experience the effects of rising temperatures and climate change.

Tree and Forest Cover

Tree cover and forest cover are not the same. **Tree cover** includes all areas with trees, whether they are part of a forest or not. On the other hand, **forest cover** specifically refers to areas with dense trees covering more than 10% of the land and with an area of more than 1 hectare. This means that every forest cover is also tree cover, but not all tree cover qualifies as forest cover.

Key Finding of Forest Report 2021

- **Tiger Corridors and Reserves:** The forest cover in tiger corridors increased by 15 sq km (0.32%) between 2011 and 2021 but decreased by 22.6 sq km (0.04%) in tiger reserves. Over the last decade, forest cover increased in 20 tiger reserves and decreased in 32.
- **Increase in Forest and Tree Area:** The forest and tree cover in India increased by 1,540 sq km over the past two years. India's forest cover is now 7,13,789 sq km (21.71% of the country's geographical area), an increase from 67% in 2019. Tree cover also increased by 721 sq km.
- **States with Highest Increase in Forest Cover:** Telangana (3.07%), Andhra Pradesh (2.22%), and Odisha (1.04%) have shown the highest increase in forest cover.
- **States with Loss in Forest Cover:** Five states in the Northeast, namely Arunachal Pradesh, Manipur, Meghalaya, Mizoram, and Nagaland, have shown a loss in forest cover.
- **States with Highest Forest Area:** Madhya Pradesh has the largest forest cover in the country, followed by Arunachal Pradesh, Chhattisgarh, Odisha, and Maharashtra in terms of total forest area.
- **Forest Prone to Fires:** 46% of the forest cover in India is prone to forest fires, with varying degrees of vulnerability.
- **Impact of Climate Change on Forests:** By 2030, 45-64% of forests in India will experience the effects of climate change and rising temperatures. Forests in almost all states, except Assam, Meghalaya, Tripura, and Nagaland, will be highly vulnerable climate hotspots.

Status of Forests in India

According to the **India State of Forest Report-2021**, the country has seen a positive increase in forest and tree cover, growing by 2,261 square kilometers since 2019.

- Currently, India's total forest and tree cover amounts to 80.9 million hectares, covering approximately 24.62% of the country's geographical area.
- Some states and union territories have made significant efforts in forest conservation, with 17 of them having more than 33% of their area under forest cover.
- Notably, Madhya Pradesh leads the pack with the largest forest cover, followed by Arunachal Pradesh, Chhattisgarh, Odisha, and Maharashtra.

- **Mangroves:** India's total mangrove cover is 4,992 sq. km, with Odisha, Maharashtra, and Karnataka showing the highest increase in mangrove cover.
- **Total Carbon Stock:** The total carbon stock in India's forests is estimated at 7,204 million tonnes, showing an increase of 79.4 million tonnes since 2019.
- **Bamboo Forests:** Bamboo forests have experienced significant growth, increasing from 13,882 million culms in 2019 to 53,336 million culms in 2021.
- **Decline in Natural Forests:** There is a decline of 1,582 sq km in moderately dense or natural forests, despite an increase of 2,621 sq km in open forest areas. The report highlights concern about the degradation of forests in the country.
- **Decline in Forest Cover in Northeast:** The forest cover in the northeast has shown an overall decline of 1,020 sq km, with the region accounting for 98% of the total geographical area but only 23.75% of total forest cover. This decline has been attributed to natural calamities and anthropogenic activities such as shifting agriculture, development, and extensive deforestation.

Tree canopy density	2001	2021	Change
10% to 40% (Open)	2,58,729	3,07,120	4,391
Above 40%	4,16,809	4,06,669	-10,140
Total forest cover	6,75,538	7,13,789	38,251

The Forest (Conservation) Act of 1980

The Forest (Conservation) Act of 1980 is an important legislation in India aimed at safeguarding the country's forests and promoting reforestation efforts. Here are the key aspects of the Act:

- **Protection of Forests:** The primary objective of the Act is to protect India's forests from being exploited for industrial purposes. It serves as a measure to conserve and preserve these vital natural resources.
- **Regulation of Forest Resources:** The Act grants the Central government the authority to regulate the extraction of various forest resources, ranging from timber and bamboo to coal and minerals. This control extends to both industries and forest-dwelling communities.
- **Protection Criteria:** Initially, the Act offered protection only to areas that were officially designated as 'forest' in the records of the Central or State governments. This limited the scope of protection to specified forested areas.
- **Expanding Protection:** A significant milestone in the Act's implementation came through a landmark Supreme Court judgment in the TN.Godavarman Thirumulpad v Union of India (1996) case. This judgment broadened the protection offered under the Act.
- **Inclusion of Dictionary Definition:** As per the Supreme Court ruling, areas that meet the 'dictionary' meaning of forests are now protected, even if they have not been officially notified as forests in government records or historical documents.

What is the Need of Amendment?

The amendment seeks to address several key aspects related to India's forest policy of 1988:

- The current policy aims to have approximately one-third of the country's geographical area under forest cover. However, the actual extent of forest cover falls short of this target, with only around 21% of the land falling under forested areas. When including tree cover outside of recorded forest areas, plantations, and orchards, the total coverage increases to about 24%.

- One of the primary reasons for the amendment is to **improve tree cover and enhance the country's carbon sink capacity**. To achieve this, the proposed amendment would allow private parties to retrospectively designate private plantations or reforested lands as forests. Currently, such private plantations may lose their rights over the land due to the legal distinction between forests and plantations.
- The amendment seeks to **incentivize private parties** to participate in the development of plantations in degraded forests or the restoration of tree patches. By recognizing these efforts as part of the forest cover, the amendment aims to boost the overall tree cover in the country and strengthen India's capacity to sequester carbon.
- Additionally, the proposed amendment aims to **regulate and curb undesirable actions by the states**. Currently, some states are allocating forest tracts that were meant for plantations to companies for mining operations. The amendment would address such misallocation issues and ensure that forest tracts are used in accordance with the intended purpose of promoting forestry and conservation.

Objectives of the Forest (Conservation) Amendment Bill, 2023

Definition and Demarcation of Forests

- Provide a clear and comprehensive definition of forest.
- Establish criteria for demarcating forest areas.

Definition and Demarcation of Forests

Renaming of the Act

- Change the name of the Act from Forest (Conservation) Act to Van (Sanrakshan Evam Samvardhan) Adhiniyam, which translates to Forest Conservation and Augmentation.

Renaming of the Act

Applicability of the Act

- Specify that the Act will apply only to lands officially notified as forest in government records on or after 1980.

Applicability of the Act

Exemptions and Strategic Projects

- Exempt forest land located within 100 km of international borders and intended for strategic projects of national importance.
- Exempt land ranging from 5 to 10 hectares for security and defense projects.

Exemptions and Strategic Projects

Encouraging Reforestation and Carbon Sink Development

- Address the issue of disincentives faced by private parties interested in developing plantations in degraded forests or restoring tree patches.
- Incentivize reforestation efforts and support India's commitment to developing a carbon sink of three billion tonnes by 2030, as per its obligations under the Paris Agreement.

Encouraging Reforestation and Carbon Sink Development

Issues & Criticisms of the Forest (Conservation) Amendment Bill, 2023



Removing the Forest Protection

The amendment Bill limits the applicability of the FC Act to only officially recorded 'forest' lands, excluding areas with forest-like characteristics that are not notified as such.

- This could result in the removal of the Act's protection from millions of hectares of such land.
- Approximately 28% of India's forest cover, equivalent to 197,159 sq km, falls under this category.

Freeing up the Land

- The Bill aims to achieve the objectives of building forest carbon stock and promoting afforestation by restricting the FC Act's scope.
- This would release land that is currently categorized as unrecorded forests.

No Specific Conditions for Denying Deforestation Permission

- The environment ministry does not lay down specific conditions for out rightly denying permission for deforestation in the context of development projects.
- This lack of clarity can lead to potentially harmful practices, such as planting mangroves on mudflats or converting grasslands and open natural ecosystems for solar parks.

Beyond Compensation

- The impacts of development projects on livelihood, biodiversity, hydrology, and climate cannot be adequately compensated through compensatory afforestation alone.
- The consequences of these projects go beyond mere financial compensation.

Affecting Indigenous Communities

- The review of the FC Act should consider concessions for land traditionally controlled by indigenous and forest communities.
- The diversion of forest land for development projects has eroded the scope for their consent, and extensive plantations on their dependent lands may proceed without their say.

Choosing Plantation over Forests

- Natural forests provide a range of ecosystem services crucial for the survival and well-being of numerous species.
- Man-made plantations lack the same level of ecological richness and direct livelihood support for millions of people.

Opposition and Criticism

- **Northeast States' Opposition:** Some northeastern states opposed the use of forest land for defense purposes without their consent.
- **Environmental Groups' Concerns:** Environmental organizations criticized the removal of Central protection for deemed forests and the potential introduction of tourism in these areas, which could endanger biodiversity and forest conservation efforts.
- **Name Change Controversy:** The proposal to change the name of the Act to Van (Sanrakshan Evam Samvardhan) Adhinyam faced objections for being non-inclusive and excluding certain regions' populations.

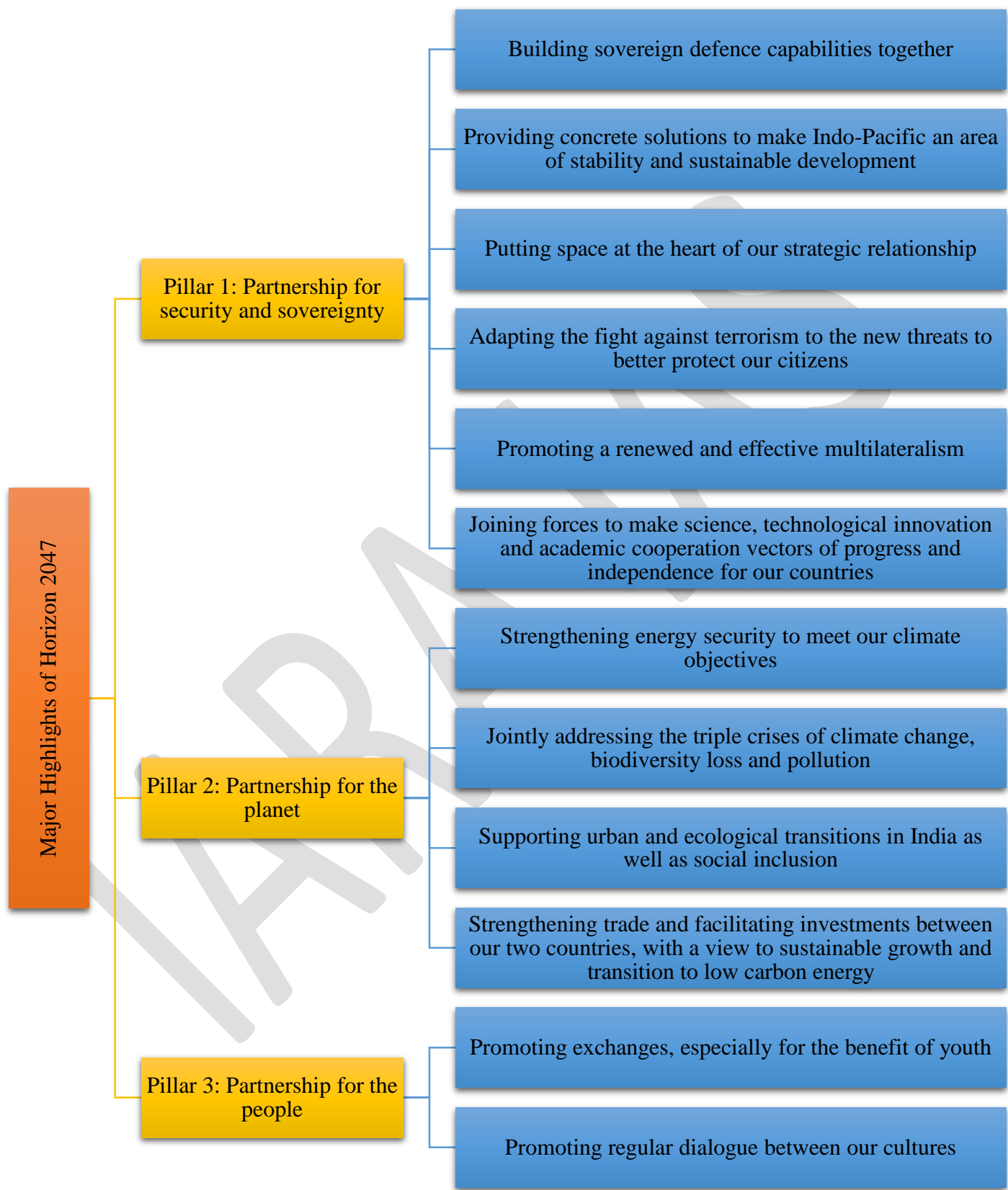
India-France Relations: Horizon 2047

Context: Celebrating 25 years of the India-France strategic partnership was at the top of the agenda during Prime Minister Narendra Modi's two-day visit to France and his meetings with French President Emmanuel Macron last week, which ended with a number of agreements and a slew of defence deals.

Key Highlights

- PM was invited to be the chief guest at the Bastille Day parade - it saw Indian tri-service participation - and was the second time that an Indian Prime Minister has been extended the invitation (Manmohan Singh was the first in 2009).
- Important one among the agreements was the strategic road map for the next 25 years - "Horizon 2047" — which includes cooperation in **defence, space, nuclear energy, climate change** and **green transitions** as well as **education** and **people-to-people ties**.
- Another road map was released on **how to cooperate further in the Indo-Pacific region**, which includes military and naval exchanges and a trilateral development fund to help countries in the region.
- There were also the decisions, in principle, to buy **26 more Rafale fighter jets** off-the-shelf (Rafale-M), this time for the Indian Navy; **three more Scorpene submarines** in continuation to the purchases of 2008, and an agreement between **Hindustan Aeronautics Limited and Safran for helicopter engines**.

India and France are long-standing strategic partners in the Indo-Pacific. Since the establishment of diplomatic relations between the two countries in 1947, and the upgrading of the partnership to the strategic level in 1998, our two countries have consistently acted together, building on a high level of mutual trust, shared commitment to the principles enshrined in the United Nations Charter and common values rooted in international law.



Pillar 1: Partnership for Security and Sovereignty

- **Building Sovereign Defence Capabilities Together**
 - ✓ Industrial cooperation for motorization of heavy-lift helicopters under the Indian Multi Role Helicopter [IMRH] programme with Safran Helicopter Engine, France.
 - This is also reflective of the French commitment to support technology transfer and Make in India.
 - ✓ India and France hail the success of the first Scorpene submarine construction programme (P75 – Kalvari), a model of Make in India and the sharing of naval expertise between companies in the two countries.
 - ✓ MoU between Garden Reach Shipbuilders and Engineers Ltd. (GRSE), and Naval Group France, a leader in European Naval Defence Industry to collaborate in the field of surface ship that caters to fulfil the requirement of India and International Naval forces.
 - ✓ In view of the uptick in defence industrial collaborations between the two countries, India is setting up a Technical Office of the DRDO at its Embassy in Paris.
- **Providing Concrete Solutions to Make Indo-Pacific an Area of Stability and Sustainable Development**
 - ✓ India and France are determined to strengthen the cooperation initiated under the Joint Strategic Vision of India-France Cooperation in the Indian Ocean Region adopted in 2018 and have therefore adopted a new Indo-Pacific Roadmap. They are committed to work together to
 - Secure their own economic and security interests;
 - Ensure equal and free access to global commons;
 - Build partnerships of prosperity and sustainability in the region thanks to common development action;
 - Advance the rule of international law;
 - Work with others in the region and beyond and build a balanced and stable order in the region, with respect for sovereignty and territorial integrity.
 - ✓ **Trilateral cooperation** with like-minded partners in the region will be a key pillar of cooperation in the Indo-Pacific region in particular through the dialogue launched with the United Arab Emirates, a strategic partner for both countries, on February 4th, 2023 at ministerial level, as well as with Australia, launched in September 2020.
 - ✓ Through a unique model of Triangular Development Cooperation, India and France will work on setting up **the Indo-Pacific Triangular Cooperation (IPTDC) Fund** aimed at supporting climate and SDG focused innovations and Start-ups from third countries of the Indo-Pacific, with the goal of facilitating the scaling up of green technologies being developed in the region.
- **Putting Space at the Heart of our Strategic Relationship**
 - ✓ India and France have decided to deepen their cooperation in all areas of the space sector by strengthening their programmes of common interests including:
 - **Scientific and commercial partnership:** French National Centre for Space Studies (CNES) and ISRO will strengthen their partnership mainly around two structuring axes: climate and environment, with the development of the TRISHNA mission and activities within the Space Climate Observatory (SCO) on topics such as water resource management, marine resources and air quality monitoring; space exploration (Mars, Venus), maritime monitoring, launchers and manned flights in connection with India's Gaganyaan programme. NSIL and Arianespace also plan to collaborate in commercial launch services.
 - **Resilience of access to space:** India and France will work to strengthen their synergies in terms of sovereign access to space and the development of forward-looking technologies to boost the resilience of access to space with involvement of their space industries.

- **Adapting the Fight Against Terrorism to the New Threats to Better Protect our Citizens**
 - ✓ They will strengthen cooperation on all aspects which would include operational cooperation, multilateral action, countering online radicalisation and combating financing of terrorism, particularly through the No Money for Terror (NMFT) initiative and the Christchurch Call to Action to Eliminate Terrorist and Violent Extremism Content Online.
 - ✓ They welcome the work towards the formalisation of cooperation between the National Security Guard (NSG) of India and the Groupe d'intervention de la Gendarmerie nationale (GIGN) of France through the Letter of Intent between India and France for Cooperation in the field of Counterterrorism.
 - This will help deepen their cooperation on internal security and the fight against transnational organized crime, including human trafficking, financial crime and environmental crime.
- **Promoting a Renewed and Effective Multilateralism**
 - ✓ India and France reject attempts to undermine the fundamental principles of the international order and in particular the principles enshrined in the United Nations Charter and are committed to reforming global governance to reflect contemporary new realities.
 - ✓ India and France promote the reform of the Security Council to enlarge membership in its two categories. They support the credentials of the G4 and therefore those of India, to join the Security Council as new permanent members and support better representation from Africa including among the permanent members, and to pursue conversations on the regulation of the use of veto in case of mass atrocities.
- **Joining Forces to make Science, Technological Innovation and Academic Cooperation Vectors of Progress and Independence for our countries**
 - ✓ India and France agree to further deepen their cooperation to promote research partnerships and technologies, which are essential to ensure our countries' self-reliance:
 - Scientific cooperation: creating an India-France Joint Strategic Committee and strengthening of their scientific and technological cooperation tools, in particular the Indo-French Centre for the Promotion of Advanced Research (CEFIPRA).
 - Critical technologies: bilateral cooperation on advanced digital technologies, particularly in the fields of supercomputing, cloud computing, Artificial Intelligence and quantum technologies, including in the framework of the Global Partnership on Artificial Intelligence (GPIA).
 - Health Cooperation: Letter of Intent for Cooperation in the field of Health and Medicine which provides the basis for cooperation in new areas including Digital Health, AI for Healthcare, Medical Waste Treatment Technology, Biotechnology, One Health approach for fight against antimicrobial resistance, exchange and training of medical doctors, among others.
 - Cyber Cooperation: India and France reaffirmed the growing strategic importance of cyberspace in bilateral relationship and underscored the role of bilateral cyber dialogue in deepening cyber cooperation.
 - Digital regulation: India and France encourage dialogue between French actors such as CNIL, the French data protection authority and relevant Indian counterparts. At the European level, they support close discussions with the European Union on digital regulation and data privacy. They support the objectives of the partnership on information and democracy.
 - Cooperation on Digital Technologies: Both the countries commit to further deepening their cooperation in areas like digital public infrastructure, cybersecurity, Start up, AI, supercomputing, 5G/6G telecom and digital skills development.

Pillar 2: Partnership for the Planet

- **Strengthening energy security to meet our climate objectives**
 - ✓ Cooperating closely on transition towards a low carbon economy, with the triple objective of meeting the growing demand for energy driven by India's urbanization and industrialization, increasing energy security and achieving the SDG7 and Paris Climate Agreement objectives.
 - ✓ Offer sustainable development solutions to the countries of the region through multilateral and third country initiatives, including the Indo-Pacific Parks Partnership, International Solar Alliance and the Indo-Pacific Oceans Initiative (IPOI) to protect marine and terrestrial biodiversity.
 - ✓ French organizations will also work with Indian counterparts to strengthen training in nuclear field and encourage/facilitate internships for Indian students.
 - ✓ Both countries also agreed to work on establishing a partnership on low and medium power modular reactors or Small Modular Reactors (SMR) and Advanced Modular Reactors (AMR).
 - ✓ Decarbonated hydrogen: India and France are developing close cooperation in innovation in decarbonated hydrogen production capacities and regulatory standards.
 - ✓ France supports India's efforts to develop an intelligent electricity network, reduce the energy intensity of its economy and improve the energy performance of its buildings, urban, industrial and transport facilities, building on the success of the Smart Cities programmes conducted in India. Both sides agreed to explore sharing of expertise in Energy Data collection and analysis.
- **Jointly addressing the triple crises of climate change, biodiversity loss and pollution**
 - ✓ India and France are cooperating in the area of public health in the spirit of the One Health approach, by exploring cooperation in the PREZODE initiative, participating in the negotiations of an agreement on pandemics, and bilaterally, in the areas of hospital and pharmaceutical cooperation.
 - ✓ Circular economy and plastic pollution: India and France are actively involved in the on-going negotiations of a new legally binding international instrument to end plastic pollution.
 - India and France are working to involve new countries in the Indo-French commitment on the elimination of single use plastic pollution.
 - ✓ India and France welcome the adoption of the Treaty on the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction (BBNJ) to address, in a coherent and cooperative manner, biological diversity loss and degradation of ecosystems of the ocean.
- **Supporting urban and ecological transitions in India as well as social inclusion**
 - ✓ India and France are strengthening their collaboration on solutions to support cities by promoting a circular economy with a focus on integrated waste management, involving the strengthening of waste collection & transportation, waste to wealth solutions; improving liquid and solid waste management by cities.
 - ✓ The launch of the 2nd phase of the City Investments to Innovate, Integrate and Sustain (CITIIS 2.0) programme will promote innovative solutions in this area.
 - CITIIS 2.0 also aims at promoting Climate Governance at the State level and building capacities of municipal functionaries.
 - ✓ Strengthening their cooperation on the railway sector and by exploring new solutions to address mobility issues, especially in urban areas like the projects set up in Ahmedabad and Surat.
 - ✓ Social inclusion: India and France are keen to promote a more inclusive and environmentally-friendly development and encourage initiatives that contribute to the financial inclusion of women and vulnerable populations and promote the development of priority development areas.

- **Strengthening trade and facilitating investments between our two countries, with a view to sustainable growth and transition to low carbon energy**
 - ✓ Trade: India and France are intensifying their bilateral dialogue in order to resolve as soon as possible the difficulties encountered by Indian and French exporters and investors.
 - ✓ Cross-investment: India and France encourage Indian and French companies to strengthen their ties and develop activities in both countries, notably with the aim of increasing the presence of French investors in India and Indian investors in France.

Pillar 3: Partnership for the People

- **Promoting exchanges, especially for the benefit of youth**
 - ✓ The Partnership Agreement on Migration and Mobility, which came into force in 2021, is an important step in realizing our shared commitment towards enhancing the mobility of students, graduates, academics, researchers, professionals and skilled workers.
 - ✓ India and France, on a reciprocal basis, will grant visa exemption for short stays for official passport holders and assess the effectiveness of this exemption in 2026.
 - ✓ Both countries will encourage the development of partnerships between higher education institutions, research centres and private companies to strengthen cooperation in vocational and language training.
 - ✓ Student mobility: India and France are committed to strengthen their academic ties and to foster exchanges of students. France reaffirms its ambition to welcome 20,000 Indian students by 2025 and raise this ambition to 30,000 in 2030.
- **Promoting regular dialogue between our cultures**
 - ✓ Cooperation in the field of museums and heritage: As nations endowed with rich culture and history, India and France will intensify their joint work to showcase their heritage and pass it on to future generations. India and France welcome the signing of the Letter of Intent for the National Museum of India project.
 - ✓ Cinema: France, the largest film market in Europe, and India, the largest film producer in the world, are supporting the export of their productions, the facilitation of co-productions under their Audio-Visual Co-production Agreement, and the promotion of their country's attractiveness for filming.
 - ✓ Artistic and literary cooperation: India and France share the objective of ensuring an increased level of mobility of professionals and artists between our two countries.
 - ✓ Linguistic cooperation: India and France are committed to developing the Alliances Françaises network in India and to encouraging the development of French language teaching programmes, notably by assisting in curriculum and provision of teaching learning material as well as age-appropriate textbooks, in Indian private and government schools.

Challenges in India-France Relations

Absence of Free Trade Agreement (FTA)

Defence and Security Cooperation

Trade Imbalances

Intellectual Property Rights

China's Influence

Climate Change and Energy Cooperation

- **Absence of Free Trade Agreement (FTA):** Despite good relations, India and France do not have a Free Trade Agreement, and progress on the India-EU Broad Based Trade and Investment agreement (BTIA) is also stalled.

- **Defence and Security Cooperation:** Both countries have different priorities and approaches towards defence and security cooperation. India's focus on its neighborhood and "non-aligned" policy sometimes clashes with France's global interests.
- **Trade Imbalances:** There is a trade imbalance between India and France, with France exporting more to India. This has been a concern for India, and efforts are being made to address it.
- **Intellectual Property Rights:** France has criticized India for not adequately protecting intellectual property rights, affecting French businesses in India.
- **China's Influence:** Both countries are concerned about China's increasing dominance in the Indian Ocean region, which can disrupt regional balance and security.
- **Climate Change and Energy Cooperation:** India's reliance on thermal power over solar energy hampers progress in the International Solar Alliance. Cooperation on Indo-Pacific and nuclear projects faces challenges and delays.

Way Forward

Increased Trade and Investment

Defense Cooperation

Indo-Pacific Strategy

Maritime and Security Issues

Digital Cooperation

- **Increased Trade and Investment:** Both countries can enhance bilateral trade and investment through joint ventures, expanded trade agreements, and cross-border investment promotion.
- **Defense Cooperation:** Strengthening the defense relationship can be achieved through increased cooperation in joint military exercises, technology transfers, and collaboration in defense production.
- **Indo-Pacific Strategy:** Cooperating on an inclusive, sovereign, engaging, and freedom of navigation approach to the Indo-Pacific, and building coalitions to address challenges from China and promote multilateral values.
- **Maritime and Security Issues:** Collaborating on maritime domain awareness, counter-terrorism, cybercrime, piracy, disaster relief, and the blue economy. Engaging on a multilateral level through QUAD, ASEM, and trilateral dialogues.
- **Digital Cooperation:** Fast-tracking initiatives for cooperation in data protection, data localization, investing in Indian technology, and supply chain diversification. Developing international regulations for digital data independence.

France is a crucial partner for India and can play a significant role in India's strategy in the Indo-Pacific, meeting climate goals, addressing global tech issues, and strengthening international cooperation. India and France have a similar vision for a balanced world that follows the rule of law. By working together, they believe they can create a better world order that benefits everyone. By strengthening their shared values and commitments, the partnership between France and India can reach new heights in the coming years.

ASEAN

Context: The 56th Foreign Ministers Meeting (FMM) of the Association of Southeast Asian Nations (ASEAN), the post-ministerial conferences and other related regional meetings, held in Jakarta, Indonesia in mid-July, 2023, are the best barometer to check on the Southeast Asia's latest dynamics.

- An elaborate institutional architecture created by ASEAN has become an inclusive platform that draws nations from near and far, as also all major players (the United States, China, India, Japan and Russia) engaged in shaping the strategic contestation in a vast region stretching from east Africa to the South Pacific.

What is ASEAN?

The Association of Southeast Asian Nations is a regional organization established to promote political and social stability amid rising tensions among the Asia-Pacific's post-colonial states.

- The motto of ASEAN is "One Vision, One Identity, One Community."
- 8th August is observed as ASEAN Day.
- ASEAN Secretariat is located in Indonesia, Jakarta.

Recent Developments

- The 24th ASEAN-India Senior Official's Meeting (SOM) was hosted in Delhi.
- India and ASEAN celebrated the 30th anniversary of their Dialogue Relations.
- In the 2nd ASEAN Digital Ministers' (ADGMIN) Meeting with India, the two sides finalized the India-ASEAN Digital work plan 2022 for future collaboration in the field.

Background of ASEAN

Event Year	Event Description
1967	ASEAN was established with the signing of the ASEAN Declaration (Bangkok Declaration) by its founding fathers. Founding Fathers of ASEAN are: Indonesia, Malaysia, Philippines, Singapore, and Thailand.
1990s	Membership doubled after the changing conditions in the region following the end of the Vietnam War in 1975 and the Cold War in 1991. Addition of Brunei (1984), Vietnam (1995), Laos, and Myanmar (1997), and Cambodia (1999).
1995	Members signed a deal to create a nuclear-free zone in Southeast Asia.
1997	Adoption of ASEAN Vision 2020.
2003	Bali Concord II for the establishment of an ASEAN Community.
2007	Cebu Declaration, to accelerate the establishment of ASEAN Community by 2015.
2008	ASEAN Charter comes into force and becomes a legally binding agreement.
2015	Launch of ASEAN Community. ASEAN Community is comprised of three pillars: <ul style="list-style-type: none"> • ASEAN Political-Security Community • ASEAN Economic Community • ASEAN Socio-Cultural Community

Fundamental Principles of ASEAN

The fundamental principles of ASEAN are outlined in the Treaty of Amity and Cooperation in Southeast Asia (TAC) of 1976 and include the following:

Mutual respect for the independence, sovereignty, equality, territorial integrity, and national identity of all nations.

The right of every State to lead its national existence free from external interference, subversion, or coercion.

Non-interference in the internal affairs of one another.

Settlement of differences or disputes in a peaceful manner.

Renunciation of the threat or use of force.

Effective cooperation among themselves.

Vision and challenges

- An in-depth study of various outcome documents, particularly the joint communiqué of the FMM, is indicative of ASEAN's brave attempts to navigate through transformative changes in the present decade: the impact of the COVID-19 pandemic, economic slowdown, the Ukraine war, climate change, and, above all, the Cold War-type confrontation between the United States and China.
- As the current chair, Indonesia has portrayed ASEAN as "the Epicentrum of Growth".
- It is a well-chiselled vision with three inter-related dimensions:
 - Creating a political community that ensures regional peace and a just, democratic and harmonious environment;
 - An economic community focused on achieving a well-integrated and connected regional economy within the global economic system;
 - A socio-cultural community to enhance the quality of life of ASEAN's citizens as well as sustainable development of the region.
- Addressing fellow Foreign Ministers on July 11, Retno Marsudi, the Minister for Foreign Affairs of Indonesia and chair, argued that ASEAN's ability to manage regional and global dynamics depended on two critical ingredients that promote its unity and centrality.
 - First, it should maintain its credibility by adhering to the ASEAN Charter, and
 - Second, it should stay in the driver's seat while navigating regional dynamics.

Laudable as these goals are, they are becoming less achievable. ASEAN's internal differences on issues such as Myanmar keep surfacing in public.

- Its desire to lead the region and shape its agenda stands jeopardised by the strained relationship between the U.S. and China.

- China enjoys close political and economic relations with the ASEAN states, and at least three of them, i.e., Laos, Cambodia and Myanmar, are its virtual dependencies.
- While the Philippines has become more assertive of late in its claims in the South China Sea, the central players, Indonesia, Malaysia, Singapore and Thailand, are all favourably disposed towards Beijing.
- This explains why none of them raises its voice against China's delaying tactics in negotiating an enforceable code of conduct concerning the South China Sea.
- For many years, ASEAN and China have called for "an early conclusion of an effective and substantive" code of conduct; they did it this year too, but are content to leave the matter there.
 - No indication of a timeline is given. It is hard to find a similar example of diplomatic doublespeak.
- ASEAN also watches helplessly the acrimonious debate between the U.S. and Chinese governments, despite Washington's recent attempts to revive constructive discussions through high-level visits.
- The Chinese argument is that the U.S. is solely responsible for poor relations because it steadily refuses to accept and accommodate itself to China's 'peaceful rise.'
- The U.S., on the other hand, is no longer willing to turn a blind eye to Chinese aggressiveness and coercion in the Indo-Pacific and beyond.
- The latest manifestation of this thinking appeared in North Atlantic Treaty Organization's Vilnius summit communiqué which stated, "The People's Republic of China's stated ambitions and coercive policies challenge our interests, security and values."
- Anxious over "the intensifying geopolitical tensions in the region," ASEAN prefers to promote the ASEAN Outlook on the Indo-Pacific (AOIP).
- Its four identified areas (maritime cooperation, connectivity, UN Sustainable Development Goals 2030 and economic cooperation) make much sense to the region.
- Predictably though, despite ASEAN partners reaffirming support for the AOIP, its actual implementation remains a worry.
- ASEAN reiterated its centrality, but it appears vulnerable when the grouping is unable to forge unity on a most sensitive issue, the Myanmar situation, which has led ASEAN to bar a member-state (Myanmar) from all its political-level discussions.
- In the run-up to the FMM, Thailand, defying ASEAN's official policy, ran its own dialogue with the military government which permitted the Thai Deputy Prime Minister and Foreign Minister to have a meeting with Daw Aung San Suu Kyi, much to the discomfiture of Indonesia, the ASEAN chair.
- The split in ranks was acknowledged in the joint communiqué. This disunity could not be concealed by a routine reaffirmation of the Five-Point Consensus (5PC) forged in April 2021. Without unity, ASEAN centrality loses much of its credibility.



Institutional Mechanism of ASEAN

Aspect	Description
Chairmanship	The chairmanship of ASEAN rotates annually among the Member States, following the alphabetical order of their English names.
ASEAN Summit	The ASEAN Summit is the supreme policy-making body of ASEAN. It holds the highest level of authority and sets the direction for ASEAN policies and objectives. According to the Charter, the Summit convenes twice a year.
ASEAN Ministerial Councils	The Charter established four essential Ministerial bodies to support the ASEAN Summit: <ol style="list-style-type: none"> 1. ASEAN Coordinating Council (ACC) 2. ASEAN Political-Security Community Council 3. ASEAN Economic Community Council, and 4. ASEAN Socio-Cultural Community Council.
Decision Making	The primary mode of decision-making in ASEAN is consultation and consensus. The Charter also enshrines the principle of ASEAN-X, which allows for flexible participation. If all member states agree, a formula for flexible participation can be used, allowing those members ready to proceed while others may take more time for implementation, using a flexible timeline.

India-ASEAN Relations: A Background Overview

- In 1992, India's Look-East Policy strengthened its ties with ASEAN by capitalizing on historical and cultural connections with the region.
- In 2003, India entered a Free Trade Agreement (FTA) in goods with ASEAN, leading to bilateral trade valued at around USD 76 Billion.
- The Act East Policy, launched in 2014, brought new energy to India-ASEAN relations.

India's Relationship with ASEAN over the Years

Political

- India's political ties with ASEAN have been friendly and cooperative.
- Both sides share similar views on regional and global issues, emphasizing a rules-based international order, territorial integrity, sovereignty, and economic growth and development.
- India actively participates in various regional forums and initiatives with ASEAN, including the ASEAN Regional Forum (ARF), ASEAN Defence Ministers' Meeting + (ADMM+), and the East Asia Summit (EAS).
- In 2012, India and ASEAN elevated their relationship to a Strategic Partnership, marking a significant milestone in their bilateral ties.
- Recent years have witnessed increased cooperation in areas such as trade, investment, energy, infrastructure, and people-to-people contacts, fuelled by India's Act East Policy, which aims to strengthen engagement with ASEAN and other regional countries.

Economic

- ASEAN holds a significant position as one of India's largest trading partners.

- Bilateral investments have been substantial, with ASEAN accounting for a significant percentage of investment flows into India since 2000.
- The ASEAN-India Agreements on Trade in Service and Investments were implemented in 2015.
- India has Comprehensive Economic Cooperation Agreements (CECA) with various ASEAN countries, leading to concessional trade and increased investments.
- The ASEAN India-Business Council (AIBC) established in 2003 facilitates networking and idea sharing among key private sector players from India and ASEAN countries.

Security and Defence

- India conducts joint naval and military exercises with most ASEAN countries, fostering security cooperation.
- The maiden Asean-India Maritime Exercise took place in 2023.
- The Watershed Military Exercise was held in 2016.
- The partnership between ASEAN and India aids in countering terrorism, violent extremism, and transnational crimes through the implementation of ASEAN Plan of Action in Combating Transnational Crime (2016-2025).

Tourism and People-to-People Contact

- India is the first Dialogue Partner to sign an MoU on Strengthening Tourism Cooperation with ASEAN, enhancing tourism and people-to-people interactions.

Five Key Focus Areas for India and ASEAN

Connectivity

- Physical connectivity remains a challenge for trade between India and ASEAN. Projects like the Trilateral Highway and Data Deep-sea Port aim to overcome this infrastructure bottleneck.

Maritime Security

- The maritime space is crucial for economic development, security, and connectivity. Challenges like piracy, territorial disputes, terrorism, and China's assertiveness require attention.

Blue Economy

- India's vast Exclusive Economic Zone (EEZ) offers immense potential. Cooperation on fisheries, resource management, and conservation can be achieved through PPP models and knowledge sharing.

Strategic Relations

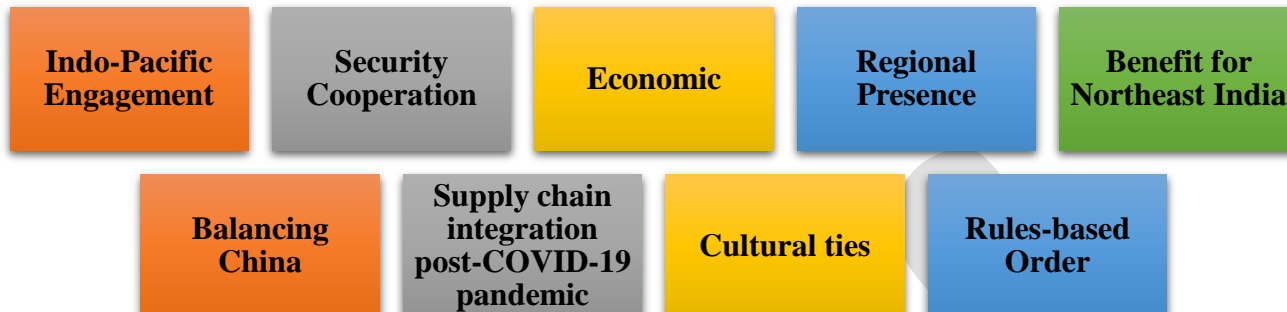
- India and ASEAN established a strategic partnership in 2012. Focused efforts include joint projects in the Indo-Pacific, cybersecurity, and interoperability of digital financial systems.

Other Areas

- Both India and ASEAN emphasize knowledge sharing and inclusive growth. They aim to play a decisive role in setting norms and promoting cooperation in cyberspace and cyber security.

Why is ASEAN important for India?

ASEAN holds immense importance for India, covering various dimensions such as political, economic, strategic, and cultural aspects. Some of the key reasons highlighting the significance of ASEAN for India:



- **Indo-Pacific Engagement:** ASEAN plays a crucial role in India's "Act East" policy and its efforts in the Indo-Pacific region.
- **Security Cooperation:** Building strong diplomatic ties with ASEAN countries is vital for both economic and security reasons for India.
- **Economic:** India ranks among the top trading and investment partners for ASEAN. The favorable business environment in ASEAN countries attracts Indian businesses for investments and trade, offering a promising market opportunity for Indian companies.
- **Regional Presence:** Collaborating with ASEAN nations allows India to enhance its presence and influence in the region.
- **Benefit for Northeast India:** Connectivity projects with ASEAN focus on the economic growth of Northeast India, benefiting the north-eastern states.
- **Balancing China:** Strengthening trade ties with ASEAN nations serves as a counterbalance to China's influence in the region, promoting India's economic growth and development.
- **Supply chain integration post-COVID-19 pandemic:** ASEAN and India are adapting to the evolving supply chains in the region and collaborating to improve trade facilitation.
- **Cultural ties:** India and ASEAN countries share profound cultural and historical bonds. Examples of this connection include the spread of Hinduism and Buddhism from India to Southeast Asia and the influence of Indian languages on the region's scripts.
- **Rules-based Order:** ASEAN holds a significant position in the rules-based security architecture of the Indo-Pacific, contributing to a stable and prosperous region.

Issues and Challenges in India-ASEAN Relations

While India and ASEAN have achieved significant progress in their bilateral relationship, several issues and challenges still impede their cooperation.



- **Trade Imbalances:** India's trade deficit with ASEAN has been increasing over the years, raising concerns about the benefits of the ASEAN-India Free Trade Agreement. In 2021-22, imports from ASEAN amounted to \$68 billion, while India's exports were \$42 billion.

- **Nature of Engagement:** India tends to engage with ASEAN countries more on a bilateral basis rather than through a multilateral approach, which could hinder deeper regional integration.
- **Competing Regional Agreements:** India's involvement in other regional agreements like the RCEP and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) may divert attention and resources from the ASEAN-India relationship.
- **Chinese Presence:** The presence of other regional powers like China may limit ASEAN's ability to fully utilize India's potential for regional stability and economic cooperation.
- **Limited Connectivity:** Despite efforts to enhance connectivity, physical and digital links between India and ASEAN countries remain constrained, impacting trade, investment, and people-to-people connections.

Way Forward/ Steps to Improve India-ASEAN Relations

**Expanding
QUAD**

**Enhancing
Maritime
Security**

**Strengthening
Cultural
Connections**

**Improving
Connectivity**

**Collaborating
in Forums**

- **Expanding QUAD:** The QUAD concept can be expanded to include ASEAN countries, creating a QUAD+ arrangement for stronger cooperation.
- **Enhancing Maritime Security:** India can fill the gap in maritime security in the Indo-Pacific region by becoming a significant military partner for ASEAN countries, especially in light of their limited military ties with China due to maritime disputes.
- **Strengthening Cultural Connections:** Both India and ASEAN can encourage tourism and cultural exchange by creatively branding and promoting travel between the two regions.
- **Improving Connectivity:** By enhancing land, air, and sea linkages, people-to-people interactions will increase, while also boosting business, investment, and tourism.
- **Collaborating in Forums:** India and ASEAN countries can work together in international and regional forums like the United Nations, East Asia Summit, and ASEAN Regional Forum to promote their common interests and goals.

Evidence-Based, Ethics-Driven Medicine

Context: The recent push to integrate ‘AYUSH’ medicinal systems into mainstream health care to achieve **universal health coverage** and ‘**decolonise medicine**’ is a pluralistic approach that would require every participating system to meet basic safety and efficacy standards.

- Homoeopathy does not meet these standards. But its supporters have argued in The Lancet Regional Health – Southeast Asia recently for expanding its use by citing demand and decolonisation, disregarding its flaws.

Efficacy and Safety of Homoeopathy

Evidence on homoeopathy’s efficacy is weak. The first carefully conducted and well-reported double-blind randomised controlled trial (RCT), the Nuremberg Salt Test (1835), noted that “the symptoms or changes which the homeopaths claimed to observe as an effect of their medicines were the fruit of imagination, self-deception and preconceived opinion — if not fraud.”

AYUSH

AYUSH stands for the medical systems practiced in India, which include **Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy**.

These systems are founded on well-defined medical philosophies, emphasizing a healthy lifestyle with proven concepts for disease prevention and health promotion. All of these systems adopt a holistic approach to health, disease, and treatment.

Integrated System Of Medicine

An integrated healthcare system involves the fusion of diverse medical approaches, including conventional medicine, traditional practices, complementary therapies, or alternative medicine. The primary objective is to deliver all-encompassing and patient-centric care.

Universal Health Coverage

The United Nations defines UHC as “everyone, everywhere should have access to the health services they need without risk of financial hardship.”

- Sustainable Development Goals target 3.8 (“Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all”) also focuses on achieving universal health coverage.

Homoeopathy

- Homoeopathy was introduced in 1839 in India by Austrian physician J.M. Honigberger.
- Homeopathy is a medical system based on the belief that the body can cure itself. Those who practice it use natural substances like plants and minerals to treat the disease. They believe these stimulate the healing process.
- This is based on the idea that a substance that causes symptoms in a healthy individual can stimulate the body’s natural healing response to overcome similar symptoms in an ill person.

While defining traditional medicine can be subjective, homoeopathy was introduced quite recently in India’s history during the colonial period for colonial benefit. Hence, its traditional tag is untenable. Of course, not all colonial-era practices need to be surrendered.

- Those with health and developmental benefits such as evidence-based elements of allopathic medicine and gender role and caste reforms should be retained.

- The argument to reject homoeopathy is not just based on its coloniality, but chiefly on the lack of evidence for efficacy, some evidence for lack of safety, no substantive progress on mechanisms of action in the last century, and homoeopathic practitioners' escapist arguments.

Principles of Homeopathy

The Law of Similar

• Homeopathy follows the principle that a substance that produces symptoms in a healthy person can be used to treat similar symptoms in a sick person.

Minimum Dose

• Homeopathic remedies are prepared through a process of dilution and potentization, which involves repeatedly diluting the original substance and shaking it vigorously. The belief is that this process enhances the remedy's healing properties while minimizing any potential toxicity.

Individualization

• Homeopathy treats each person as a unique individual and tailors the treatment to address their specific symptoms and overall constitution.

Totality of Symptoms

• Rather than focusing solely on a specific disease or isolated symptoms, homeopathy takes into account the totality of a person's physical, mental, and emotional symptoms to find an appropriate remedy.

- In the evidence-based medicine ladder, the topmost rung is **systematic reviews** and **meta-analyses** that **exhaustively pool and critically appraise evidence** from existing studies.
 - Multiple systematic reviews and meta-analyses have found that, across ailments, population groups (adults versus children), study types (placebo-controlled versus other trial types), and treatment regimes (individualised versus non-individualised), homoeopathic treatments lack clinically significant effects.
 - Reviews that somewhat support homoeopathy's efficacy also caution over the low evidence quality and raise concerns about its clinical use.
- Recently, researchers demonstrated that more than half of the **193 homoeopathic trials** in the last two decades were **not registered**.
 - Unregistered trials showed some evidence of efficacy but registered trials did not.
 - There was reporting **bias** and other **problematic practices**, throwing the validity and reliability of evidence thus generated into doubt.
- Further, the World Health Organization (WHO) has warned against homoeopathic treatments for HIV, tuberculosis, and malaria, as well as flu and diarrhoea in infants, saying it has "no place" in their treatment.
- Evidence is accumulating that homoeopathy does not work for cancers and may not help to reduce the adverse effects of cancer treatments, contrary to lay belief.

Homoeopathic treatments lack clinically significant effects

Many homoeopathic trials not registered

Bias and problematic practices

WHO says homoeopathic treatments has "no place" in their treatment.

Delays the application of evidence-based clinical care.

- Instead, treatments have been linked to both non-fatal and fatal adverse events as well as their aggravation.
- Seeking homoeopathic care also delays the application of evidence-based clinical care. In several cases, it has caused injuries and sometimes death.

Issues with standards and claims of Homeopathy

Homeopathy's **supporters argue** that the standards commonly used in evidence-based medicine are not suitable for judging the "holistic effects" of homeopathy. This claim can be debunked.

Homeopathy has its long historical usage and widespread popularity. Around the world, more than 300 million people in at least 70 countries use homeopathy either alone or in combination with other care to treat themselves.

Homeopathy is popular in India and Africa and is getting popular in the UAE, Iran, Singapore, Japan and also in China.

- **First**, the standards are not conveniently chosen by practitioners of allopathic medicine for themselves.

Historical Usage

Individualization of Treatment

Minimal Side Effects

Holistic Approach

Anecdotal Testimonials

- RCTs and other methods for collecting and assessing evidence are collaboratively set and updated by a global community pushing for evidence-based medicine that includes epidemiologists, biostatisticians, quality improvement researchers, implementation managers, and several others, beyond clinicians.
- These methods have weeded out practices in allopathic medicine that failed to meet the evidence criteria.
- Further, multiple disciplines such as psychology, economics, community health, implementation science, and public policy, beyond medicine have successfully adapted evidence synthesis methods to establish their claims.
- **Second**, Homeopathy advocates have failed to invent valid alternative evidence synthesis frameworks suited for testing its efficacy and safety, which are also acceptable to the critics.
- **Third**, the claim about homeopathy being holistic is typically paired with evidence-based medicine being "reductionist".
 - In 2023, most exponents of evidence-based medicine are aware and accepting of biopsychosocial approaches toward health endorsed by WHO — predominantly composed of evidence-based medicine practitioners and supporters.
- **Fourth**, evidence-based medicine does not and should not stop at establishing empirical evidence.
 - The quest is also to discover and explain the mechanisms underlying the evidence.
 - In the last century, there has been no concrete evidence for proposed mechanisms of action for homeopathy.
 - No mechanistic (molecular, physiological, biochemical, or otherwise) evidence to explain how concepts such as "like cures like", "extreme dilution", and "dematerialised spiritual force" result in better health. In the same period, several allopathic/modern medicine practices have updated themselves based on growing scientific evidence.

Adopting a pluralistic approach in medicine can decolonise medicine. In India, homeopathy is at odds with this. India's path to universal health care must be grounded in evidence-based and ethics-driven medicine.

Way Forward



- ✓ **Prioritizing of Safety & Efficacy:** The current drive to incorporate 'AYUSH' medicinal practices into mainstream healthcare, aiming for universal health coverage and promoting a more inclusive approach to medicine, necessitates that each participating system adheres to fundamental safety and efficacy standards.
- ✓ **Evidence with Ethics:** India's journey towards achieving universal healthcare must be founded on the principles of evidence-based and ethically-guided medicine.
- ✓ **Evidence-Based Medicine:** India should give utmost importance to evidence-based medicine within all healthcare systems, including homeopathy. Thorough research, clinical trials, and systematic reviews must be undertaken to assess the effectiveness and safety of homoeopathic treatments.
- ✓ **Integration and Pluralism:** India ought to embrace a well-rounded healthcare approach that combines different medicinal systems, such as allopathy and AYUSH. This should be done with a focus on integrating evidence-based and efficient practices into the mainstream healthcare system.
- ✓ **Regulatory Oversight:** Enhance the capacity of regulatory authorities to supervise homeopathic practices, ensuring strict compliance with quality standards and ethical principles. By doing so, we can safeguard patient safety and cultivate confidence in the healthcare system.
- ✓ **Awareness & Education:** In order to foster informed decision-making and uphold the right to choose, it is essential to promote education and raise awareness on the subject. This approach will aid healthcare professionals and the general public in understanding the advantages and limitations of homeopathy.
- ✓ **An Ongoing Process & Continuous Improvement:** To become better is an ongoing process and for that proper research, evidence and clinical trials should be performed in an accountable and transparent manner.
 - The healthcare system will become more responsive and effective by consistently evaluating and revising the incorporation of homeopathy and other medical systems, considering emerging evidence and evolving healthcare demands. This ongoing process ensures an improved and adaptive healthcare approach.
- ✓ **Holistic Health Approach:** Promote a comprehensive healthcare approach that addresses not just physical symptoms, but also incorporates mental, emotional, and social well-being. This inclusive methodology must be seamlessly integrated across all medical systems, including homeopathy.