



2022



YOJNA IAS

WEEKLY CURRENT AFFAIRS

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05/09/2022 TO 11/09/2022

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CURRENT AFFAIRS

SEPTEMBER 2022



Cryptojacking

News: According to a report by SonicWall, a US-based cybersecurity firm 'Cryptojacking' attacks on computer systems have gone up by 30% to 66.7 million in the first half of 2022 compared to the first half of last year.

GS Paper 3: Science and Technology- Developments and their Applications and Effects in Everyday Life; Awareness in the fields of IT, Space, Computers.



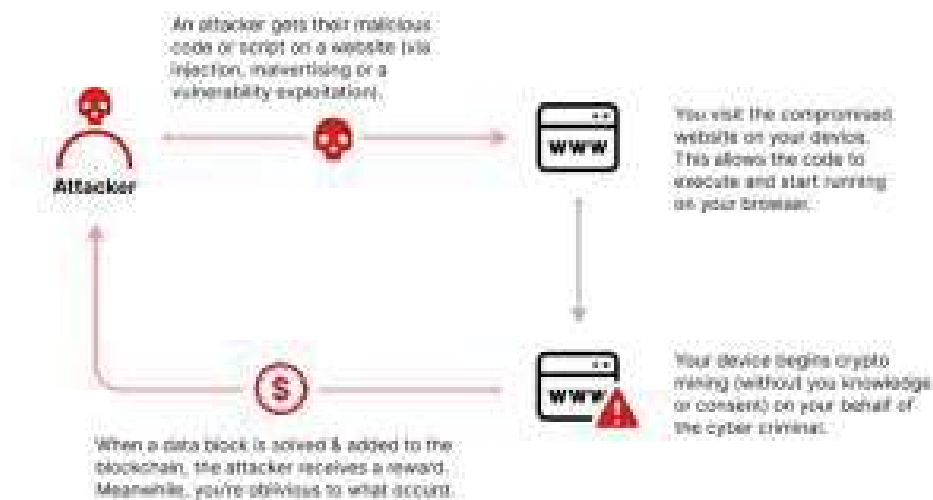
What is cryptojacking?

- Cryptojacking is a **cyber attack** wherein a computing device is hijacked and controlled by the attacker, and its resources are **used to illicitly mine cryptocurrency**.
- In most cases, the malicious programme is installed when the user clicks on an unsafe link, or visits an infected website — and unknowingly pro-

vides access to their Internet-connected device.

Why is cryptojacking done and how is it different from coin mining?

- **Coin mining** is a legitimate, competitive process used to release new crypto coins into circulation or to verify new transactions. It involves solving complex computational problems to generate blocks of verified transactions that get added to the blockchain. The reward for the first miner who successfully manages to update the crypto ledger through this route is crypto coins.
- But the race to crack this 64-digit hexadecimal number code needs considerable computing power involving state-of-the-art hardware, and electrical power to keep the systems involved up and running.
- **Cryptojackers** co-opt devices, servers, and cloud infrastructure, and use their resources for mining. The use of '**stolen**' or cryptojacked resources slashes the cost involved in mining.



What are the main methods that cryptojackers use to maliciously mine for cryptocurrencies?

- **File-Based Cryptojacking:** With file-based cryptojacking, **malware is downloaded and runs an executable file** that spreads a cryptomining script throughout the IT infrastructure. One of the most common ways that cryptojacking occurs is by using malicious emails. An email is sent

containing an attachment or link that looks legitimate. When a user clicks on the attachment or link, code is executed that downloads the cryptomining script onto the computer. This script works in the background without the user's knowledge.

- **Browser-Based Cryptojacking:** Cryptojacking attacks can take place directly within a web browser, using IT infrastructure to mine for cryptocurrency. **Hackers create a cryptomining script using a programming language and then embed that script into numerous websites.** The script is run automatically, with code being downloaded onto the users' computer. These malicious scripts can be embedded in ads and vulnerable and out of date WordPress plugins. Cryptojacking can also happen through a **supply chain attack**, where cryptomining code compromises JavaScript libraries.
- **Cloud Cryptojacking:** When hackers use cloud cryptojacking, they search through an organization's files and **code for Application Programming Interface(API) keys** to access their cloud services. Once access is gained, hackers siphon unlimited CPU resources for cryptomining, resulting in a huge increase in account costs. Using this method, hackers can significantly accelerate their efforts of cryptojacking to illicitly mine for currency.



How does Cryptojacking Work?

- **Compromise an Asset to Embed Script:** Cyberhackers, also known as threat actors, compromise an asset by embedding cryptomining code using one of the three methods above.

- **Execute Cryptomining Script:** Once embedded, cryptojackers are counting on victims to execute the script. Users either click on an attachment or link to execute and run the cryptomining script or browse to a website with infected ads.
- **Cryptomining Begins:** After being executed, the cryptomining script runs in background, without the knowledge of the user.
- **Solving Algorithms:** The script uses computer power to solve complex algorithms to mine what is called a “block.” These blocks are added to a blockchain, the technology which stores digital information about cryptocurrency.
- **Jackers Receive a Cryptocurrency Reward:** Each time a hacker adds a new block to the chain they receive cryptocurrency coins. Without very little work or risk, these threat actors are able to gain reward in cryptocurrency that they can anonymously put directly into their digital wallets.

How to detect cryptojacking?

- Be aware of decrease in performance in computing devices.
- Look for overheating of devices and running fans for cooling.
- Monitor computer for an increase in CPU usage.
- Check for coding and file changes on your site.
- Scan for malware to monitor your websites.
- Follow crypto news and look for parallels on your site.

What are the signs that a device is attacked by cryptojacking?

- Device slowing down.
- Device heating up.
- Battery of the device drained faster than usual.

Why have cryptojacking incidents gone up?

- Crackdown on ransomware attacks by agencies is forcing cybercriminals to look for alternative methods.

- Cryptojacking involves lower risk, and promises potentially higher pay-day.
- Cryptojacking is **hard to detect** and the **victims of these attacks mostly remain unaware** that their systems have been compromised.
- Unlike ransomware which announces its presence and relies heavily on communication, **cryptojacking has a lower potential** of being detected by the victims, as cryptojacking can succeed without the victim ever being aware of it.
- **It's hard to tie cryptojacking to criminal activity:** As unsuspecting users across the world see their devices get unaccountably slower, but it's hard to tie it to criminal activity, much less point to the source.

Why should this be a concern?

- Large number of individuals and businesses are on the target list of cryptojackers.
- According to the report, cryptojacking incidents targeting the retail industry rose by 63% year-to-date, while similar attacks on the financial industry skyrocketed 269%.
- According to Interpol the primary impact of cryptojacking is performance-related, though it can also increase costs for the individuals and businesses affected because coin mining uses high levels of electricity and computing power.

How to Prevent Cryptojacking?

- Train professions to detect **cryptojacking**.
- Not to click on links on emails.
- Use **Anti-Cryptomining Extensions**.
- Use Ad-Blockers to block malicious code in online ads.

Sharad

Jio's 'standalone' 5G architecture.

GS Paper 3: Changes in industrial policy and their effects on industrial growth and Science and Technology- developments and their applications and effects in everyday life.

News: India's largest telecom company Reliance Jio on Monday announced the launch of its 5G services in Delhi, Mumbai, Kolkata, and Chennai by Diwali this year, with an aim to expand and cover the entire country by December 2023. The company said it will launch its 5G services on a “**standalone**” **5G architecture**, against the “non-standalone” approach that other operators are betting on.

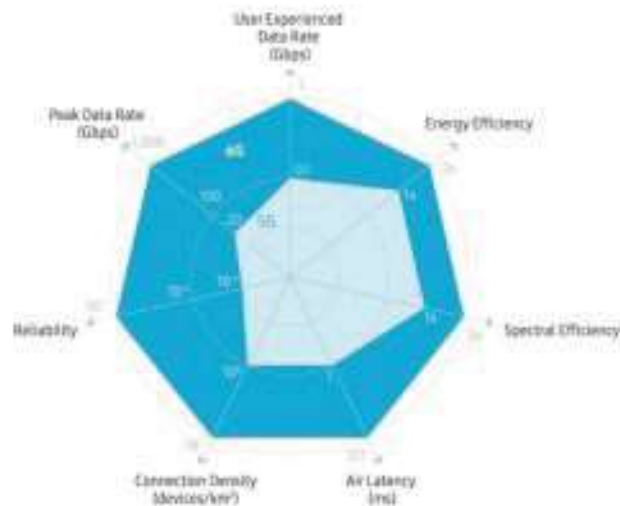
What are the various generations of mobile networks?

- **First generation – 1G, 1980s:** 1G delivered **analog voice**. Launched in the late 1970s in Japan, 1G was the first generation of mobile telecommunication technology that offered voice calls only. But it came with **low sound quality, low coverage**, and **without any roaming support**.
- **Second generation – 2G, Early 1990s:** 2G introduced **digital voice** (e.g. **CDMA- Code Division Multiple Access and GSM-Global System for Mobile communication**). It allowed users to roam and offered small data services like SMS and MMS at a maximum speed of around 50 kbps. While the **focus was still on voice calling**, data support was introduced. 2G continues to be popular in India even as it is being gradually phased out in many parts of the world. Jio, a major service provider in the country, last year set itself a goal of **'2G-mukt Bharat'** — to “free 300 million subscribers still trapped in the 2G era”
- **Third generation – 3G, Early 2000s:** 3G brought mobile data (e.g. CDMA2000). Mobile technology kept its date with generational leap every decade with the introduction of 3G services in 2001. **It promised four times faster data transmission with access to mobile Internet**. This is the generation that **brought emails, navigational maps, video calling, web browsing and music to mobile phones**. It was also during this generation that BlackBerry phones became the rage, and subsequently, Steve Jobs introduced the world to the 'App Store' with the launch of iPhone 3G in 2008.

- **Fourth generation – 4G LTE,2010s:** 4G LTE ushered in the era of mobile broadband. **High speed, high quality, high capacity voice and data services** – that’s the promise that 4G, the network most of us use today, brought with it around 2010. **Standard 4G came with five to seven times faster speeds than 3G.** Compared to 3G, a phone on a 4G network got quicker response to its requests (lower latency). This is what made our phones more like **hand-held computing devices**.
- **Fifth generation -5G:** 5G is a new frontier of mobile technology, **5G promises latency** (the delay users face as data makes a round trip) of just one millisecond compared to 50 milliseconds of a 4G network. The 5G devices will have **low power requirements** that will boost the battery life of devices multiple times 5G is more than just faster download speeds as with increase in cellular bandwidth, blazing speed and low latency, it promises to **boost the ‘Internet of Things’** by making it easy for several devices to connect to each other to communicate and to be controlled remotely. 5G is being rolled out in many places including South Korea, the United States, and Canada, and is expected in India soon.

What will be the future Gs?

- Not a functioning technology as of now, 6G only promises to do better than 5G. Samsung’s white paper on 6G published in 2020 (“The Next Hyper-connected Experience for All”), said that “the completion of the 6G standard and its earliest commercialisation date could be as early as 2028, while **mass commercialisation** may occur around 2030”.
- **Experts envision future Gs with a communication web with zero lag**, where it will be possible to seamlessly perform remote surgery and even beam sports events live using hologram technology.
- Both humans and machines will be the main users of 6G, and 6G will be characterized by provision of advanced services such as **truly immersive extended reality (XR), high-fidelity mobile hologram** and **digital replica**.



What are the two different modes of 5G networks?

- 5G networks are deployed mainly on two modes: **standalone and non-standalone**.

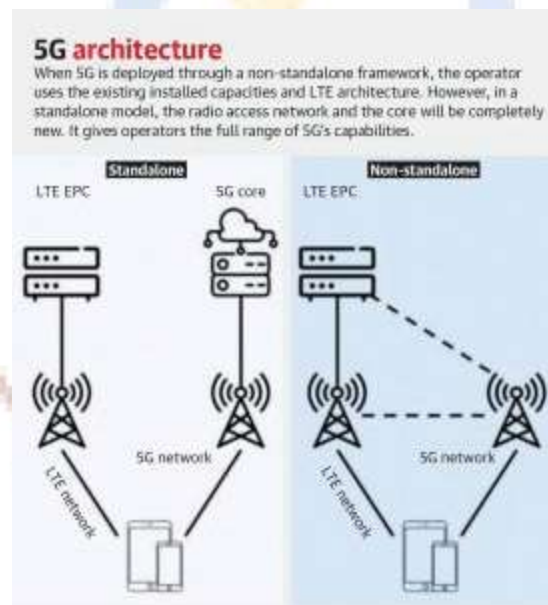
What is the standalone mode of the 5G network deployment?

- **In the standalone mode**, which Jio has chosen, the 5G network operates with dedicated equipment, and runs parallel to the existing 4G network.
- Jio has committed an investment of Rs 2 lakh crore for its standalone 5G network.
- The standalone mode provides access to full 5G capabilities and new network functionalities such as **slicing** that provides greater flexibility to operators to efficiently use their spectrum holdings.
- **Standalone modes are good for business customers** because it requires high investments that operators would look at designing high-margin offerings.

What is non-standalone mode of the 5G network deployment?

- In **Non-standalone mode**, the 5G network is supported by the 4G core infrastructure.
- **Non-standalone networks are built on existing infrastructure**, the initial cost and the time taken to roll out services through this track is significantly less than standalone networks.

- Non-standalone networks are generally considered to be a stepping stone, and global precedent suggests operators that have launched non-standalone 5G networks eventually transition to standalone networks.
- Non-standalone mode, however, lets operators maximise the utilisation of their existing network infrastructure with relatively lower investment.
- **Non-standalone networks are more attractive for smartphone** users due to early rollout timelines and low infrastructure costs.
- The biggest difference in the two architectures is the compatibility with existing device ecosystems. Most smartphones today have capability to connect to non-standalone 5G networks — which are essentially 5G air-waves transmitted through 4G networks — and will require software updates by their OEMs to be able to connect to standalone networks.



What is latency and how latency of 5G is different from 4G?

- Latency is the time it takes for a device to send packets of data and get a response. Shorter the latency, quicker the response.
- 5G could have benefits for consumers owing to the superior Internet speed and low latency it promises over 4G. At its peak, Internet speeds on 5G could touch 10 Gbps, compared to the 100 Mbps peak of 4G.
- Similarly, latency under 4G is between 10-100 ms (millisecond) whereas

on 5G it is expected to be under 1 ms.

What are the benefits of 5G?

- Speeds and latency levels offered by 5G telephony are the key selling propositions for most industrial use cases such as manufacturing, Internet of Things, artificial intelligence.
- Near-term benefits offered by 5G for consumers are high network performance, relief from urban network congestion, and more home broadband choices.
- A 5G world of the future is billed to have smart city infrastructure, self-driving cars, and robotic surgeries as real-use cases.

Sharad

El Niño and La Niña.

GS Paper 1: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

News: In what may be termed as an uncommon phenomenon, La Niña conditions prevailing over the equatorial Pacific Ocean since September 2020 have entered the third year. There are only six instances of La Niña lasting for more than two years since the 1950s, data with the India Meteorological Department (IMD) show.

What is La Niña in weather?

- La Niña is a **climate pattern** that describes the cooling of surface ocean waters along the tropical west coast of South America.
- La Nina is considered to be the **counterpart to El Nino**, which is characterized by unusually warm ocean temperatures in the equatorial region of the Pacific Ocean.

- La Nina brings warmer-than-normal sea-surface temperatures (in red) to the southern Pacific Ocean around northern Australia, New Guinea, and the islands of Indonesia.
- The cooler sea-surface temperatures of La Nina (in blue) occur in the southern Pacific off the coast of South America.



What are the conditions which causes La Nina?

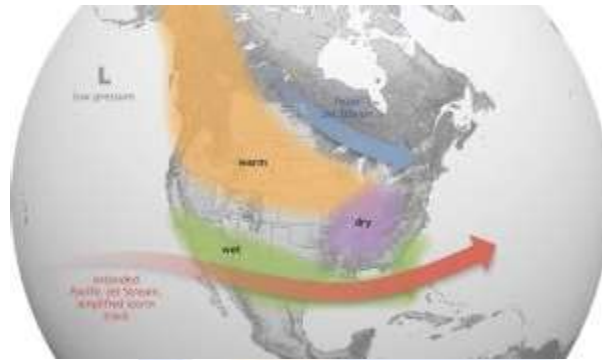
- La Niña is caused by a build-up of cooler-than-normal waters in the tropical Pacific, the area of the Pacific Ocean between the Tropic of Cancer and the Tropic of Capricorn. Unusually strong, eastward-moving trade winds and ocean currents bring this cold water to the surface, a process known as upwelling.
- **Upwelling** can cause a drastic drop in sea-surface temperature. Coastal sea-surface temperatures near Ecuador and Peru dropped nearly 4 degrees Celsius (7 degrees Fahrenheit) during the 1988-89 La Niña event.

What are El Niño and La Niña?

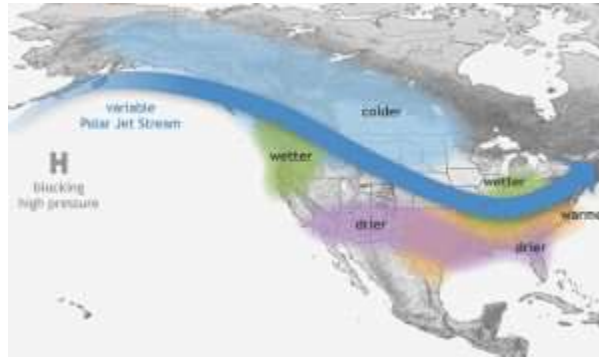
- **El Niño:** During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas. El Niño means **Little Boy, or Christ Child** in Spanish. South American fishermen first noticed periods of unusually warm water in the Pacific Ocean in the 1600s. The full name they used was El Niño de Navidad, because **El Niño typically peaks around December**. El Niño can affect our weather significantly. The warmer waters cause the Pacific jet stream to move south of its neutral position. With this shift, areas in the northern U.S. and Canada are dryer and warmer than usual. But in the U.S. Gulf Coast and Southeast, these

periods are wetter than usual and have increased flooding.

- **El Niño has a strong effect on marine life off the Pacific coast:** During normal conditions, upwelling brings water from the depths to the surface; this water is cold and nutrient rich. **During El Niño, upwelling weakens or stops altogether.** Without the nutrients from the deep, there are fewer phytoplankton off the coast. This affects fish that eat phytoplankton and, in turn, affects everything that eats fish. The warmer waters can also bring tropical species, like yellowtail and albacore tuna, into areas that are normally too cold.



- **La Niña:** La Niña means **Little Girl in Spanish**. La Niña is also sometimes called **El Viejo, anti-El Niño, or simply “a cold event.”** La Niña has the opposite effect of El Niño. During La Niña events, trade winds are even stronger than usual, pushing more warm water toward Asia. Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface. These cold waters in the Pacific push the jet stream northward. This tends to lead to drought in the southern U.S. and heavy rains and flooding in the Pacific Northwest and Canada. **During a La Niña year, winter temperatures are warmer than normal in the South and cooler than normal in the North.** La Niña can also lead to a more severe hurricane season. **During La Niña, waters off the Pacific coast are colder and contain more nutrients than usual.** This environment supports more marine life and attracts more cold-water species, like squid and salmon, to places like the California coast.



What is EL Nino Southern Oscillation(ENSO)?

- ENSO is a **series of linked weather- and ocean-related phenomena**. The El Nino-Southern Oscillation (ENSO) is an irregular cycle of change in wind and sea surface temperatures over the tropical eastern Pacific Ocean, affecting the climate of much of the tropics and subtropics. **The warming phase of the sea temperature is known as El Nino and the cooling phase as La Nina.**
- Together, La Niña and El Niño are the “cold” (La Niña) and “warm” (El Niño) phases of the El Nino-Southern Oscillation (ENSO).
- Besides unusually warm or cool sea-surface temperatures, **ENSO is also characterized by changes in atmospheric pressure.**

How does La Nina (El Viejo or cold event) impact India’s monsoon?

- La Nina is observed when the water temperature in the Eastern Pacific gets comparatively colder than normal, as a consequence of which, there is a strong high pressure over the eastern equatorial Pacific.
- The **difference in pressure between Eastern Pacific and Western Pacific/Asia** causes a moisture-laden wind movement from East to West Pacific and Asia.
- As a result, La Nina causes drought in the South American countries of Peru and Ecuador, heavy floods in Australia, high temperatures in Western Pacific, Indian Ocean, off the Somalian coast and a comparatively better monsoon rains in India.

How does El Nino impact India’s monsoon?

- The warming in the tropical Pacific Ocean because of El Niño weakens

the southeast trade winds flowing to the intertropical convergence zone over India. Since these winds are the main driving force of the Indian summer monsoon, El Niño events are associated with weak monsoons and lower than average rainfall.

- Generally, El Nino and La Nina occur every 4 -5 years. El Nino is more frequent than La Nina.

Sharad

The Change in the Age of consent for a sexual relationship: An analysis

Context: On August 2, in Rama @ Bande Rama v. the State of Karnataka, the Karnataka High Court quashed criminal proceedings of rape and kidnapping under the Indian Penal Code and penetrative and aggravated penetrative sexual assault under the Protection of Children from Sexual Offences (POCSO) Act, 2012 against the complaint made behalf of a minor child by her father.

Introduction

A girl 17 years old had a sexual relationship with her partner of 21 years old with mutual consent but her father filed a case against the boy under the POSCO and other sections of IPC. However, the girl accepted her consent in front of the court but the prosecution argued that there is no significance of the consent of the minor girl and that the punishment should be given to the boy. But Girl argued that she had a marriage after being an adult and had a child. should it be sent to orphan houses? The honorable high court of Karnataka finally quashed the charges on the boys and also suggested the revival of the minimum age of consent for a sexual relationship

Normalcy of relationships

- In the matter of POSCO, the consensual and non-consensual relationship

is just unclear because, in the matter of a Child, the consent of a child is treated as rape also. The consensual sexual relationship in the matter of child is immaterial

- But in some case, the silence of the POSCO act on the consensual relationship adversely impact justice. If the minor children have a sexual relationship with mutually consenting and after being adults, they are married, how the charge of rape should be framed against the boys only?
- In Vijaylakshmi v. State Rep (2021), Madras high court also quashed the charges because the honorable court found that a boy had a sexual relationship with the full consent of the minor girl and she never opposed and even though he was happy with this relationship. Similarly, In the case of Raj Kumar v. State of Himachal Pradesh (2021), the Himachal Pradesh High Court allowed a petition filed by the minor girl's father for quashing the trial against his son-in-law. The honorable court observed if criminal proceedings are allowed to continue, the same will adversely affect the married life of his daughter.
- In another case of Skhemborlang Suiting v. State of Meghalaya (2021), a boy was booked under the POSCO when he brought his wife who was of 17year to the hospital for a checkup after she became pregnant.
- After the analysis by Skhemborlang Suiting v. State of Meghalaya (2021), more than 1700 romantic cases were booked under the POSCO in various states. In these cases, more than 80 % of cases are filed after the complaint by the parents of the girl after the girl went "missing", or eloped with her partner, or the pregnancy was discovered. In some cases the victim and the accused were married

Need for the Law Reform

The high rate of acquittals pimpls that this law is beyond the social realities. In a modern society or urban society, consensual sexual relationship is very common even between the age of 16- 17. The high court also acknowledged the destructive impact of this law. The minimum age for consensual sex must be revised. It also impacts the delivery of justice as these cases constitute a large burden on our courts, and divert attention from investigation and prosecution of actual cases of child sexual abuse and exploitation.

Conclusion

As per the above discussion, it can be concluded that the law should be reformed as per the ground social reality. The POSCO act inversely impact justice and many boys are charred under the POSCO even after the marriage. Generally, parents do not file any case if the girl is not pregnant. So in such a situation injustice would be done to the newborn baby. Considering these types of ground realities, the government should reform the laws

Anshul

Borra Caves in Andhra Pradesh

GS Paper 1: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.



About Borra caves:

- Borra caves are among the deepest and longest caves in India.
- It is located in the **Anantagiri hills of the Eastern Ghats** range in Alluri Sitharama Raju district in Andhra Pradesh.
- The caves created millions of years ago by water activity, mainly by

the Gosthani **river**, are a rare geological formation. They are basically **karstic limestone structures** extending to a depth of 80 metres.

- The ancient caves were discovered by the Geological Survey of India in 1807.
- Due to the water activity cutting through rich limestone, many **stalagmites** and **stalactites** have formed over the years.
- According to researchers, the cave is highly valuable for anthropological research, as excavations carried out earlier **unearthed stone tools of middle Paleolithic culture dating between 30,000 and 50,000 years ago**. These findings confirm human habitation in that area.
- One of the major tourist attractions of the region, the caves illuminated with artificial lighting — draw visitors from across India, sometimes crossing 10,000 visitors a day during peak season.



Mechanism for formation of Borra Caves

- Partially decomposed organic matter creates humic acid in the water. When this acidic water reacts with calcium carbonate in limestone, the minerals in the stone get dissolved and the stone disintegrates gradually. As small streams from the hillocks rushed to the Gosthani River below, this chemical reaction kept eroding the stones over a long period of time, leading to the formation of Borra Caves. Had it stopped there, the caves would not have become this famous. The reaction is still going on. Because of the continuing chemical reaction, new shapes keep forming while the old ones change shape.

- Water percolates from the roof of the caves and reacts with calcium bi-carbonate and other minerals on the rock forming mound-like structures on the ground called stalagmites and spear-like structures hanging from the roof called **stalactites**.



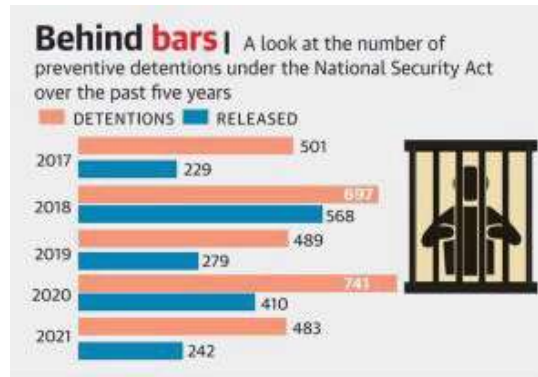
What are the structures that inspire the viewer's imagination?

- There are sculptures of mother-child, Shiva-Parvati, monkeys, brain, crocodile, rishi's beard, cow's udder and many more.
- At one end of the caves, there is a naturally formed joint that links two huge stones from top to bottom.
- Somewhere deep inside at a point, a plaque informed us that the Kottavasala-Kirandul railway line passes over the caves, exactly at that point. The thickness of the rock at this point is 100 feet.
- There is also a naturally formed Shivling inside the caves, which is worshiped by the tribals who inhabit the forests around.



Rise in Preventive detentions

GS Paper 2: Structure, Organization and Functioning of the Executive and the Judiciary—Ministries and Departments of the Government.



What is preventive detention?

- Preventive detention means to detain a person so that to prevent that person from committing any possible crime or in other words preventive detention is an action taken by the administration on the grounds of the suspicion that some wrong actions may be done by the person concerned which will be prejudicial to the state.
- Preventive Detention is the most contentious part of the scheme of fundamental rights in the Indian constitutions.

What are the constitutional provisions for preventive detention?

- **Article 22** grants protection to persons who are arrested or detained. Detention is of two types, namely, **punitive and preventive**.
- **Punitive detention** is to punish a person for an offence committed by him after trial and conviction in a court.
- **Preventive detention**, on the other hand, means detention of a person without trial and conviction by a court.
- **Article 22 has two parts**—the first part deals with the cases of ordinary law and the second part deals with the cases of preventive detention law.

What are the rights available under punitive detention but not under preventive detention?

Following rights not available to a person arrested or detained under preventive detention law but available to a person arrested or detained under a punitive detention law

- Right to be informed of the grounds of arrest.
- Right to consult and be defended by a legal practitioner.
- Right to be produced before a magistrate within 24 hours, excluding the journey time.
- Right to be released after 24 hours unless the magistrate authorizes further detention.

What are major differences between Preventive and punitive detention?

Preventive Detention	Punitive Detention
1. Under Section 151 of The Criminal Procedure Code, 1973 (CrPC) , preventive detention means detention of a person without trial and conviction by a court.	1. It is to punish a person for an offence committed by him after trial and conviction in a court.
2. Its purpose is to prevent him from committing an offence in the near future.	2. Its purpose is to punish a person for an offence.
3. It is only a precautionary measure and based on suspicion.	3. It punishes for the crime committed.
4. A detainee under preventive detention has no right of personal liberty guaranteed by Article 19 or Article 21 .	4. A detainee under punitive detention can have the right of personal liberty guaranteed by Article 19 or Article 21 .

Key findings from latest crime statistics released by the National Crime Records Bureau

- Preventive detentions in 2021 up by 23.7% compared to the year before, with over 1.1 lakh people being placed under preventive detention
- Of these, 483 were detentions under the National Security Act, of which almost half (241) were either in custody or still detained as of the end of 2021.
- A total of over 24,500 people placed under preventive detention were either in custody or still detained as of the end of last year — the highest

since 2017 when the NCRB started recording this data.

- In 2017, the NCRB's Crime in India report found that a total of 67,084 persons had been detained as a preventive measure that year.
- The number of persons placed under detention has been increasing steadily since 2017 — to over 98,700 in 2018 and over 1.06 lakh in 2019

— before dipping to 89,405 in 2020.

- NCRB data showed that the number of people arrested in preventive detention under the National Security Act had dipped significantly compared to the year before.
- Preventive detentions under the NSA peaked in 2020 at 741. This number dropped to 483 in 2021.
- In 2017, 54.2% of persons detained as such were either in custody or still detained as of the end of the year. In 2021, this number decreased to 49.8%, with more than half of those preventively detained released.
- Among other laws under which the NCRB has recorded data on preventive detentions are the Goonda Act (State and Central) (29,306), Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988 (1,331), and a category classified as "Other Detention Acts", under which most of the detentions were registered (79,514).

What are the reasons for the current rise of preventive detentions?

- Since 2017, the highest number of persons to be placed under preventive detention has consistently been under the "Other Detention Acts" category as several laws like the Unlawful Activities (Prevention) Act and Maharashtra Control of Organised Crime Act also provide for making preventive detentions.
- **Common usage of preventive detentions to control law and order** in emerging communal clashes or clashes between any two communities by District magistrates and the police even when it might not always lead to public disorder.
- **Once placed under preventive detention**, it can often take more than a year for the challenge to the detention order to be decided by the courts concerned as according to **Section 151 of the Code of Criminal Procedure**, the police are empowered to make preventive arrests if they

believe they must do so to prevent the commission of “any cognisable offence”. This detention can be extended beyond 24 hours if required “under any other provisions of this Code or of any other law.

What is the recent SC ruling regarding preventive detention?

- The Supreme Court bench observed that **preventive detention powers** accorded to the State were “**exceptional**” and that since they affect the liberty of an individual, **they should be used sparingly**.
- The court had also noted that these powers should not be used to control ordinary law and order problems.
- Supreme Court ruled that to invoke a public detention law against someone, **it is not enough that his/her actions pose a threat to law and order but must affect the public order**.
- The SC bench said that a liberal meaning cannot be given to the expression public order in the context of preventive detention statute.
- The Supreme Court also added that **preventive detention is a necessary evil only to prevent public disorder**, the Court must ensure that the facts brought before it directly and inevitably lead to a harm, danger or alarm or feeling of insecurity among the general public or any section thereof at large.
- SC bench said that there can be no doubt that for ‘public order’ to be disturbed, there must in turn be public disorder. Mere contravention of law such as indulging in cheating or criminal breach of trust certainly affects ‘law and order’ but before it can be said to affect ‘public order’, it must affect the community or the public at large.

Sharad

Funding Public Education

News: Union Minister of Education Dharmendra Pradhan said in reply to a debate in the Lok Sabha that people should let go of the idea that universities must be funded only by the government.

GS Paper 2: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.



What are current issues plaguing higher education?

- **Privatization of Higher education:** Most private higher education institutions are run on a self-financed basis, a euphemism for full cost-recovering institutions.
- **Penetration of private tendencies into public higher education** as there is thrust for resource mobilization, internal revenue generation, cross-subsidisation, resource use efficiency, cost reduction, accelerated cost recovery and enhanced user charges.
- The idea that higher education could be funded fully by the students or their parents out of their savings or through bank borrowings appears grossly misplaced in the Indian context.
- **Substantial increase in fees and other charges from students** would deprive vast sections of population from accessing higher education.
- **Apprehension that people be able to afford full-cost recovery from their higher education institutions** as social and economic elites, have already crossed a gross enrolment ratio of 100%, the future growth in higher education would come from the socio-economically disadvantaged groups.

What is the government expenditure on Education?

Kothari Commission, which was the precursor to the 1968 policy, higher education should have been getting at least 2% of GDP. But government Expenditure on Education is not encouraging

- Expenditure on higher education by the Centre and the States taken together nosedived from 0.86% of GDP in 2010-11 to a measly 0.52% in 2019-20 (Budget Estimates, or BE).
- Centre's expenditure on higher education dropped from 0.33% of GDP in 2010-11 to a mere 0.16% in 2019-20 (BE).

- Despite the rise in revenue receipt, the Union government's expenditure on higher education as a percentage of revenue receipt saw a decline from 2.60% in 2011-12 to 1.85% in 2022-23 (BE).
- As a percentage of the total receipt, the allocation for higher education fell from 1.49% to 1.04% during the corresponding period.

What National Education Policy, 2020 said about funding of higher education?

Vision of National Education Policy:

- The NEP 2020 envisaged that it would “promote increased access, equity, and inclusion through a range of measures, including greater opportunities for outstanding public education.”
- It also provided an assurance that the autonomy of public institutions would be backed by adequate public funding.
- NEP, 2020 endorsed a substantial increase in public investment by the Central and State governments to reach 6% of GDP at the earliest.
- NEP 2020 said this level of public funding was “extremely critical for achieving the high-quality and equitable public education system that is truly needed for India's future economic, social, cultural, intellectual progress and growth.”
- The NEP 2020 envisages enrolment in higher education to be nearly double by 2035.

Sharad

PM SHRI SCHEME

GS Paper 2: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.



What is the PM-SHRI scheme?

- According to the Ministry of Education, the scheme will be called **PM SHRI Schools (PM Schools for Rising India)**.
- Under it, as many as 14,500 schools across states and Union Territories will be redeveloped to reflect the key features of the NEP, 2020.
- PM SHRI will act as “**NEP labs**”.

What are the key features of NEP in school education?

- The NEP envisages a curricular structure and teaching style divided into various stages – foundational, preparatory, middle and secondary.
- The **foundational years (pre-school and grades I, II)** will involve play- based learning.
- At the **preparatory level (III-V)**, light textbooks are to be introduced along with some formal classroom teaching.
- Subject teachers are to be introduced at the **middle level (VI-VIII)**
- **Secondary stage (IX-XII)** will be multidisciplinary in nature with no hard separation between arts and sciences or other disciplines.

What is a centrally sponsored scheme?

- A centrally sponsored scheme is one where the cost of implementation is likely to split in the 60:40 ratio among the Union government and the states/Union Territories.
- For Example: Mid-day meal scheme (PM Poshan) or the PM Awas Yojana are examples of centrally sponsored schemes. In the case of the Northeastern states, Himachal Pradesh, Uttarakhand, Jammu and Kashmir and UTs without legislatures, the Centre’s contribution can go up to 90 per cent.

How will PM SHRI schools be different from Kendriya Vidyalayas or Jawahar Navodaya Vidyalayas?

- Kendriya Vidyalayas or Jawahar Navodaya Vidyalayas come entirely under the Centre’s Ministry of Education. They are fully-funded by the Union government under Central Sector Schemes. While KVs largely cater to children of Union government employees posted in states and

UTs, JNVs were set up to nurture talented students in rural parts of the country.

- In contrast, PM SHRI schools will be an upgrade of existing schools run by the Centre, states, UTs and local bodies. This essentially means that PM SHRI schools can either be KVs, JNVs, state government schools or even those run by municipal corporations.

Where will the PM SHRI schools come up?

- The Centre has not yet released the list of schools that have been chosen for this purpose. It has however announced that the PM SHRI schools will also “**offer mentorship**” to other schools in their vicinity. These schools will be equipped with modern infrastructure including labs, smart classrooms, libraries, sports equipment, art room etc and shall also be developed as green schools with water conservation, waste recycling, energy-efficient infrastructure and integration of organic life-style in curriculum.

Sharad

Liquid nano urea

News: Nano urea fast-tracked for approval despite incomplete trials.

GS Paper 3: Technology Missions; Science and Technology- Developments and their Applications and Effects in Everyday Life; Awareness in the fields of Nano-technology.



What is liquid nano urea?

- Nano Urea contains **nitrogen**, an element critical for plant development, in the form of granules that are a hundred thousand times finer than a sheet of paper. It is urea in the form of a nanoparticle.
- Urea is a chemical nitrogen fertilizer, white in colour, which artificially provides nitrogen, a major nutrient required by plants.
- The product has been developed at IFFCO's Nano Biotechnology Research Centre (NBRC) at Kalol.

How does liquid nano urea work?

- Liquid nano urea is sprayed directly on the leaves and gets absorbed by the plant. Fertilizers in nano form provide a targeted supply of nutrients to crops, as they are absorbed by the stomata, pores found on the epidermis of leaves.
- Unlike the coarse particles that farmers normally throw onto the soil during sowing, the nano particle in form of Nano Urea, when applied on to the leaves, stimulates a range of enzymes, like nitrase and nitrite reductase, which helps plants metabolise nitrogen.
- Liquid nano urea process uses **"organic polymers"** that keeps the 'nano' particles of nitrogen stable and in a form that can be sprayed onto plants.
- Liquid nano urea contains **4 per cent total nitrogen (w/v)** evenly dispersed in water. The size of a nano nitrogen particle varies from 20-50 nm.
- IFFCO, maker of liquid nano urea, advises that 2-4 ml of nano urea should be mixed a litre of water and sprayed on crop leaves at active growth stages.

What are the advantages of liquid nano urea over conventional urea?

- It will help in reducing the country's subsidy bill in reducing unbalanced and indiscriminate use of conventional urea, increase crop productivity, and reduce soil, water, and air pollution.
- **High efficiency of liquid nano urea:** Efficiency of liquid nano urea is as high as 85-90 per cent while conventional urea has an efficiency of about 25

per cent. Currently, 70% of the urea applied today is wasted and remaining 30% actually makes it to the plant depends on a multitude of factors from how you spray to the soil quality

- **Despite indiscriminate use of conventional urea**, conventional urea fails to have the desired impact on crops as it is often applied incorrectly, and the nitrogen in it is vaporised or lost as gas. A lot of nitrogen is also washed away during irrigation.
- **High shelf life of liquid nano urea:** Liquid nano urea has a shelf life of a year, and farmers need not be worried about “caking” when it comes in contact with moisture.

In what respects is the indigenous liquid nano urea a better bet than imported urea?

- India is dependent on imports of the widely used fertiliser hence paying high fertiliser subsidy. The government's fertiliser subsidy payout this financial year will be Rs 2 lakh crore, up 25 per cent from the Rs 1.6 lakh crore it paid last year.
- Currently the liquid nano urea produced by Indian Farmers Fertiliser Cooperative (IFFCO) Limited comes in a half-litre bottle priced at Rs 240, and carries no burden of subsidy. By contrast, a farmer pays around Rs 300 for a 50-kg bag of heavily subsidised urea.
- The international market price of a bag of urea is between Rs 3,500 and Rs 4,000, and significant quantities of it are imported. But, a bottle of the nano urea can effectively replace at least one bag of urea.

Issues associated with application of liquid nano urea:

- Scientists are puzzled that how nano urea sold in 500 ml bottles has only 4% nitrogen (or around 20 gm) will compensate for chemically packaged urea that is 46% nitrogen, which means a 45 kg sack contains about 20 kg of nitrogen.
- It is unclear as to how nanoparticles can increase the effectiveness of nitrogen uptake by being still smaller as urea is highly water soluble and already reaches the lowest form of concentration when absorbed.
- Effectiveness of foliar spraying (spraying on leaves) in improving fertil-

izer uptake is unknown.

- Data that shows the increase in yields due to Nano Urea was superfluous as it was simply explained by the fact that in the first year, the nitrogen present in the soil and fertilizer was sufficient, due to which supplying nitrogen via Nano Urea will not change anything on ground.
- Difficulty in weaning farmers away from packaged urea overnight as these are deeply ingrained behaviors.

Sharad

INS Vikrant and Maritime Strategy

GS Paper 3: Security Challenges and their Management in Border Areas – Linkages of Organized Crime with Terrorism.

About INS Vikrant:

- INS Vikrant is India's largest and most complex indigenously built warship
- It is developed by the Navy's warship design bureau and constructed by the Cochin Shipyard Limited (CSL).
- With a displacement of 43,000 tonnes, the ship boasts an endurance of about 7,500 nautical miles and a cruising speed of 18 knots (significant for its size and tonnage).
- The ship's integral fleet of MiG 29K aircraft, Kamov 31 early warning and MH-60R multi-role helicopters, as also state-of-the-art shipboard offence and defence systems, surveillance and fire-control radars, make it a formidable warfighting platform.



Why is INS Vikrant key to India's maritime strategy?

- An aircraft carrier is an instrument of utilitarian value as well as beating heart that provides all naval effort with its essential vigor.
- Aircraft carriers like INS Vikrant provide thorough and emphatic access to littoral spaces in war as well as in peace.
- **An aircraft carrier has the critical ability to alter the psychological balance in the littorals.** As, it will ensure effective sea command, through continuous and visible maritime presence that influences the cost-benefit calculus of the enemy commanders.
- It helps in **"power projection"** that is a crucial component of peacetime maritime strategy, and an embodiment of a nation's strategic capability and political intent. A navy's ability to project military power far beyond the home country is a metric of national influence and regional relevance.
- **Utility in advancing national objectives:** Demonstrative impact of an aircraft carrier sailing through foreign waters that cannot be replicated by a submarine or a destroyer.
- It will help in **enhancing Soft power diplomacy** through soft-power outreach such as hospital ships, humanitarian assistance and disaster relief platforms, survey vessels, etc and peacetime diplomacy.
- INS Vikrant will help in enhancing Indian strategic capacity in the Indian Ocean region as it will deter adversaries and mark its presence in the

near-seas.

- It will **check “far-seas” strategy** and ambition of the People’s Liberation Army Navy (PLAN) and the role that China’s aircraft carriers are likely to play in the Pacific and the Indian Oceans.

What are various skepticism about the relevance of aircraft carriers in the contemporary world?

- **Low Cost-Benefit ratio:** Building aircraft carriers requires enormous cost and there is little point in spending billions for a carrier strike force to protect the Bay of Bengal or the Arabian Sea, when near-seas defence can be easily ensured from airbases on India’s island territories.
- **Susceptible to enemy attack:** Aircraft carriers are considered as logistically unviable, and highly vulnerable to new hypersonic weapons and disruptive technologies.
- **Chances of aircraft carriers virtually sitting duck in a conflict scenario:** As they are defenceless against modern-day underwater attacks, long-range strategic airpower and ballistic missiles; a virtual sitting duck in a conflict scenario.
- **Symbolic value of Aircraft operating warships** make them prized targets in wartime.
- **Vulnerability of aircraft carriers:** Generally such ships are targets of heavy ordnance as for navies locked in combat, the destruction of the opponent’s aircraft carrier is a priority mission.

Conclusion: Deployment of maritime power needs to be anchored in the logic of geopolitics and long-term state interests, and not on contingent assessments of imminent needs.

Sharad

Cloudbursts



News: Over 20 people have been killed in destruction caused by cloudbursts and flash floods in different parts of Himachal Pradesh and Uttarakhand over the last three days.

GS Paper 1: Important Geophysical Phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

GS Paper 3: Disaster and Disaster Management.

What are cloudbursts?

- A cloudburst is a localised but intense rainfall activity. Short spells of very heavy rainfall over a small geographical area can cause widespread destruction, especially in hilly regions where this phenomenon is the most common.
- During a cloudburst event, a place receives about 10% of this annual rainfall within an hour.
- Not all instances of very heavy rainfall, however, are cloudbursts.

Which event can be described as a cloudburst?

- **Cloudburst has a very specific definition:** Rainfall of 10 cm or more in an hour over a roughly 10 km x 10-km area is classified as a cloudburst event. By this definition, 5 cm of rainfall in a half- hour period over the same area would also be categorized as a cloudburst.

How common are cloudbursts?

Cloudbursts are not uncommon events, particularly during the monsoon months.

- Most cloudbursts happen in the Himalayan states where the local topology, wind systems, and temperature gradients between the lower and upper atmosphere facilitate the occurrence of such events.
- However, not every event that is described as a cloudburst is actually, by definition, a cloudburst. That is because these events are highly localized. They take place in very small areas which are often devoid of rainfall measuring instruments.

What are the consequences of cloud bursts?

Consequences of cloudbursts are not confined to small areas.

- Because of the nature of terrain, the heavy rainfall events often trigger landslides and flash floods, causing extensive destruction downstream. This is the reason why every sudden downpour that leads to destruction of life and property in the hilly areas gets described as a “cloudburst”, irrespective of whether the amount of rainfall meets the defining criteria. At the same time, it is also possible that actual cloudburst events in remote locations aren’t recorded.

Can cloudbursts be forecast?

- The India Meteorological Department forecasts rainfall events well in advance, but it does not predict the quantum of rainfall — in fact, no meteorological agency does. The forecasts can be about light, heavy, or very heavy rainfall, but weather scientists do not have the capability to predict exactly how much rain is likely to fall at any given place.
- Additionally, the forecasts are for a relatively large geographical area, usually a region, a state, a meteorological sub-division, or at best a district. As they zoom in over smaller areas, the forecasts get more and more uncertain. Theoretically, it is not impossible to forecast rainfall over a very small area as well, but it requires a very dense network of weather instruments, and computing capabilities that seem unfeasible with current technologies.

- As a result, specific cloudburst events cannot be forecast. No forecast ever mentions a possibility of a cloudburst. But there are warnings for heavy to very heavy rainfall events, and these are routinely forecast four to five days in advance. Possibility of extremely heavy rainfall, which could result in cloudburst kind of situations, are forecast six to 12 hours in advance.

Are cloudburst incidents increasing?

- There is no long-term trend that suggests that cloudbursts, as defined by the IMD, are rising. What is well established, however, is that incidents of extreme rainfall, as also other extreme weather events, are increasing — not just in India but across the world. While the overall amount of rainfall in India has not changed substantially, an increasing proportion of rainfall is happening in a short span of time. That means that the wet spells are very wet, and are interspersed with prolonged dry spells even in the rainy season.
- This kind of pattern, attributed to climate change, does suggest that cloudburst events might also be on the rise.

YOJNA IAS

Sharad

Nasal Covid Vaccine

News: India gets its first nasal covid vaccine.

GS Paper 3: Science and Technology- Developments and their Applications and Effects in Everyday Life; Achievements of Indians in Science & Technology; Indigenization of Technology and Developing New Technology.



About India's first intra-nasal vaccine for COVID-19:

- Bharat Biotech's **ChAd36-SARS-CoV-S COVID-19 (Chimpanzee Adenovirus Vected)** is India's first intra-nasal vaccine that will be delivered through the nose instead of a shot in the arm.
- Product name is **iNOVACC**
- The vaccine has received approval from the country's apex drug regulator Central Drugs Standard Control Organisation (CDSCO) for emergency use in adults.
- This vaccine has been developed by **Bharat Biotech** with technology in-licensed from Washington University-St Louis,
- It has been **approved for primary immunisation**, meaning it can be given to the unimmunised to protect against Covid-19.

Bharat Biotech's statement on iNOVACC:

- **iNOVACC is a recombinant replication-deficient adenovirus vectored vaccine with a pre-fusion stabilized spike protein.** This vaccine candidate was evaluated in Phase-I, II and III clinical trials with successful results. iNOVACC has been specifically formulated to allow intra-nasal delivery through nasal drops. The nasal delivery system has been designed and developed to be cost-effective in low- and middle-income countries.

Trials for Booster:

- The company found the vaccine to be "safe, well-tolerated, and immunogenic" when compared to its own Covaxin in a phase III trial of nearly 3,100 participants across 14 sites in India. The company has also con-

ducted a trial with 875 participants to see whether the vaccine may be used as a booster in those who have received Covaxin or Covishield as their primary vaccine.

What are the benefits of nasal vaccines over conventional vaccines?

- **No need for needles:** With the vaccine being delivered through a nasal spray, it will do away with the need for needles and syringes currently required for all the Covid-19 vaccines available.
- It will also reduce dependence on personnel trained to give shots.
- **Nasal vaccine triggers an immune response in the mucosal membrane:** Being an intranasal vaccine, **Bharat Biotech's intranasal Covid vaccine (BBV154)** may produce local antibodies in the upper respiratory tract which may provide the potential to reduce infection and transmission.
- **Pave way for efficient distribution and easy administration of COVID-19 Vaccination:** As iNOVACC has been designed for efficient distribution and easy administration. **Product is stable at 2-8°C for easy storage and distribution.**
- **iNOVACC enables mass immunisation through easy nasal delivery.** Hence, It promises to become an important tool in mass vaccinations during pandemics and endemics.
- It protects from emerging variants of concern by enabling faster development of variant-specific vaccines.

Studies in support of Nasal Vaccine for COVID-19:

- A study published in Science Direct showed the pre-clinical efficacy of a **lentiviral vector**, delivered nasally, as a COVID-19 vaccine. The authors said targeting the immune response to the upper respiratory tract provides critical protection, and intranasal vaccination induces protective mucosal immunity against the SARS-CoV-2 in rodents. Given that the SARS-CoV-2 virus shows a proclivity to dwell in the upper respiratory tract for a prolonged period of time, a safe and efficacious nasal vaccine is well-placed to target the literal entry point of the virus into the body.
- Researchers at Lancaster University working with the Biomedical Re-

search Institute in Texas claimed they had administered two doses of a COVID-19 vaccine via a nasal spray in animals, and this had elicited robust antibodies and T-cell responses that were enough to be able to neutralise SARS-CoV-2.

Studies that are apprehensive about suitability of nasal vaccine for COVID-19:

- A study from Washington University found that while a COVID-19 vaccine injection (at that stage) induced an immune response that prevented pneumonia, it did not prevent infection in the nose and lungs. Such a vaccine might reduce the severity of COVID-19, but it could not prevent infected individuals from spreading the virus, said the study.

Are there other such nasal vaccines?

- So far, **intranasal vaccination is being used only for influenza**. However, it cannot be used on certain groups of people, particularly those who have compromised immune systems.
- Science Daily reports that “the new COVID-19 intranasal vaccine in the Washington University study does not use a live virus capable of replication, presumably making it safer”. The Bharat Biotech vaccine also rides on an **adenovirus vector**.

Sharad

Vizhinjam Port Project

News: Fishermen under the archdiocese are protesting against the Adani Ports and SEZ Pvt Ltd for Vizhinjam Port Project.

GS Paper 3: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.



Importance of Vizhinjam project:

Vizhinjam port is important for the maritime development of the country and Kerala:

- It is located on the southern tip of the Indian Peninsula, **just 10 nautical miles** from the major international sea route and east-west shipping axis, and with a natural water **depth of more than 20 m within a nautical mile** from the coast.
- The commissioning of the port is expected to **leverage the growth of 17 minor ports in the State** along with creating thousands of employment opportunities.
- Vizhinjam's proximity to east-west shipping routes, its natural undredged draft of some 20 metres, and suitability for large vessels all make it a unique site.

Stance of Vizhinjam International Seaport Ltd (VISL) and the Kerala Government on Vizhinjam project

- Officials argue that Vizhinjam seaport is being constructed inside a natural sediment cell which is a pocket-like area in which interruptions to the movement of sand along the coast do not significantly affect the adjacent coastline. Further, around 5 km north of the port, there are rocky headlands and pocket beaches where sediment transport due to long-shore drift is relatively low compared to other parts.
- In fact, any port structure could affect its adjacent shores only by way of blocking the longshore drift happening along its coast, which was not taking place in this case. Had the port been developed on a linear coast, adjacent shores would have seen very visible impact. They further argue

that the breakwater structure will not divert the wave energy to other locations leading to erosion. The wave fields after hitting the breakwater, cannot prolong. It dies down immediately, according to VISL.

- However, the port development is likely to cause minor accretion for about 2.6 km to the south of the port, the maximum rate being 21.6 m per year reducing to 0.6 m per year by the tenth year and stabilising thereafter, according to a study conducted by L&T-Ramboll Consulting Engineers Limited, a NABET accredited consultant as part of the Environmental Impact Assessment (EIA).
- The Kerala Government made it clear that since the coastal erosion is due to climate change as reported by various agencies, the demand for stopping the port construction cannot be conceded. However, the Government has expressed willingness to address all other issues raised by the fisherfolk including their rehabilitation and livelihood concerns. Chief Minister Pinarayi told the Assembly on Tuesday that an expert committee would be constituted to study the impact of the port work. Earlier, the High Court had made it clear that the work on the seaport project cannot be halted.

Issues associated with Vizhinjam Project:

- **Damage of houses and livelihood means of fisher folk:** According to the protesters, high-intensity erosion of the coastline of Thiruvananthapuram started only after the construction of a breakwater (only 33 percent of the 3.1 km breakwater has been completed to date).
- **Heavy financial cost to Kerala Government:** Government of Kerala bears 67% of the financing and the Concessionaire (extended to a generous 40 years) 33%, with a low internal rate of return of 3.7% for the Government and 15% for the Concessionaire. Despite the locational advantages, the Adani Vizhinjam Port Pvt. Ltd., finds the deal attractive only with the inclusion of large real estate components in prime port property.
- **Revenue generation is at the cost of a heavy human toll:** Some 350 families that have lost homes to coastal erosion last year, and those living in makeshift schools and camps are just a foretaste of things to come if coastal erosion and extreme cyclones continue unabated.

- **Irreversible destruction of ecology will trigger deadlier natural hazards:** Ports without adequate safeguards in a highly delicate ecology unleash destruction on marine life and the livelihoods of the local population. **Example:** Visakhapatnam and Chennai where deepening of harbour channels in ecologically sensitive areas exacerbated siltation, coastal erosion and accretion.
- Despite the chances of fallout for the shoreline and marine ecosystem from construction of breakwater and dredging no funds have been earmarked for maintenance dredging within operational expenses.
- Project documents hardly address the effects of the port on the precious marine ecosystem and biodiversity, that is a huge priority for Kerala.
- **Factual errors in the vital shoreline assessment in the EIA,2013:**For example, there is no mention of the ecological consequences of the dismantling of two hills in the Western Ghats to provide rocks for the project, aside from destroying a few promontories at the project site.
- **Recent analysis by National Institute of Ocean Technology (NIOT)** attributes the erosion and accretion to climate change more than port activity that may aggravates the risk as the extreme stress north of the port cannot be explained by global warming.
- **Further complication of erosion due to reclamation, dredging and construction of breakwaters.** Breakwaters have exacerbated the drastic shoreline changes in and around its proximity. In almost all these areas, the coast to the north of the breakwaters is heavily eroded.

Way forward:

- Continuous monitoring of the port activity and its impact on the coast.
- Representation from the fisher-folk community in any expert study to unearth the impact of the port work on the shoreline.
- Constitution of expert committee would be constituted to study the impact of the port work.
- Resettlement and livelihood outlays by the owners over the life of the project like Port projects in China, Kenya, and Vietnam.The project must allocate funds in recognition of people's centuries' old right to the sea

and its resources.

- Building safeguards that could potentially run economic growth and socio-economic sustainability in tandem.
- **Need for serious discussion of flora, fauna, and lakes in the environmental impact assessment (EIA):** As recent studies have identified the Vizhinjam-Poovar stretch as a biodiversity hotspot and recommended that the region be recognised as a marine protected area.
- Environmental regulation through pollution penalties that should be high enough and borne by the creators of damages.
- For large-scale infrastructure projects, the financier and the borrower must implement sufficient safeguards to avoid marine pollution and destruction.
- Corrective action by way of hard-engineering solutions such as seawalls and soft responses such as vegetation is in order.
- **Acceptable Environmental Impact Assessment(EIA)** that addresses the gross neglect of the damage to invaluable marine biodiversity including inputs from experts in biology, ecology, and oceanography.
- Independent assessment of safeguards that port authorities must put in place as a precondition for any further construction.

Sharad

SC issues notice to EC, Govt on parties using religious names, symbols.

News: The Supreme Court Monday issued notice on a plea seeking cancellation of registration of political parties that use religious symbols or names of religions in their nomenclature.

GS Paper 3: Salient features of the Representation of People's Act.

Sl. No.	Name of the Party	Name of Election(s)	No. of constituencies	Assembly	Common Symbol allotted
1.	Janhit Dal	Legislative Assembly of Bihar, 2020.	In all 243 Assembly Constituencies in the State of Bihar.		<u>Babbar</u>
2.	Bharatiya Aam Awam Party	Legislative Assembly of Bihar, 2020.	In all 243 Assembly Constituencies in the State of Bihar.		<u>Capricorn</u>
3.	Rashtriya Jan Kalyan Party Secular	Legislative Assembly of Bihar, 2020.	In all 243 Assembly Constituencies in the State of Bihar.		<u>Winnower</u>
4.	Nehru Janhit Congress	Legislative Assembly of Bihar, 2020.	In all 243 Assembly Constituencies in the State of Bihar.		<u>Cake</u>
5.	Bharatiya Samyukt Kisan Party	Legislative Assembly of Bihar, 2020.	In all 243 Assembly Constituencies in the State of Bihar.		<u>Drilled Pump</u>
6.	Rashtriya Yuva Morcha Dal	Legislative Assembly of Bihar, 2020.	In all 243 Assembly Constituencies in the State of Bihar.		<u>Bangles</u>

What is the significance of symbols in elections?

- In a vast and diverse country like India, where several nondescript and small political parties try out their luck in state elections, symbols are crucial campaigning tools to connect with the voters. Symbols have become a crucial part of the electoral process ever since India held its first national polls in 1951-52.
- Since **nearly 85 per cent of the electorate** were illiterate at that point, visual symbols were allotted to parties and candidates to help them identify the party of their choice.

How many types of symbols are there?

- As per the **Election Symbols (Reservation and Allotment) (Amendment) Order, 2017**, party symbols are either “**reserved**” or “**free**”. While eight national parties and 64 state parties across the country have “**reserved**” symbols, the Election Commission also has a pool of nearly 200 “**free**” symbols that are allotted to the thousands of unrecognized regional parties that pop up before elections.
- According to EC, there are 2,538 unrecognized parties in India.** For example, if a party recognised in a particular state contests in elections in another state, it can “reserve” the symbol being used by it, provided the symbol is not being used or bears resemblance to that of any other party.

How are symbols allotted to political parties?

- The order, first promulgated in 1968, mandates the Election Commission to provide for “specification, reservation, choice and allotment of symbols at parliamentary and assembly elections, for the recognition of political parties”.
- As per the guidelines, to get a symbol allotted, a party/candidate has to provide a list of three symbols from the EC’s free symbols list at the time of filing nomination papers. Among them, one symbol is allotted to the party/candidate on a first-come-first-serve basis.
- When a recognised political party splits, the Election Commission takes the decision on assigning the symbol. For example, when the Samajwadi Party split, the EC allotted the ‘bicycle’ to the Akhilesh Yadav faction.

How does the Election Commission decide on party symbol disputes?

- **Authority under which EC decides party symbol disputes:** The Election Symbols (Reservation and Allotment) Order, 1968 empowers the EC to recognize political parties and allot symbols. Under **Paragraph 15 of the Order**, it can decide disputes among rival groups or sections of a recognized political party staking claim to its name and symbol.
- **Legal status of Paragraph 15:** Under Paragraph 15, the EC is the only authority to decide issues on a dispute or a merger. The Supreme Court upheld its validity in **Sadiq Ali and another vs. ECI in 1971**.
- Aspects EC consider before **recognizing** one group as the official party: The ECI primarily ascertains the support enjoyed by a claimant within a political party in its organizational wing and in its legislative wing.
- **Criteria under which ECI establishes claim of majority in these wings:** The Commission examines the party’s constitution and its list of office-bearers submitted when the party was united. It identifies the apex committee(s) in the organisation and finds out how many office-bearers, members or delegates support the rival claimants. For the legislative wing, the party goes by the number of MPs and MLAs in the rival camps. It may consider affidavits filed by these members to ascertain where they stand.
- **Ruling that EC gives after a definite finding:** The ECI may decide the

dispute in favor of one faction by holding that it commands enough support in its organisational and legislative wings to be entitled to the name and symbol of the recognised party. It may permit the other group to register itself as a separate political party.

- **In case of uncertainty about the majority of either faction:** Where the party is either vertically divided or it is not possible to say with certainty which group has a majority, the EC may freeze the party's symbol and allow the groups to register themselves with new names or add prefixes or suffixes to the party's existing names.
- **Can a dispute be decided immediately, if elections are round the corner?:** The EC may take time to gather enough material to decide the question. For immediate electoral purposes, it may freeze the party's symbol and advise the groups to fight the elections in different names and on temporary symbols.
- **What happens when rival factions settle their differences in future?:** If reunited, the claimants may approach the EC again and seek to be recognised as a unified party. The EC is also empowered to recognise mergers of groups into one entity. It may restore the symbol and name of the original party.

Supreme Court's verdict in Abhiram Singh Vs C D Commachen:

The Representation of the People Act, 1951, is the law governing the conduct of elections in India. Section 123 (3) of this law mandates that canvassing votes on the grounds of one's own caste, religion or community would be deemed to be a "corrupt" electoral practice, and a candidate found indulging in such practices would face disqualification

To address votes on the grounds of one's own caste, religion or communities Supreme Court's seven judge bench in Abhiram Singh Vs C D Commachen stepped in and ruled that elections must be purged of the various manifestations of religion, caste and community in all forms whatsoever. Therefore, "his" should apply both ways, because the purpose of the law was to prevent communal and parochial appeals from destroying the secular fabric of society and the sanctity of democratic elections.

To what extent it will wipe out identity politics?

Supreme Court bench of seven judges ruling in the **Abhiram Singh Vs C D Commachen case**, if implemented in both letter and spirit, would halt the purveyors of hate right in their tracks. Not only that, they would also be bound by law to be disqualified even if they win elections based on their religious and often sectarian agendas. However the court didn't issue appropriate directions to the EC regarding the implementation of its judgment. For example, every election campaign speech needs to be properly video graphed and recorded, and the EC must make suitable infrastructural arrangements which weaken the efficacy of judgement in eliminating identity politics

Sharad

Amendment to the Legal Metrology (Packaged Commodities) Rules 2011

News: Department of Consumer Affairs, Legal Metrology Division has notified a draft amendment to the Legal Metrology (Packaged Commodities) Rules 2011.

GS Paper 2: Government Policies and Interventions for Development in various sectors and Issues arising out of their Design and Implementation.



Key features of Legal Metrology (Packaged Commodities) Rules 2011:

- Mandatory declaration of Maximum Retail Price MRP in Indian currency inclusive of all taxes on pre packed products.
- For protection of Consumer rights, Unit Sale Price for all pre packaged commodities meant for retail sale is introduced.
- Declaration of date of manufacture on the pre packaged commodities is made mandatory for pre packed commodities under the revised rules.

What are the mandatory provisions under the Legal Metrology (Packaged Commodities) Rules, 2011?

- It is mandatory under the **Legal Metrology (Packaged Commodities) Rules, 2011** to ensure a number of declarations, such as the name and address of the manufacturer/packer/importer, the country of origin, the common or generic name of the commodity, the net quantity, the month and year of manufacture, the Maximum Retail Price (MRP) and consumer care information. As a consumer-oriented policy, all pre packaged commodities should also be inspected.
- As stated in **Rule 2(h)**, the “**principal display panel**”, in relation to a package, means the total surface area of a package containing the information required in accordance with these rules, namely that all the information should be grouped together and given in one place — the pre-printed information could be grouped together and given in one place and the online information in another place.
- Additionally, **Rule 9(1)(a)** provides that the declaration on the package must be legible and prominent. The consumers’ ‘right to be informed’ is violated when important declarations are not prominently displayed on the package.
- If there is more than one major product, **Rule 6(1)(b)** states that “.....the name or number of each product shall be mentioned on the package.” This sub-rule is, however, not applicable to mechanical or electrical commodities.

What are the current issues?

- As many blended food and cosmetic products are sold on the market, the key constituents need to be mentioned on the product packaging. It is common for consumers to assume that brands’ claims are accurate, but

such claims are usually misleading.

- **Listing the Unique Selling Point (USP) of a product on the front of the package without disclosing its composition percentage violates consumer rights:** As USP that is also known as a unique selling point, is a marketing strategy designed to inform customers about the superiority of one's own brand or product.
- **Misleading product name:** As packages displaying key constituents must display a percentage of the content used to make the product. For example, if a brand sells aloe vera moisturiser or almond milk/biscuits, then the maximum percentage of the product should be aloe vera and almond, otherwise, the product is misleading.
- Currently, manufacturers list the ingredients and nutritional information only on the back of the packaging.

What are the proposed amendments?

- The Department of Consumer Affairs, Legal Metrology Division has suggested that at least two prime components should be declared on the package's front side along with the brand name.
- The proposed Section 6(1)(ba) states that when a commodity contains more than one constituent, the front side of the package must include a declaration of two or more of the commodities' prime constituents along with the brand name. This declaration must also include the percentage/quantity of the USPs of the product in the same font size as the declaration of the USPs. However, **mechanical or electrical commodities are excluded from this sub-rule.**

Benefits of proposed amendments:

- When the new provision of Section 6(1) (ba) is added, consumers will not be misled by the fake claims of manufacturers relating to the content in blended foods and cosmetics

Sharad

Call for Joint Space Exercise between India&US

News: India and the U.S. will undertake joint military drills in October in Auli, Uttarakhand. Auli is at an altitude of 10,000 feet and some 95 km from the Line of Actual Control (LAC). The time is ripe for the inaugural India-U.S. joint space military exercise.

GS Paper 3 : Security Challenges.



Military Space programmes all over the world:

Every country worth its weight in salt is working on the military aspects of space.

- In 2019, the U.S. stood up its space force as a branch under the department of the Air Force. At the time, it became the world's only independent space force.
- France conducted its **first space military exercise, ASTERX, in 2021.**
- China is marching ahead to the **Cis-Lunar space (region beyond the geosynchronous orbit)** with an ambition to establish a permanent presence on the Moon by 2024.
- Space doctrine is still evolving with the U.S. urging partner countries to lay down rules and norms. China and Russia have released a draft binding treaty of their own.

Indian Policy response towards militarisation of space:

- Indian Space Research Organisation (ISRO) and Defence Research and Development Organisation (DRDO) successfully demonstrated (dubbed **Mission Shakti**) an **anti-satellite (ASAT) missile test** in 2019.
- India conducted a **simulated space warfare exercise (IndSpaceX)** with an eye on Chinese threats.

- Launch of the **tri-service Defence Space Agency (DSA)** that has permanently taken the military away from the shadows of civil space.
- Setting up of **Defence Space Research Agency (DSRA)** to help develop space-based weapons for the DSA.
- Space is as much recognised as a military domain as land, water, air and cyber.

Why Joint Space Exercise is needed?

- **Joint Space Exercise between India and US will push India's defence partnership into a new orbit:** Space has been singled out as a critical area of cooperation in the recent Defence Technology and Trade Initiative (DTTI) meeting between India and the U.S.
- It will send a strong message to a common adversary as for the first time in history, both countries are jointly staring at a common adversary i.e China
- It will have other ripple effects for the wider Quad.
- Several Countries are pursuing militarisation of space hence space is an ideal new theatre to push Indo-U.S. military collaboration forward.
- Changing times now require us to innovate on doctrines, technologies and deterrence. Xi Jinping is on his way to building a “world-class” Chinese military by 2049.
- Space has assets that form the bedrock of the modern economy — Global Positioning System or GPS (PNT — position navigation timing), telecom networks, early warning systems for missiles and weather forecasts all are enabled by our satellites in Geosynchronous Earth Orbit (GEO) or Low Earth Orbit (LEO) orbits. Hence, it needs to be protected.

What are the issues that may arise due to India -US joint space exercise?

- It will provoke our eastern neighbour and compel them to draw a new redline.
- Our eastern neighbour will use our western neighbour as a proxy state.
- It will derail the ongoing Core Commanders dialogue in Ladakh.

- Trust issues associated with United States.
- It will **fastback militarisation for space**. Our response to all the above is that it is an inevitable trend unfortunately, notwithstanding our action or inaction.

Way Forward:

- **India and the U.S.A should start with a joint anti-satellite (ASAT) missile test** as both countries have demonstrated capability in this. ASAT is essentially a missile launched from the Earth's surface to destroy a satellite passing overhead.
- Gradually from joint anti-satellite (ASAT) missile test to other space military collaborations such as directed energy weapons, rendezvous and proximity operations (RPOs), co-orbital ASATs (in space micro satellites as a kinetic kill option), etc.

Conclusion: It is time for the India-U.S. military collaboration to get bolder and travel from mountains to outer heavens.

Sharad

INTERNATIONAL TRADE IN RUPEE

GS Paper 3: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

News: Meeting between The Finance Ministry and other stakeholders to discuss approaches to promote global trade in rupee rather than the US dollar.

Present Mechanism of Trade:

- Except Nepal and Bhutan exports or imports by a company are always in a foreign currency.
- Indian companies have to pay in a foreign currency, during imports and they get paid in foreign currency in case of exports.
- After that companies convert that foreign currency to rupee since it needs rupee for its requirements in most of the cases.

RBI 's notification for International Trade Settlement mechanism in INR:

- All exports and imports under this arrangement may be denominated and invoiced in rupee (INR) and the exchange rate between the currencies of the two trading partner countries may be market determined.
- Authorized Dealers (AD) banks in India had been permitted to open Rupee Vostro Accounts.
- Indian exporters may receive advance payment against exports from overseas importers in Indian rupees through the above Rupee Payment Mechanism.
- But, Before allowing any such receipt of advance payment against exports, Indian banks need to ensure that available funds in these accounts are first used towards payment obligations arising out of already executed export orders / export payments in the pipeline.

Working Mechanism:

- Banks in India would open Vostro accounts of correspondent bank/s of the partner country to settle trade transactions with any country.
- Payment of imports by Indian importers will be done in INR into Vostro accounts. Now, these earnings from imports can then be used to pay Indian exporters in INR.
- **Meaning of Vostro account:** An account that a correspondent bank holds on behalf of another bank. **For example:** HSBC Vostro account is held by SBI in India.

Advantages due to International trade settlements in rupees:

- The **RBI circular said** that it was to “promote growth of global trade with emphasis on exports from India and to support the increasing interest of the global trading community in INR”.
- **Trouble free trading with Russia:-** Since, Russia is facing global sanctions Reserve Bank of India (RBI)'s mechanism to facilitate international trade in rupees (INR) will enhance India-Russia trade. Aim is primarily to facilitate trade with Russia but it will also help India to trade with other countries under sanction like Iran.
- It will reduce the **risk of forex fluctuation** specially looking at the Euro-Rupee parity.
- It will help check dollar outflow and enhance forex reserves as Indian compa-

nies need not to pay in foreign currency in case of export.

- To a “very limited extent” it will slow the depreciation of the rupee as Rupee has been depreciating against the dollar.
- It may pave the way towards **100% convertibility of Rupee.**
- In the long run it will enable greater use of INR in foreign trade.

Issues associated with this arrangement:

- Mechanism may not be extended to other countries as countries like Sri Lanka may need foreign currency to pay for their own imports.
- Government still to clarify on export benefits on such exports in Rupee, which is hitherto only granted for export payments received in foreign currency.

Sharad

Editorial: The stark reasons why Bengaluru is sinking.



The stark reasons why Bengaluru is sinking

Citizens need to back politicians and bureaucrats who bring development and environmental protection to the fore



American medical history says that everything is little easier in a school of Veterinary Medicine in Bologna. Moreover, it's all good enough, has the power of a great medical school.

[illegible]

Global warming may have water and climate experts less than optimistically highlighting how to best combat these risks and opportunities. Increased precipitation may lead to increased flooding, while being the consequence of sea level rise.

When the sun began
There is consensus that we must do something. We know what to do, but where do we begin? How do we proceed and what is the sequence? Who will do it?

leaving up the villages around it. The parishes were disbanded to create six city municipal corporations, which were merged into six districts, which were merged into six parishes. The first parish was the city of Copenhagen. During this transition, land records were either destroyed or tampered with, and lake shorements falsifiably coverage increased. Lakes and their catchments were used as political tools. The lakes and their catchments were used to create a new political boundary. The lakes and their catchments were used to create a new political boundary. The lakes and their catchments were used to create a new political boundary.

[illegible]

The difference, however, as we learn in this — dry game where we have had the horses in hand and in control is a well-orchestrated and lively one. We, in contrast, are displaying our vulnerability when things change in a dry game, as we and horses demonstrate only



Increasingly, designers provide easily implemented options, often directly. The basic activated sludge process is a relatively sophisticated water-treating technology, requiring a garbage incinerator, a supply of lime, and a lot of electricity, for example. We are better off, though, as ever,

[illegible]

Feeling confident looks active
We want you to feel confident in the products we release, so here we need to build change resistance and a better environment.

That, we must assume initially, individuals in a population differ in their degree of interest in the system. They are differentially motivated to get in each other's way (although, presumably, not personally) and to oppose the social change efforts. However,

and land expropriation. Standard situations involve the expropriation of continuously compliant structures, with local governments at the top. These independent planning authorities must be merged and subordinated to the Strategic Planning Committee. The constitutionally mandated institutions must also be abolished. In Bangladesh's largest local council in Dhaka, the urban, the police and command highway and railways, as the metropolitan police and parastatals within the metropolitan area, to participate. The most prominent such as the Dhaka and the Dhaka City Council should be subordinated to the local.

[illegible]

The most direct way to design behavior of noncomputable systems is to use logic and environment. The art of *sketching* is to indicate some of these noncomputable components and require hardware and software. Any delay will result in a new exhibiting the delay, in the process of global reasoning, instead of being blind matter will operate, the other the other.

incredibly. How can we achieve our aims to the tender ministrations of our corporations, who have the reputation of being (though I am sure) hardly thinking in relation to environmental issues? First, we must select better people for the job. Second, the thought that the higher we go, the more principles and humanitarian principles we find, is a fallacy and a false promise. Third, it is essential to the biggest work of accountability to be able to reach executives and professionals, using these instruments to work with them. Fourth, there are no corresponding people participating in the process. In fact, the process is not working.

[illegible]

Sound profits
Finally, cyclical approaches from their institutions. Political parties of all hues have been requiring transparency for decades, but as far as I've observed so far, not all have accepted the consequences when that development and serious mismanagement, as well as the subsidies. One bad policy is that of not keeping good estimates and information out of decision-making. While public parties

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News Editorial: The stark reasons why Bengaluru is sinking.

GS Paper 1: Urbanization, their problems and their remedies.

Reasons for flooding in Bengaluru:

- **Deterioration of rainwater infiltration due to growth of urban jungle:** Pon-naiyar river catchment area of Bengaluru witnessed most of the flooding due to highly clayey soil and due to this only 3% of the water gets infiltrated in this soil condition.
- **Irrational urbanisation in areas around various lakes in Bengaluru** has resulted in the deterioration of original storm water drains.
- During transition from villages and panchayats into the Bhruhat Bengaluru Mahanagara Palike (BBMP) fake documents of land records were fabricated for corrupt interests.
- Due to the above corruption Lakes and their catchment areas were transformed into private lands.
- Builders backfilled these private lands and soon made quick money building apartments, shopping malls and information-technology parks.
- To **become pulsating economic growth engines** Bengaluru saw ruthless destruction of the environment.
- **Bengaluru witnessed a nexus of corruption** involving politicians and bureaucrats, abstaining from environmentally sensible decisions for short-term gains.

Way Forward:

- **Building institutional capacity to handle the problems of the future** through constitutionally compliant structure, with local governments at the top.
- **Meeting the water requirement of Bengaluru** by enhancing the recharge capabilities of the catchment by maintaining sufficient open spaces and green spaces with native species, decentralised rainwater harvesting, and wastewater treatment and reuse.
- **Ecological imbalance leading to drying up of Arkavathy river** due to check dams, excessive groundwater use and presence of eucalyptus plantations.

- **Implementation of Innovative (ecological and engineering) solutions** for water retention like watershed interventions in the Arkavathy basin by volunteers of agencies.
- **Properly implementing reforms like rainwater harvesting**, solar water heating, segregation of garbage and the stoppage of littering within the deadlines.
- **Better Inter-agency Coordination: Instead of multiplicity of institutions there must be single institutions** by merging and subordinating Eleven independent planning authorities to the Metropolitan Planning Committee for proper execution.
- **Remove unacceptable constructions** and restore wetlands and tank beds.
- Focus on **Climate resilience** that goes beyond flood control to minimise the damaging environmental impact on cities.
- Focus should be on **improving cheap public transportation buses** instead of waiting for the expensive metro.
- **Preserve existing green cover and plant more trees**, both in the city and around it.
- **De-concretise pavements of Bengaluru** prohibit littering and segregate garbage as unsegregated garbage clogs drains.
- **Enforce sewage treatment plant** operational standards.
- Efforts must be made to **improve Rajakaluves (channels that connect water bodies)**.
- Make way for **peoples' participation** in State departments and parastatals.
- **Proper Accountability:** In case of poor infrastructure design, make the whole chain of decision-making accountable.

Sharad