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# GS 1 HISTORY

## An abode for fugitives to an architectural landmark: The story of Balban's Tomb

#BalbanTomb #MehrauliArchaeologicalPark  
#CorbeledArch #TrueArch  
#IndoIslamicArchitecture #MedievalIndia  
#History #GS1

Built in the 13th century and now renovated from ruins, the Tomb of Balban located inside Mehrauli's Archaeological park has served many purposes in its lifetime: an abode for debtors and fugitives, a slave-turned-Sultan's Tomb, and a landmark in India's architectural history.



Tomb of Balban

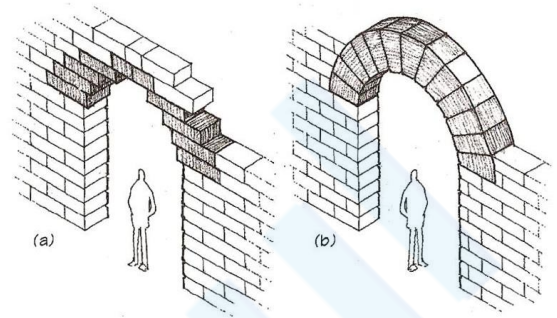
Ghiyas-ud-din Balban, a Sultan of the Mamluk (Slave) dynasty— the first of the Delhi Sultanate dynasties — ruled from Delhi between 1266 AD and 1287 AD.

Balban was sold as a slave to the then-ruler Iltutmish in 1232 CE, who later released him.

According to the official website of the Ministry of culture, "Ghiyas-ud-din Balban, one of the most powerful slave sultans after Iltutmish, is buried within the archaeological park, in a building once built by the Sultan himself called the Dar-ul-Amaan (Haven of Safety)".

"Unlike the *corbelled arches* of Qutub Complex, the *true arches* of Balban's tomb have the keystone placed at the centre, which evenly distributes the weight of the superstructure. From here on, True arches became a common feature of the Indo-

Islamic architecture of Delhi," said the website, explaining its architectural significance.



Corbelled Arch (a) & True (Voussoir) Arch (b)

A few weeks ago, Lieutenant Governor VK Saxena unveiled six renovations nestled inside the park, one among which was the tomb of Balban.

It's a square building with spacious rooms on either side.

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## In bylanes of a Delhi village, 600-yr-old Khirki Masjid still holds its own

#KhirkiMasjid #TughlaqDynasty  
#MedievalIndia #History #GS1

Taking a walk through the bylanes of Khirki, an urban village nestled inside South Delhi's Malviya Nagar, an imposing, stone structure comes into view. This is the Khirki Masjid, built by Khan-i-Jahan Junan Shah, the Prime Minister of Firoz Shah Tughlaq who ruled in the 14th century.

According to the official website of Delhi Tourism, "A blend of both Hindu and Muslim architecture, the Khirki mosque is a perfect amalgamation of the two separated frontiers."

The mosque contains around 85 domes but the most striking aspect of the structure is the numerous windows or 'khirki' that dot the premises. The primary purpose of these windows was to provide light and air as a source of ventilation to the courtyard of the mosque.

manuscripts. In the last four years, India has brought back about 400 smuggled/ stolen antiquities from the US.

In fact, the US has 25 active bilateral cultural property agreements including with Afghanistan, China, Cambodia, Egypt, Greece, Italy, Jordan and Turkey. Even as these agreements do not provide a timeline for returns, the process is generally smooth and faster than what it would have otherwise.

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## Kambala comes to Bengaluru: How buffalo race's popularity outran bans

#Kambala #AnimalRace #Culture #ArtandCulture #GS1

### What is Kambala?

It is a folk sport practised in coastal Karnataka districts, especially in regions where Tulu speakers form a majority. In the past, races were hosted by various families and groups in sludgy fields in the days after paddy was harvested. More recently, various Kambala Samithis or organising bodies have come up, which host weekly events from the end of November till the first half of April across Dakshina Kannada and Udupi districts.

Kambala is a matter of prestige for many families, especially from the Bunt community in the coastal areas. Pairs of buffaloes are groomed by them round the year in the hope of winning a Kambala event.



Jockey running with buffaloes during Kambala

### What are the categories in Kambala?

Kambala is generally held under four categories.

First is **Negilu (plough)**, where light ploughs are used to tie buffaloes for the race. The event is for entry-level animals.

The second is **Hagga (rope)**, where buffaloes are raced by jockeys with just a rope tying the pair together.

The third category is **Adda Halage**, in which jockeys stand over a horizontal plank dragged by buffaloes. Thus, unlike Hagga and Negilu, where jockeys run behind the animals, in this, buffaloes drag the jockeys.

**Kane Halage** is the fourth category, where a wooden plank is tied to buffaloes. The plank, on which the jockeys stand, has two holes through which water gushes out as the plank is dragged along the slush tracks. The height to which water splashes determines the winner of the event.

### Is Kambala popular across Karnataka?

Though the popularity of the races is restricted to coastal Karnataka, the Bengaluru organisers believe that movies like 'Kanthara' have given the event a pan-Karnataka appeal. Due to the success of the movie, many people are interested in learning more about the folk sport.

To ensure that more teams participated in the Kambala at the state's capital, an incentive of Rs 50,000 was offered to bring the buffaloes to Bengaluru for the event.

### Why was Kambala outlawed by the Supreme Court?

Several organisations, including People for the Ethical Treatment of Animals (PETA), had filed a petition against all traditional sporting events, complaining about animal abuse.

The complaint against Kambala was that the buffaloes' noses are tied with a rope and the animals are whipped continuously during

the race, which amounts to cruelty. The SC, which heard these petitions, ruled to ban Jallikattu, Kambala and bullock cart racing in 2014.

### How was the ban lifted?

In January 2016, the Environment Ministry issued a notification where an exception was made, saying “bulls might be continued to be trained as performing animals at events such as Jallikattu in Tamil Nadu and Bullock Cart Races in Maharashtra, Karnataka, Punjab, Haryana, Kerala and Gujarat in the manner...or practice traditionally under the customs or as part of culture in any part of the country.” This exception was made subject to certain conditions aimed at reducing the suffering of the animals being used for such sports.

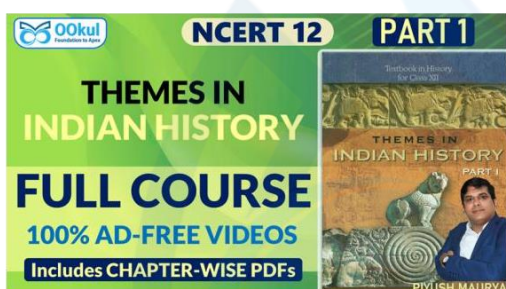
At the same time, state governments amended provisions of the Prevention of Cruelty to Animals Act to provide an exemption for these events. Though this was challenged, a five-judge Constitutional Bench upheld the amendments made by Karnataka, Tamil Nadu, and Maharashtra in May this year.

### Why has Kambala been accused of caste discrimination?

Historically, members of the Koraga community, once considered “untouchable”, were ill-treated before the festival kicked off, with some even made to race instead of the buffaloes. Today too, critics argue, the sport is controlled by dominant caste groups while those considered “lower caste” end up doing menial jobs during the event.

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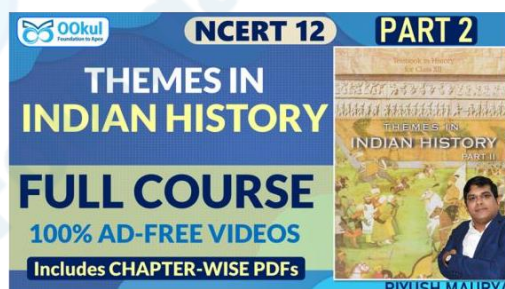
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## GS 1 SOCIAL ISSUES

### Four out of five organ recipients in country are men: NOTTO data

*#OrganDonation #NOTTO #GenderDisparity #HealthIssues #SocialIssue #GS1*

Four out of five organ recipients in India between 1995 and 2021 were men, according

to data collated by the National Organ and Tissue Transplant Organisation (NOTTO) — numbers which indicate the prevailing gender disparity among those seeking healthcare.

Out of the total 36,640 patients who underwent the transplants, 29,695 were men, according to

statement, investigate the matter and file the chargesheet. If the police were not convinced of the facts, why did they not file a “B summary” report and close the case? Why did the magistrate take cognisance of the case? Why were Section 41 of the Code of Criminal Procedure and guidelines from Arnesh Kumar v. State of Bihar regarding arrest not followed by the police and court? Instead of pulling up the police and magistrate for these oversights, the

court placed the onus on the woman and then went on to make the sweeping comment that “women are misusing the law”. Such comments send out a dangerous message to all the implementing agencies and will only serve to snuff out the hopes of women approaching the law to address the serious issue of domestic violence.

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## **GS 1 GEOGRAPHY**

### **UN report on groundwater extraction: Every drop counts**

**#GroundwaterExtraction**

**#GroundwaterReplenishment**

**#MihirShahCommittee #AtalBhujalYojana**

**#Geography #GS1**

A report published, last week, by United Nations University has warned that **27 of the 31 aquifers in the country are depleting faster than they can be replenished**. The alarm bells have been ringing for at least a decade. **In 2016, the Mihir Shah Committee** argued that there is little “understanding of river systems or their interconnections with the health of catchment areas or groundwater”. **Several other reports, including those commissioned by the Niti Aayog and the Central Water Commission, have underlined the poor state of the country’s aquifers**. Conversations in the wake of these studies pushed the **Union Jal Shakti Ministry to initiate the Atal Bhujal Yojana in 78 water-stressed districts**. The programme, which commenced in 2020, aims to bring about behavioural changes at the community level in seven states. It’s a welcome initiative and Ministry data does show that **groundwater extraction for irrigation, domestic and industrial uses came down by about 6 billion cubic metres in 2022 from 2020**. However, the gravity of the crisis is such that much more is required from the Centre and the states.

**India pumps up the most groundwater globally — more than China and the US**

combined. According to the Central Ground Water Board, about 70 per cent of the water used in the country is from groundwater sources. The emphasis on the use of tubewells and borewells played an important role in ensuring food security. But as the Shah Committee pointed out, there has been little emphasis on institutional innovations in the water sector. **The link between power subsidies and the falling water table in states such as Punjab has been long apparent**. Yet, addressing demand-side management remains a complex problem. **The UN report shows that 78 per cent of the wells in the state are overexploited**.

In recent years, researchers have joined the dots between groundwater extraction and the climate crisis. The problem could become acute in the country’s southwest, where aquifers of hard rock already impose limits on recharging. Hotter temperatures could leave less moisture to soak in the soil and replenish groundwater sources. In recent years, the Centre has been trying to promote less thirsty crops like millets and the use of efficient watering techniques. But because borewells and tubewells are covered structures, people don’t realise the gravity of the crisis till it’s too late. The use of technologies that allow people to monitor the water available in their borewells could be the first step to nudge them to manage aquifers responsibly. These could be the catalyst for bringing about behavioural changes.

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## GS 2 POLITY

### What is the Advocate-on-Record system in the Supreme Court?

#Advocate-on-Record #TypesOfAdvocates  
#BarCouncil #SupremeCourt  
#AdvocatesAct1961 #Judiciary #Polity #GS2

The Supreme Court this week pulled up an Advocate-on-Record (AoR) for filing a frivolous case and dismissed the public interest litigation. The Court censured the lawyer that an AoR cannot merely be a “signing authority.”

A bench of Justices Sanjay Kishan Kaul, Sudhanshu Dhulia, and PK Mishra also called for a “comprehensive plan” for reforming and improving the AoR system of the top court, which will be drawn up in collaboration with the Bar.

#### Who is an AoR?

**Only an AoR can file cases before the Supreme Court. An AoR might engage other lawyers including senior counsels to argue before the Court but the AoR is essentially the link between the litigant and the highest court of the country.**

After fulfilling an eligibility criteria and clearing a rather tough examination, an advocate is qualified to be an AoR.

Simply put, AORs are a pool of elite Delhi-based lawyers whose legal practice is mostly before the SC. They can appear before other courts too. The idea behind this practice is that a lawyer with special qualifications, picked by the Supreme Court itself, is equipped to appear for a litigant because it is a court of the last opportunity for the litigant.

#### How does one become an AoR?

The Supreme Court Rules, 2013 prescribe eligibility criteria for an AoR.

While an advocate has to clear an examination set by the Court itself, the advocate has to meet specific criteria to be eligible to appear for the exam. **The advocate must train with a court approved AoR for at least one year to take up the exam. She must also have at least four**

**years of practice before starting the training itself.**

An advocate needs to score at least 60% i.e. a minimum of 240 marks out of 400 with at least 50% in each subject in a three-hour exam. The subjects include Practice and Procedure, Drafting, Professional Ethics and Leading Cases. Approximately 200-250 lawyers clear the exam to become AoRs.

**An AoR must have an office in Delhi within a 16-kilometre radius of the SC. Additionally, she is required to give an undertaking to employ, within one month of being registered as an AoR, a registered clerk.**

#### What are the rules governing the AoR system?

According to Section 30 of the Advocates Act, any lawyer enrolled with the Bar Council is entitled to practice law before any Court or tribunal in the country. However, the provision also categorically states that “nothing in the provision shall be deemed to affect the power of the Supreme Court to make rules under Article 145 of the Constitution.”

**Under Article 145 of the Constitution, the Supreme Court is empowered to make rules and regulate its own procedure for hearing cases.**

**The AoR system is broadly based on the British practice of barristers and solicitors.** While barristers wear the black gown and wig and argue cases, solicitors take up cases from clients. In the Federal Court, the colonial predecessor of the Supreme Court, “agents” would take up cases while barristers would argue. In High Courts, the arguing counsels were referred to as pleaders. **Senior advocates in India are designated by the Court and wear a distinct gown. Like barristers, they cannot solicit clients and are only briefed by other lawyers, say for example, an AoR.**

The Supreme Court’s website on the history of the Court states that the inaugural proceedings of the SC was done after “taking care to ensure that the Rules of the Supreme Court were



published and the names of all the Advocates and agents of the Federal Court were brought on the rolls of the Supreme Court.”

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## Was kept in dark on appointment of new CIC Heeralal Samariya: Adhir writes to President

[#ChiefInformationCommissioner](#)

[#CICappointment](#)

[#RTIact](#)

[#CentralInformationCommission](#)

[#NonConstitutionalBody](#) [#Polity](#) [#GS2](#)

In what could potentially deepen the trust deficit between the Opposition and the Centre, the appointment of Information Commissioner Heeralal Samariya as the Chief Information Commissioner Monday triggered a political row with Congress MP Adhir Ranjan Chowdhury, the Opposition member in the Prime Minister-headed high-powered selection committee, writing to President Droupadi Murmu, saying he was “totally kept in the dark” about the selection.

Chowdhury said he had been told about a meeting, then the dates were changed because of which he had to reschedule his calendar, postpone his travel to Kolkata – only to find out that the CIC’s name had been announced and he hadn’t been told.

**According to the Right to Information Act, 2005, the CIC and ICs are appointed by the President on the recommendation of a committee headed by the PM and comprising the Leader of Opposition in Lok Sabha (in this case the leader of the largest Opposition party) and a Union Minister nominated by the PM.**

Chowdhury said officials of the Department of Personnel and Training (DoPT) had reached out to his office in the last week of October seeking his availability for the meeting of the committee. His office informed them that he was available in Delhi until November 2 and that he had to travel to West Bengal to attend a pre-scheduled meeting on November 3.

Chowdhury, however, received a communication from the DoPT informing him that the meeting

of the committee was scheduled to take place at 6 pm on November 3. He then wrote to Jitendra Singh, the Minister of State in the Ministry of Personnel, Public Grievances and Pensions, urging him to reschedule the meeting.

In his letter to the President, Chowdhury said the RTI Act “in consonance with our democratic norms and traditions envisages that the voice of the Opposition too is heard in the process of selection of CIC/ICs.”

“I, despite being a member of the selection committee in my capacity as the leader of the largest Opposition party in Lok Sabha, was totally kept in the dark about the selection of the CIC/ICs, at the meeting that was held at the residence of the PM, November 3, 2023. The fact that within hours of the meeting in which only the PM and the Home Minister were present and the ‘face of the Opposition’, that is, me, as a bona fide member of the selection committee was not present, the names of the selected candidates were announced, notified and also sworn into office, only indicates that the entire selection exercise was predetermined,” he said.

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## Electoral Bonds and Electoral Trusts: What are they, and how do they differ?

[#ElectoralTrusts](#)

[#ElectoralBonds](#)

[#ElectoralFunding](#)

[#ElectionCommission](#)

[#RPA1951](#) [#Polity](#) [#GS2](#)

After a three-day hearing, the Supreme Court on November 3 reserved its judgment on the challenge to the central government’s Electoral Bonds Scheme.

**Before the controversial Electoral Bonds (EB) Scheme was introduced in 2018, there was something called an Electoral Trusts (ET) Scheme, which was introduced by the UPA government in 2013.**

**Both schemes were meant to facilitate donations to political parties by corporates and individuals.** But while the EB scheme seeks to ensure anonymity for the donor, the electoral trusts under the previous scheme were required to submit to the Election Commission of India a

**castes.** Ambedkar’s warnings must make us reconsider whether the present trend of having caste counting exercises or making sub-categories within backward castes and Scheduled Castes to suit political gains are a step in the right direction.

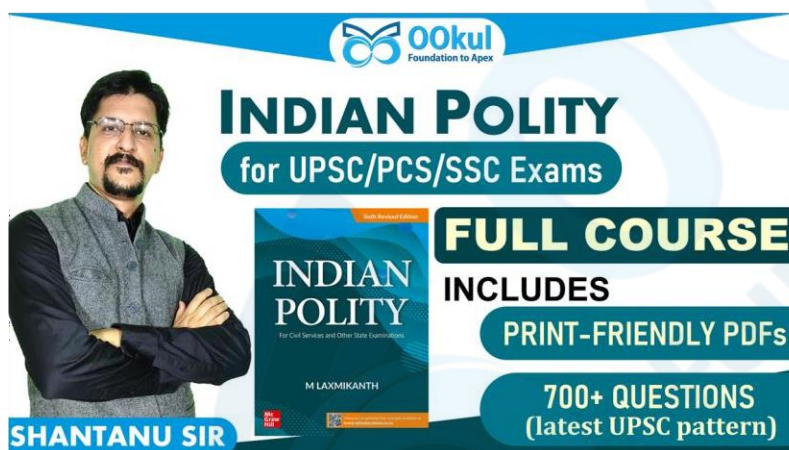
Finally, he mentioned that after Independence, we would not have the excuse of blaming the British for things going wrong. After Independence, we have nobody to blame except ourselves. He **emphasised the need to implement the principles of liberty, equality and fraternity which he termed as an inseparable trinity.** He particularly emphasised the importance of fraternity and common brotherhood of Indians as this

**alone would bring unity and solidarity to social life.**

The late Nani Palkhivala emphasised that the **only way to preserve our cherished constitutional values is eternal vigilance on the part of the citizens.** An objective introspection of what has happened over the last 75 years should bring home the **need to end divisive and caste-based politics and adopt a single-minded focus on making India a fully developed economy where the principles of liberty, equality and fraternity prevail in the spirit** that was hoped not only by Ambedkar, but by other eminent founding fathers and mothers, as well.

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## GS 2 GOVERNANCE

**NITI weighs discontinuing key water report launched 5 years ago**

[#CompositeWaterManagementIndex](#)  
[#NITIAayog](#) [#WaterScarcity](#)  
[#ReportsandIndices](#) [#Governance](#) [#GS3](#)

Niti Aayog, the government’s think tank, is learnt to have marked the reports on states progress on water management for 2018-19 and 2019-20 for “internal use” after having publicly released the previous editions.

Called the ‘Composite Water Management Index’ report, the **first edition launched five years ago in June 2018** brought India’s water challenges into spotlight and **ranked states in terms of efficacy based on 28 parameters.** The **first edition provided data for 2015-16 and 2016-17,** and the **second edition launched in August 2019** was for 2017-18.

The report, **published by NITI Aayog,** was prepared in association with three ministries — **Water Resources, Drinking Water & Sanitation, and Rural Development.**

The latest report maps the performance of states for 2018-19 and 2019-20, and points out that water scarcity is a “national problem”. The *average annual per capita water availability is expected to reduce to 1,486 cubic meters per person per year by 2021 from 1,545 cubic meters per person per year in 2011*, according to the Jal Shakti Ministry.

As per the annual water availability norms, the availability value of less than 1,700 cubic meter/person/year indicates water shortage. Water availability below 1,000 cubic metre/capita/year is considered as “scarcity”.

According to the report for 2019-20, Gujarat tops the list “with continuous improvements year on year and is closely followed by Rajasthan, Andhra Pradesh and Madhya Pradesh” in terms of performance.

In October, the United Nations University – Institute for Environment and Human Security (UNU-EHS), had warned that **India is close to reaching its groundwater risk tipping point**. Environmental tipping points are critical thresholds in the Earth’s systems, beyond which abrupt and often irreversible changes occur.

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## **Extension of PMGKAY: Reinforcement of revdis, not welfare**

**#PMGKAYextension #Revdiculture #Freebies #Populism #Governance #GS2**

One of the Congress-led United Progressive Alliance’s last moves before it was voted out of office was legislating the **National Food Security Act (NFSA), 2013**. It legally entitled **three-fourths of India’s rural and half of the urban population — adding up to 81.35 crore, as per the 2011 Census — to 5 kg of foodgrains per person per month at “subsidised prices”**. These were fixed at Rs 2/kg for wheat and Rs 3/kg for rice “for a period of three years”. The Narendra Modi-led Bharatiya Janata Party (BJP) government not only persisted with the NFSA, but made the

issue price totally free for a one-year period from January 2023. Further, at a state election rally on Saturday, PM Modi announced that the free grain scheme — now called the **Pradhan Mantri Garib Kalyan Anna Yojana — will be extended “for the next five years”**. Thus, what the Congress began in 2013 will continue beyond the Modi government’s current term till 2028, with the grain being issued free, instead of the earlier Rs 2-3/kg, the only difference.

**The competitive populism isn’t limited to free/super-subsidised grain.** In Chhattisgarh, the ruling Congress has been procuring 15 quintals per acre of paddy from farmers and paying an extra Rs 600 over and above the Centre’s minimum support price (MSP) of Rs 2,040-2,060 per quintal for the 2022-23 crop. It is now promising to buy 20 quintals of paddy and pay a price of Rs 3,200/quintal. The BJP, not to be left behind, has guaranteed purchase of 21 quintals per quintal at Rs 3,100/quintal. This raises two questions. The first has to do with the sanctity of the Centre’s MSP: If Chhattisgarh’s paddy growers are paid way above this price, how can the Congress or BJP governments in Karnataka or Uttar Pradesh deny the same to farmers there? Remember, it was the same Modi government that, in 2014-15 and 2015-16, had cracked down on states, including BJP-ruled ones, declaring bonuses on top of the Centre’s MSP on paddy and wheat. Those reforms are clearly history.

**Secondly, if rice is procured from farmers at Rs 45/kg (corresponding to an MSP of Rs 30/kg for paddy) and then distributed free (after adding transport, milling, bagging, storage and other costs), how can this be fiscally sustainable?** The higher the MSP and the more assured the procurement, there’s greater incentive for farmers to grow paddy and wheat, adding to government stocks that have to be given out for free. This is reflective of a deeper political economy malaise. Governments today find it more expedient to deliver freebies, whether in kind or as direct cash transfers, than investing in public education, healthcare, irrigation or agricultural research and extension that take time to yield results. When voters too turn increasingly transactional and short-

termist, that's when the "revdi" culture becomes truly entrenched.

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## To take schemes to target audience, Govt to advertise on social media

#GovtAdvertising

#CentralBureauOfCommunication

#Advertisement #Governance #GS2

To enhance the reach of its various schemes and better target the desired audience, the government is planning to go beyond traditional media — print, radio, TV and outdoor hoardings — and advertise also in websites and social media platforms like YouTube.

The **Central Bureau of Communication (CBC)**, the **I&B Ministry's arm responsible for government advertising**, is working on rates and preparing guidelines for this new media.

The **government's spending on traditional media has sharply declined over the last five years** — from Rs 1,200 crore in 2017-18 to Rs 264.78 crore in 2021-22.

As a practice, **2 per cent of the outlay of various government schemes is kept aside for publicity and outreach activities**, and it is from this kitty that the CBC releases funds for advertisements and publicity campaigns.

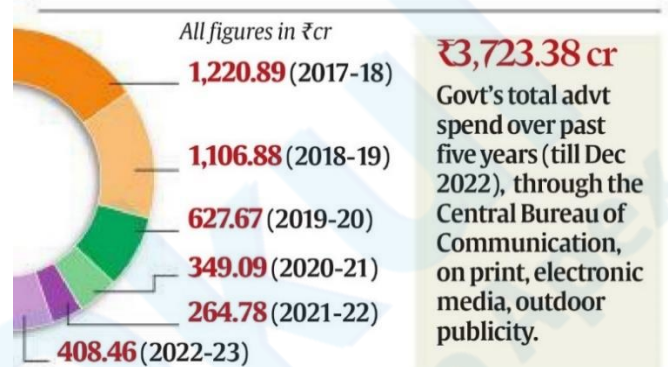
One of the key reasons for looking beyond legacy media, officials said, was the **ability of social media to better reach the target audience** for particular schemes.

For instance, women-oriented schemes such as Ujjwala, Beti Padhao Beti Bachao or Pradhan Mantri Matru Vandana Yojana (to extend maternity benefits) will be advertised on various digital platforms and YouTube channels that have women as the main audience. These may include shopping, cookery or parenting channels, or other spaces where women make up a majority of the audience.

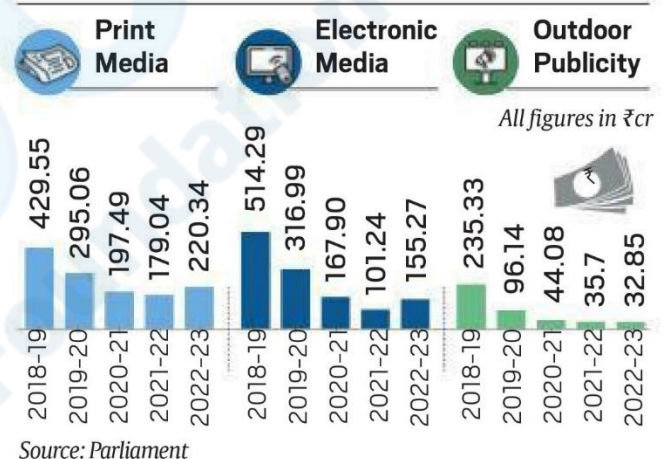
Similarly, for schemes pertaining to youth, YouTube channels and non-news websites that have 18-28 year old youngsters as the main content consumers, will be targeted.

**Between 2017 and 2022, the government spent over Rs 3,700 crore on advertisements**, according to information provided by I&B Minister Anurag Thakur to Parliament in December 2022. This includes advertisements released to the print media, electronic media, and outdoor publicity campaigns.

### HOW GOVT AD SPEND HAS DIPPED



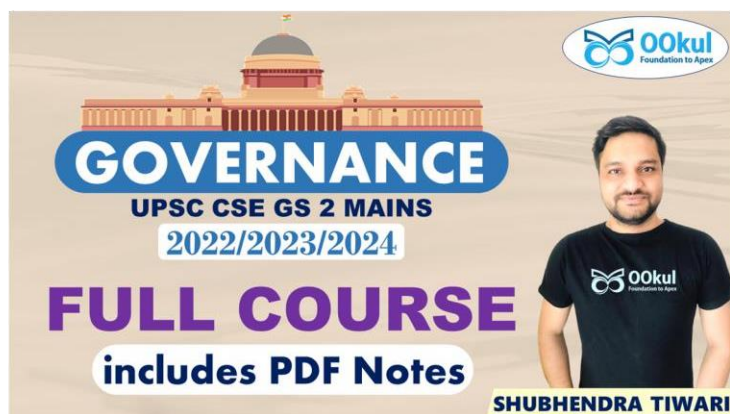
### THE ADVERTISEMENT SQUEEZE



The **CBC, set up in 2017 by the integration of the erstwhile Directorate of Advertising and Visual Publicity, Directorate of Field Publicity, and Song & Drama Division**, has the **mandate to provide communication solutions to various government ministries, departments, public sector undertakings, and even autonomous bodies**. Its **primary responsibility is to advance the Centre's image as the prime facilitator of people's empowerment by positioning messages through various media**.

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## GS 2 INTERNATIONAL RELATIONS

### London Summit and how to make AI responsible

*#UK\_AI\_summit*

*#ArtificialIntelligenceGovernance*

*#ArtificialIntelligenceRegulation*

*#ArtificialIntelligence*

*#InternationalRelations #GS2*

The London summit this week on the safe use of Artificial Intelligence could be an important first step towards the global governance of a technology that offers much promise and unprecedented danger.

Convened by the British Prime Minister Rishi Sunak on Wednesday and Thursday at **Bletchley Park outside London**, the summit will have the US Vice President Kamala Harris and several other world leaders in attendance. Many top honchos of the technology companies are expected to join them. The participation has been limited to about 100 people to facilitate serious and intensive discussion.

In convening the summit at Bletchley Park, Sunak is also reminding the world of AI's origins in Britain. **It was at Bletchley Park that early research on AI was pioneered by Alan Turing, who is widely considered as the "father of AI".** Turing and his team of mathematicians had helped crack "Enigma", a German code during World War II, giving the Allies a huge advantage in their military operations. Although the United States and China are the leading powers in AI development

today, Britain has retained its place as one of the major hubs of AI development in the world.

The London AI summit comes amid steps by various governments to address the challenges of governing AI. Earlier this week, the **US President Joe Biden issued an executive order to ensure that "America leads the way in seizing the promise and managing the risks of artificial intelligence (AI)".** It establishes **"new standards for AI safety and security, protects Americans' privacy, advances equity and civil rights, stands up for consumers and workers, promotes innovation and competition, advances American leadership around the world, and more."**

The **EU, meanwhile, is discussing the promulgation of what could be the world's first comprehensive framework for regulation. It will define rules to govern the development and use of AI across the European Union. It will involve the setting up of a European Board for Artificial Intelligence to audit and administer the new rules.**

Last month, China outlined a broad set of principles for international cooperation and global governance of AI.

**Beijing called for an increase in the "voice of developing countries in global AI governance, and ensure equal rights, equal opportunities, and equal rules for all countries in AI development and**

governance.” China also expressed support for UN discussions on establishing an “international institution to govern AI, and to coordinate efforts to address major issues concerning international AI development, security, and governance.”

Last week also saw the United Nations Secretary-General Antonio Guterres establish an advisory body to examine the risks, opportunities and international governance of AI. He believes AI “could supercharge climate action and the efforts to achieve the sustainable development goals” that the world has set for itself.

At the summit, Sunak is expected to announce the setting up of an AI Safety Research Institute that will “carefully examine, evaluate and test new types of AI so that we understand what each new model is capable of” and the kind of risks it might present.

While many civil society groups demand outright ban on the development of AI or impose a moratorium, the companies rushing to invest in AI would want to prevent over-regulation that will kill innovation.

One of the issues that the London summit is discussing is the establishment of an international register of frontier AI models that will allow governments to assess the risks involved. This is unlikely to pass muster with private companies.

That brings us to one of the core challenges of regulating AI. In the past, frontier technology development, in nuclear and space, was led by governments. Today, AI development outside China is with large digital corporations.

Whether it comes up with specific answers or not, the London Summit is likely to lay out some important markers for the unfolding global discourse on AI regulation. India, which played a key role in the 20th century discussions on regulating advanced technologies, will have to find its own voice on AI governance. With one major difference — this time India is a contributor to the global development of AI.

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## In Tripura-Bangladesh railway link, new opportunities and old connect

#TripuraBangladeshRailLink

#AgartalaAkhauraRailProject

#IndiaBangladeshRailLink

#IndiaBangladeshRelations

#BilateralRelations #IndiaAndItsNeighbours

#InternationalRelations #GS2

Prime Minister Narendra Modi and his Bangladesh counterpart Sheikh Hasina Wednesday virtually inaugurated a rail link connecting Northeast India with Bangladesh. The Agartala-Akhaura project will cut down the travel time between Agartala and Kolkata too, from 31 hours to 10 hours.

The project is expected to boost tourism, trade, and people-to-people exchanges between the two countries.



### What is the project?

In the 12.24-km Agartala-Akhaura railway line, 5.46 kilometres lie on the Indian side in Tripura, and 6.78 km in the Akhaura upazilla in Brahmanbaria district of Bangladesh. The train will start from Agartala and move to Nischintapur, on the Indian-Bangladesh border, where the immigration checks will be held. The first station on the Bangladesh side will be Gangasagar.

### Who is funding the project?

The project, which had its MoU signed in 2013, started with Rs 972.52 crore in 2016, including Rs 580 crore sanctioned for work on the Indian side and Rs 392.52 crore for the Bangladesh side. However, the budget was later revised twice due to cost escalation and other ancillary expenses. The final project cost is estimated

## GS 3 ECONOMY

### In FSSAI index, nearly all major states slip on food safety compared to 2019

#FSSAIindex #StateFoodSafetyIndex #FSSAI #FoodSafety #Economy #GS3

Four years after the Food Safety and Standards Authority of India (FSSAI) published a state-wise index to spur food safety improvement, **19 out of 20 large states — including Maharashtra, Bihar, Gujarat and Andhra Pradesh — recorded a drop in their 2023 scores from 2019.**

After adjusting for a new parameter included in the 2023 index, 15 out of 20 states recorded lower 2023 scores compared to 2019.

The **steepest fall in scores over five years was seen in Maharashtra**, which scored 45 out of 100 in 2023 compared to 74 out of 100 in 2019, followed by Bihar, which scored 20.5 in 2023 compared to 46 in 2019, and Gujarat, which scored 48.5 in 2023 compared to 73 in 2019. Ensuring food safety is the task of each state's apex food safety authority.

### STATES WITH STEEPEST INDEX FALL

State	2019	2023
Maharashtra	74	45
Bihar	46	20.5
Gujarat	73	48.5
Andhra Pradesh	47	24
Chhattisgarh	46	27

Source: SFSI reports; all scores out of 100

Since 2019, FSSAI has released the State Food Safety Index (SFSI) each year on June 7 on the occasion of World Food Safety Day.

SFSI scores, which have been assigned annually to states since 2019, are given out of a total of 100 points that are calculated on the basis of five parameters with different weightages — *'Human Resources and Institutional Data'*, *'Compliance'*, *'Food Testing Infrastructure'*, *'Training and Capacity Building'*, and *'Consumer Empowerment'*.

### SAFETY MEASURE

Parameter	Weight
Compliance	28
Consumer Empowerment	19
Human Resources and Institutional Data	18
Food Testing Infrastructure	17
Improvement in SFSI Rank (added in 2023)	10
Training and Capacity Building	8
<b>TOTAL</b>	<b>100</b>

In the 2023 index, a new parameter called *'Improvement in SFSI Rank'* was added, which assesses *improvement in each state's rank from the year before*. To accommodate for the new parameter, weightages of other parameters were reduced so that the total score does not exceed 100. When the 2023 scores are adjusted to exclude the new parameter for comparison purposes, 15 out of 20 large states record a drop in their scores from their 2019 scores. When scores from the two years are compared as it is without any adjustment, all large states record a drop in their scores with the sole exception of Punjab, which improved to 57.5 in 2023 from 47 in 2019.

The worst drop has been observed in the *'Food Testing Infrastructure'* parameter, which was given the fourth highest weightage of 17 per cent in 2023 (20 per cent in previous years). This parameter measures availability of adequate testing infrastructure with trained personnel in each state for testing food samples. *The average score for all large states for this parameter dropped to 7 points out of 17 in 2023 from 13 points out of 20 in 2019.*

The *'Compliance'* parameter, which was given the highest weightage of 28 per cent in 2023 (30 per cent in previous years), measures *licensing and registration of food businesses, inspections conducted, special drives and camps organised, and other such compliance-related tasks carried out by each state's food safety authority*. The 2023 average compliance score for all large states stood at *11 points out of 28 compared to 16 points out of 30 in 2019.*

The *'Consumer Empowerment'* parameter, which was given the second highest weightage of 19 per cent in 2023 (20 per cent in previous years), measures a *state's performance in various consumer empowering initiatives of FSSAI including participation in Food Fortification, Eat Right Campus, BHOG (Blissful Hygienic Offering to God), Hygiene Rating of Restaurants, and Clean Street Food Hubs*. Overall, there has been little change in this parameter in the last five years, with the *average score in 2023 being 8 points out of 19 compared to 2019 when it was 7.6 points out of 20*.

The *'Human Resources and Institutional Data'* parameter, which was given the third highest weightage of 18 per cent in 2023 (20 per cent in previous years), measures *availability of human resources including number of Food Safety Officers, Designated Officers, and facility of adjudications and appellate tribunals* in each state. The *average score for this parameter dropped to 7 points out of 18 in 2023 from 11 points out of 20 in 2019*.

The only parameter which recorded significant improvement was *'Training and Capacity Building'*, which was given the least weightage of 8 per cent in 2023 (10 per cent in previous years). The *average score for this parameter improved to 5 points out of 8 in 2023 from 3.5 points out of 10 in 2019*.

Finally, for the new *'Improvement in SFSI Rank'* parameter, which carried a weightage of 10 per cent in 2023, *14 out of 20 large states received 0 points*.

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## What is the impact of air pollution on economic growth?

[#AirPollutionImpactonEconomy](#)

[#AirPollutionImpact](#)

[#AirPollution](#)

[#Environment](#) [#Economy](#) [#GS3](#)

Given that GDP growth rates and per capita income levels are generally seen as having a direct trade-off with emissions levels, conventional wisdom tends to dismiss air pollution as an unavoidable by-product of

economic growth. And this tends to limit the urgency for formulating a policy response to the problem.

A slew of new research, however, points to exactly the opposite: that **air pollution has a direct, and a particularly debilitating impact on GDP growth and per-capita income levels by way of reduced worker output, lower consumer footfall in consumption-led services, hampered asset productivity, and a surge in health expenses and welfare allocations, especially in the productive age groups**.

This is particularly worrying for a country like India, where key economic hubs such as Delhi NCR are now prone to a recurrent annual cycle of high pollution with the onset of every winter, and Mumbai is struggling to cope with a polluting haze after the withdrawal of the southwest monsoon.

### The impact on economic output

The Reserve Bank of India's Department of Economic and Policy Research (DEPR) said in its latest report on Currency & Finance 2022-23 that **up to 4.5% of India's GDP could be at risk by 2030 due to lost labour hours from climate change issues, including extreme heat and humidity**.

If the impact of recurrent annual cycles of pollution in key manufacturing and services hubs is added to that estimate, the drain on economic productivity is far higher.

A **June 2023 World Bank paper** authored by A Patrick Behrer, Rishabh Choudhary, and Dhruv Sharma pointed to clear evidence that the **well-documented micro-level impacts of air pollution on health, productivity, labour supply, and other economically relevant outcomes aggregate to "macro level effects that can be observed in year-to-year changes in GDP"**.

These results, based on data from about 550 districts in some 25 states and Union Territories (which contribute, the report said, to 90% of India's real GDP), were consistent with well



documented micro effects of heat generating aggregate-level effects.

**A 2021 paper in The Lancet Planetary Health**, which studied the direct impacts of air pollution in India on mortality and morbidity, **found large inter-state variations in economic loss as a proportion of the state GDP — from 0.67% to 2.15% — with the biggest losses in the low per-capita GDP states of Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, and Chhattisgarh.** (‘Health and economic impact of air pollution in the states of India: The global burden of disease study’)

This is especially relevant since **RBI data suggest that 50% of India’s GDP comes from sectors that are exposed to heat**, which is a rough approximation for the share of GDP generated by outdoor work. In comparison, less than 25% of European GDP is generated by the same sectors, European Central Bank figures show.

While firm estimates on the impact of pollution on economic output are sketchy, a first-of-its-kind report from Dalberg Advisors, in partnership with Clean Air Fund, Blue Sky Analytics, and the Confederation of Indian Industry, had estimated that **air pollution entailed costs of about \$95 billion annually for Indian businesses, which is about 3% of India’s GDP.**

The 2021 study quoted above collated anecdotal evidence from across India: (i) footfall in Mumbai’s Linking Road shopping district dropped by 5% during the highly polluted period between November and January; (ii) a rooftop solar company reported a 13% decrease in the productivity of its solar panels on high pollution days, thereby reducing economic viability for solar in India; and (iii) employees at Bengaluru’s tech hub, Whitefield Corporate Zone, reported an 8-10% reduction in productivity at work.

The costs of poor air quality, the study said, was manifested in six distinct ways: **(i) lower labour productivity, (ii) lower consumer footfall, (iii) lower asset productivity, (iv) increased health expenses, (v) welfare**

**losses, and (vi) premature mortality.** To calculate the impact of air pollution, the analysis used big data analytics, a primary survey, existing literature, and inputs from diverse stakeholders including academic experts in air pollution, along with cross-sectoral business heads and service providers.

## **The challenge for India**

Air pollution is an urgent prerogative in India, as **more than 20 of the world’s 30 cities with the worst air pollution are in the country.** Delhi has the poorest air quality among cities globally, with PM2.5 concentration levels pegged at nearly 10 times the WHO target.

A paper in The Lancet had listed Delhi as the city with the highest level of per-capita economic loss due to pollution among major Indian cities. With the air quality plummeting to the “severe plus” category on Friday morning, emergency measures, including a ban on trucks and all types of construction are set to be enforced in the National Capital Region.

A report by Greenpeace Southeast Asia and the Centre for Research on Energy and Clean Air said the **costs of air pollution from fossil fuels, burning gas, coal, and oil results in three times as many deaths as road traffic accidents worldwide.** According to the study, air pollution has an economic cost of \$2.9 trillion, about 3.3 per cent of the world’s GDP.

As pointed out in the RBI report, **the trend is a concern especially in developing countries such as India when employment generation is still largely linked to economic activities involving the outdoors — agriculture and construction are among the biggest employment avenues, while delivery services and security agency work account for the bulk of employment generation options in the urban areas.**

## **Services sector is impacted as well**

**Even in indoor jobs such as those in call centres, air pollution takes a toll on productivity.**

The paper ‘The Effect of Pollution on Worker Productivity: Evidence from Call-Center

## GS 3 ENVIRONMENT

### Southern peninsular India sees sixth driest October in 123 years, gets 60% less rainfall

#LessRainfall #DriestOctober #Monsoon  
#IndianMeteorologicalDepartment  
#ClimateChange #Environment #GS3

The India Meteorological Department (IMD) said that southern peninsular India this year experienced the sixth driest October in 123 years.

This region – comprising Kerala, Mahe, south interior Karnataka, Tamil Nadu, Karaikal, Puducherry, coastal Andhra Pradesh, Yanam and Rayalaseema – received only 74.9mm of rain in October, which was over 60 per cent below normal.

Southern peninsular India during October sees rainfall from both the retreating southwest monsoon and the incoming northeast monsoon. But this year, the region remained dry for nearly 25 days in October, IMD officials said. Unlike the past few years, the southwest monsoon ended nearly on time after a 134-day season this year.

One of the major contributors to this poor rainfall was the timing of the northeast monsoon coinciding with other oceanic factors. While the northeast monsoon onset date was realised on October 21, the active Bay of Bengal and cyclogenesis around the same time influenced the monsoon onset.

“This year, the commencement of the northeast monsoon coincided with the genesis of the cyclone Hamoon which crossed the Bangladesh coast. As a result, most of the moisture was dragged away from southern peninsular India. So much so that it even altered the wind flow pattern. Thus, it was a weak northeast monsoon onset,” explained Mrutyunjay Mohapatra, director general, IMD.

With 2023 being an El Nino year, when combined with the positive phase of the Indian Ocean Dipole (IOD), such rainfall deficits are commonly observed during October and have been previously recorded,

added Mohapatra. Notably, 2023, 2016 and 1988, among the six driest October months over the southern peninsula, were El Nino years.

“During El Nino years and the positive IOD phase, there is less rainfall over northern Tamil Nadu and adjoining areas. Whereas, the southernmost areas of Tamil Nadu and Kerala receive good rainfall in October,” he said.

Despite a slow start, the northeast monsoon has picked up during the past two days. During this active phase, widespread good rainfall is predicted over Kerala and Tamil Nadu during the week ahead, the IMD has forecast.

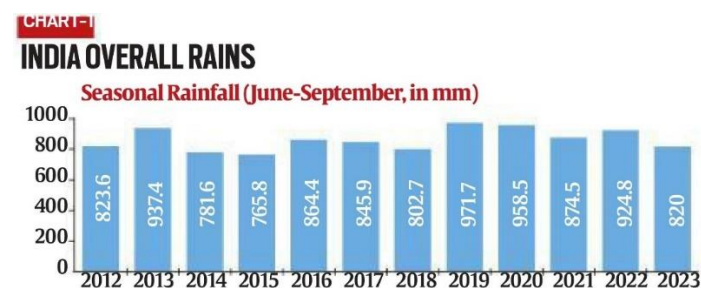
The rainfall forecast for November, too, for this region is promising. The Long Period Average (LPA) of rainfall for south peninsular India during November (based on 1971 to 2020) is about 118.69 mm.

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### Why a ‘normal’ monsoon isn’t normal anymore for India

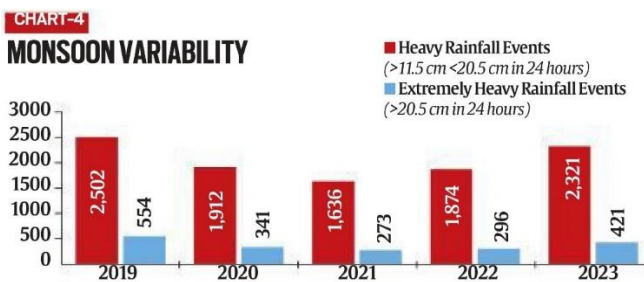
#NormalMonsoon #MonsoonPattern  
#RainfallPattern #ClimateChange  
#Environment #GS3

The monsoon season this year ended with 94 per cent overall rainfall, making it the eighth year in succession that the seasonal rainfall has been broadly in the normal range. This makes it seem as though monsoon rainfall in the country has been remarkably consistent in recent years.



But that is far from being the case, as is evident from common experience too. There have been large variations in the distribution of rainfall, in spatial as well as temporal terms. While some days produced very heavy rainfall,

prolonged periods went extremely dry. Similarly, a majority of the districts received very little rainfall during most of the season. **This rainfall variability only seems to be increasing, possibly because of climate change.**



### Rarely normal

At the district level, rainfall has been highly erratic. **During the four-month monsoon period, there have been very few instances of districts receiving normal daily rainfall.** A new analysis by Climate Trends, a research organisation, found that **districts getting normal daily rainfall was an extremely rare occurrence.** Out of the nearly 85,000 district rain-days — 121 days of rainfall for each of the 718 districts — only 6 per cent were found to be normal.

**In contrast, over 60 per cent of the daily district wise rainfall showed deficits of over 60 per cent, or no rain at all on days when rains were expected.** The analysis also showed that large excess days — days on which districts received 60 per cent or more than normal rainfall — were the next most frequent instances.

**The season also produced the second largest number of extreme rainfall events in the past five years,** which compensated for the deficit on the dry days and brought in an illusion of normalcy.

### Dry North-East, drying Kerala

Even at the regional level, rainfall showed large variations. **Northwest and central parts of the country received more than 100 per cent rains during the season, while eastern and North-Eastern regions got barely 80 per cent.** The southern part of the country also had large deficits for most of the monsoon season.

The region finally ended with 92 per cent rains for the season.

**CHART-3**  
**NORTH EAST RAINFALL DEFICIENCY**

Year	Rainfall Departure
2014	-10%
2015	-2%
2016	-10%
2017	-2%
2018	-25%
2019	-12%
2020	7%
2021	-11%
2022	-18%
2023	-18.50%

source: IMD

**The deficiency in east and North-East India strengthens a long-term trend of below normal rainfall in the region.** As pointed out by the Climate Trends analysis, the **region has received less than 100 per cent rains in nine out of 10 previous years. On five of those occasions, the deficiency has been larger than 10 per cent.** This region, at least the North-East, traditionally gets a lot of rain.

This year, the states of Bihar, Jharkhand and West Bengal received particularly poor rainfall, each ending with a deficiency of more than 20 per cent. Nagaland, Manipur, Mizoram and Tripura also had more than 20 per cent deficit.

**Kerala is one of the rainiest states in the country, but this year it finished with the largest deficit, 34 per cent.** Rainfall over Kerala has been showing a declining trend in recent years, not just during the monsoon, a phenomenon that is not very well explained. But this year's monsoon rainfall, 132.7 cm in total, was the least that the state has received in the past 12 years.

CHART 2

### KERALA MONSOON RAINS

Year	Seasonal Rainfall (in mm)
2012	1547.8
2013	2561.2
2014	2164.9
2015	1515.6
2016	1352.3
2017	1856.4
2018	2516
2019	2309.8
2020	2227.6
2021	1719
2022	1736.7
2023	1327.5

## Climate change

The increasingly erratic behaviour of monsoon rainfall is usually blamed on climate change, but it is not that simple. There are many other factors at play. This year's monsoon, for example, was expected to be hit by the prevailing El Nino in the eastern Pacific Ocean. In previous years, El Nino events have resulted in large rainfall deficits during monsoon. But it did not have a similar impact on the rainfall this year, at least in overall quantitative terms.

An extended cyclone on the western coast in June, and a prolonged bout of extremely heavy rainfall in the northern states in July, helped nullify the rain-suppressing impact of El Nino. August was the only month that seemed to have been under the influence of El Nino. In fact, it happened to be the driest August ever, producing just 64 per cent rainfall. But September once again brought good rainfall, despite El Nino gaining in strength.

Climate change has introduced a greater degree of uncertainty in weather events. The unpredictability in monsoon rainfall is likely to continue even if some drastic measures are taken to immediately bring down greenhouse gas emissions, known to be the cause of global warming and climate change.

The only coping mechanism right now seems to be better preparedness to face the unpredictable events. Increased emphasis on disaster preparedness, steps to remove the bottlenecks that worsen the impacts of extreme weather events —urban flooding,

for example — and strengthening of climate resilience in new and old infrastructure are some of the things that are expected to attract greater attention.

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**Little money being made available to developing nations for climate adaptation, need at least ten times more: UN report**

**#AdaptationGapReport**

**#UNEP**

**#ClimateFinance**

**#ClimateResilience**

**#Environment #GS3**

Despite rapidly increasing climate risks which necessitate greater efforts to adapt, the money being made available to developing countries for adaptation measures has been declining, and nowhere close to the scale of requirement, a new report by the United Nations has revealed.

**In 2021, just about \$21 billion went to developing countries for adaptation projects, which was down about 15 per cent from the previous years.** However, a fresh assessment of the requirements show that **developing countries, together, need at least \$215 billion every year** this decade to carry out meaningful adaptation work, the latest edition of Adaptation Gap Report, released by UN Environment Programme, says.

The **Adaptation Gap Report is an annual publication from UNEP**, released just ahead of the year-ending climate change conference, and presents the global situation of adaptation to climate change. **This year's report focuses on adaptation finance**, or the availability of money to carry out the adaptation projects.

Since there is no way to stop the unfolding impacts of climate change in the short run, **adaptation is crucial to saving lives, livelihoods and ecosystems, especially in developing and most vulnerable countries with low resilience.** Depending on their specific needs, countries have been taking a range of adaptation measures. These can be in the form of strengthening of coastlines, or building of sea-walls especially in island countries, experiments with newer

## The Horsehead Nebula. (ESA)

### The Horsehead nebula

Barnard 33, or the Horsehead Nebula as it is more popularly known, looks spectacular in this Euclid image. In this image, **astronomers hope to find previously unseen Jupiter-mass planets that are in their infancy.**

---N---E---X---T---

### Seeding cloud to clean the air

[#CloudSeeding](#) [#ArtificialRain](#) [#Rainfall](#)  
[#Precipitation](#) [#CAIPEEX\\_IV](#)  
[#ScienceandTechnology](#) [#GS3](#)

### What is cloud seeding?

Water vapour condenses around small particles to form the droplets that make up a cloud. These droplets collide and grow; as they get heavy and the cloud gets saturated, it rains.

With cloud seeding, clouds are usually injected with salts like silver iodide, potassium iodide, or sodium chloride, which is the 'seed'. These salts are expected to provide additional nuclei around which more cloud droplets can form. They are dispersed into the cloud either using aircraft or through generators on the ground.

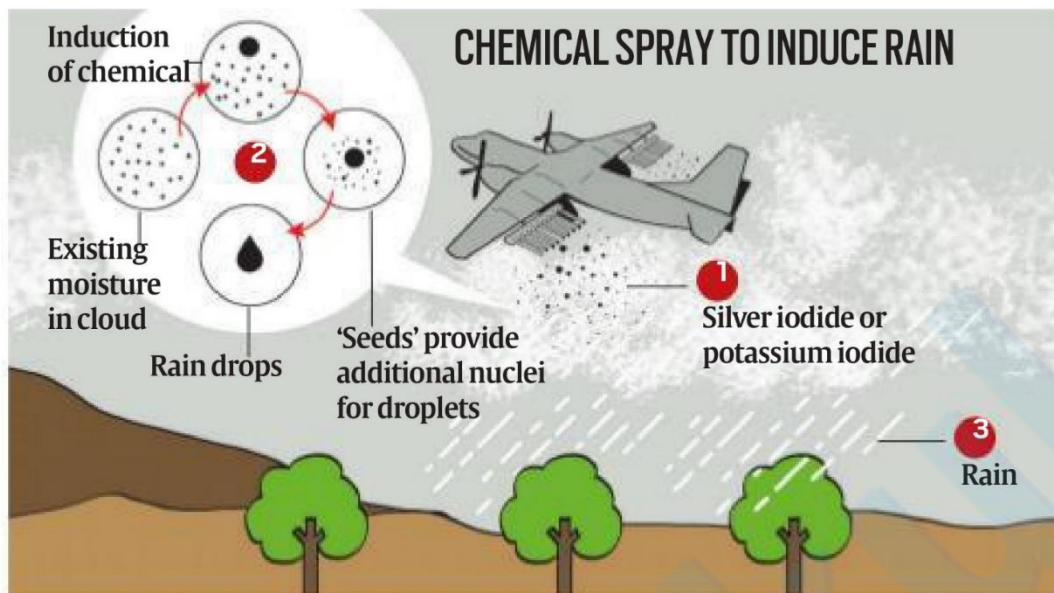


NGC 6397, a globular cluster. (ESA)

### A globular cluster

Globular clusters are nearly globe-shaped clusters of hundreds or even thousands of stars that are held together tightly by gravity. NGC 6397, pictured here, is the second closest globular cluster to Earth and is about 7,8000 light-years away.





**Seeding accelerates cloud microphysical processes.** You need sufficiently large droplets that can reach the surface of the earth and not evaporate on the way.

The substance that is dispersed into the cloud needs to have cloud condensation nuclei and ice nuclei and these two come from two different salts. The cloud condensation nuclei help form cloud droplets, and ice nuclei help to form ice crystals. Ice crystals grow faster than drops, and they become large and fall.

### What are the conditions required for cloud seeding to be done?

Firstly, cloud cover and clouds of a certain type are necessary.

Cloud seeding can only happen if there is a sufficient number of clouds and a particular depth to these clouds. Inside, there needs to be an adequate number of cloud droplets. Cloud seeding is done to increase the radius of the cloud droplets so that they will grow bigger and because of gravity, they will come down as rainfall. But with a clear sky, you can't do it.

In winter, clouds form over Delhi when a western disturbance moves over the region. These are storms that originate in the Caspian or Mediterranean Sea and bring non-monsoonal rainfall to northwest India.

### Has cloud seeding been done before in India, and has it been successful?

Seeding has mostly been attempted during the monsoon in India, in places such as Karnataka, Maharashtra and Tamil Nadu.

A more recent experiment, the fourth phase of the Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX-IV) that took place in the monsoon seasons of 2018 and 2019, was conducted in drought-prone Solapur in Maharashtra. It pointed to a relative enhancement of 18 per cent in rainfall.

With that experiment, we have tried to understand more about cloud seeding, but still there are a lot of difficulties. Cloud microphysics is more complicated than we think. We can get some advantage from it in the monsoon season if there are enough clouds. When you seed, all clouds won't rain, and even without seeding clouds can rain. It is still a very complex and uncertain field of research.

IIT Kanpur attempted it in April and May of 2018, which are the pre-monsoon months, on their campus. It said five out of six trials resulted in rain.

Thara Prabhakaran, a scientist at the Indian Institute of Tropical Meteorology (IITM), who specialises in cloud microphysics and was also part of the experiment in Solapur, said, "In our experiment in Solapur, we have done statistical and physical experiments by registering what is

out on specially designed machines, including treadmills, for at least two hours a day.

But as researchers focus more and more on humans living in space, for example on the moon or Mars, the astronauts' daily exercise is also used to improve our scientific understanding of the effects of space on our bodies. What would happen if humans lived in microgravity for years on end? Would our bodies still be strong enough, or too weak to return to Earth?

### **What scientific discoveries on the ISS have benefited life on Earth?**

**Astronauts have conducted hundreds of scientific experiments on the ISS.** Sometimes they experiment on themselves, monitoring their general health, nutrition or the effects of solar radiation. And sometimes they conduct experiments for scientists on Earth. These experiments have led to numerous scientific breakthroughs.

From Alzheimer's and Parkinson's disease to cancer, asthma and heart disease — it's all been studied in space. Scientists say some medical experiments are best done in space because cells behave in microgravity more like they do inside the human body, but it's difficult to recreate such conditions on Earth.

There have been discoveries to benefit drug development, new water purification systems,

methods to mitigate muscle and bone atrophy and those that have led innovations in food production.

### **How long will the ISS be operational?**

**Plans for the future operation of the ISS were thrown into uncertainty with the start of Russia's invasion of Ukraine in early 2022.**

Both the European Space Agency and national bodies withdrew from international collaborations with Russia, and Russia said it was leaving the ISS to build its own space station.

It's not just the war, though — old and new spacefaring nations want to make an independent mark on space. They include Japan, China, India, the United Arab Emirates and others.

**The US and Europe have said they remain committed to the International Space Station through 2030.** But plans are afoot for a post-ISS world, as well: **NASA is almost entirely focused on its Artemis program and plans to populate the moon. And ESA is working toward a new space station, which it is calling Starlab.**

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## **GS 3 INTERNAL SECURITY**

### **What is Apple's 'state-sponsored attackers' alert, received by multiple Opposition leaders?**

**#StateSponsoredAttackers**

**#AppleNotification**

**#LockDownMode**

**#Pegasus**

**#Spyware**

**#Cybercrime**

**#InternalSecurity #GS3**

Several top opposition leaders and a few journalists have reported receiving a notification from Apple about "state-sponsored attackers who are remotely trying to compromise" their iPhones.

The notification says the attackers are likely targeting these individuals because of who they are or what they do, and **advises them on how to protect themselves, including activating the 'Lockdown Mode' feature on their iPhones.**

**Apple has been sending out these automated notifications since late 2021, whenever it suspects some activity resembles a state-sponsored attack. It has so far notified individuals in 150 countries.**

**Who are these "state-sponsored attackers" that Apple refers to?**

Following the allegations, Apple said in a statement on Tuesday that it **“does not attribute the threat notifications to any specific state-sponsored attacker”**.

In a note issued earlier, the tech giant had said: **“State-sponsored attackers are very well-funded and sophisticated, and their attacks evolve over time. Detecting such attacks relies on threat intelligence signals that are often imperfect and incomplete. It’s possible that some Apple threat notifications may be false alarms, or that some attacks are not detected.”**

Attackers backed by governments go after specific individuals and their devices, based on their identity or activities. **Such attacks are very different from the ones carried out by regular cybercriminals, who usually target a large number of users for financial gain.**

According to Apple, **state-sponsored attacks are often short-lived, and are designed to evade detection and exploit vulnerabilities that may not be known to the public.**

### **So, what is this threat notification that Apple issues?**

Apple’s threat notifications are a way of alerting and helping users who may have been targeted by state-sponsored attackers.

As a response to these attacks, the company has developed a system that can spot activity that matches certain patterns. **When an attack is detected, a “Threat Notification” is sent by email and iMessage to the email addresses and phone numbers that are linked to the affected user’s Apple ID.** The notification that some politicians and others received was likely triggered by this system.

In its note issued earlier, Apple had said: **“We are unable to provide information about what causes us to issue threat notifications, as that may help state-sponsored attackers adapt their behaviour to evade detection in the future.”**

**What does Apple advise users should do when an attack is detected?**

The notifications are accompanied by advice on some extra steps that users can take to protect their devices and safeguard their privacy. **Some of the general security tips that Apple recommends are updating to the latest software versions, setting a passcode, enabling two-factor authentication, and using a strong password for the Apple ID.**

It also recommends that users should **download apps only from the App Store, use a different password for each online account, and avoid clicking on links or attachments from unknown sources.**

**Apple also suggests that users activate the Lockdown Mode**, which is a feature introduced in its latest software updates to specifically protect against rare and sophisticated cyber attacks such as these.

### **What exactly is the Lockdown Mode, and how can it be turned on?**

When you activate Lockdown Mode, your device will enter into a state of high security, where many usual functions will be restricted or disabled. For example, you won’t be able to send or receive attachments, links, or link previews in messages, to **prevent attackers from accessing your personal information.**

**Lockdown Mode is only available on devices that run iOS 16 or later, iPadOS 16 or later, watchOS 10 or later and macOS Ventura or later.** Apple says that such attacks are rare and target only specific individuals, but if you ever feel that your device or data are in danger, you can turn on Lockdown Mode by going to Settings, then Privacy & Security, then Lockdown Mode, and toggling it on.

Anyone who receives a threat notification from Apple should take it seriously and follow the steps that Apple recommends to secure their device and account.

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**Recalling Pegasus, the last time phones of Oppn leaders were allegedly targeted by spyware**



# INTERNATIONAL AFFAIRS

## Russia military says test-fired ballistic missile from new nuclear submarine

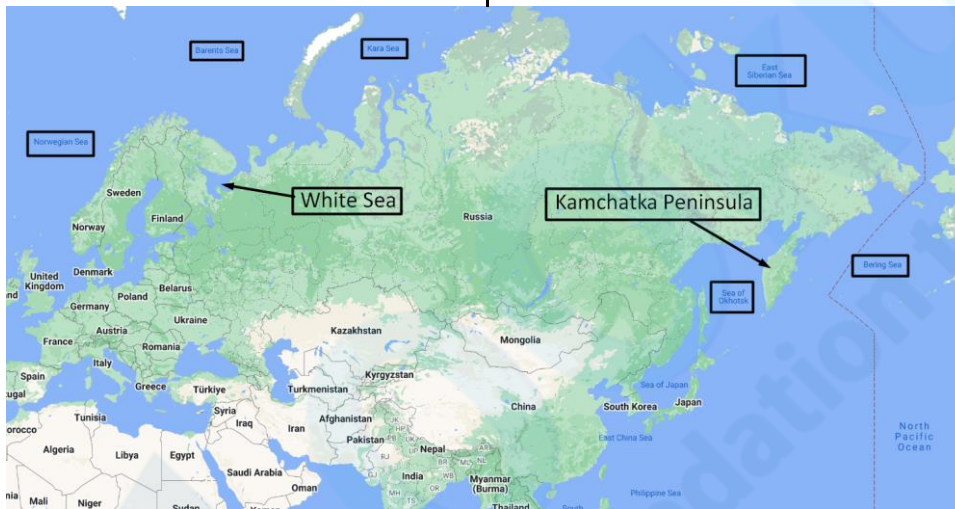
#BulavaMissile #NuclearSubmarine  
#WhiteSea #NuclearTriad  
#InternationalAffairs

Russia's new nuclear-powered submarine **Imperator Alexander III** carried out a

successful test launch of the **Bulava ballistic missile**, designed to carry nuclear warheads.

The **Imperator Alexander III** is one of the **Borei-class nuclear submarines** that carry 16 Bulava missiles each.

The intercontinental missile, launched from an underwater position in the **White Sea off Russia's northern coast**, hit a target thousands of kilometres away on the **Kamchatka peninsula** in the Russian far east.



## Nuclear Triad

A nuclear triad is a **three-pronged military force structure of land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and strategic bombers with nuclear bombs and missiles.**

**Only five countries** are known to have the nuclear triad: the **United States, Russia, China, India, and Pakistan**. *Israel is suspected of having it as well. France gave up its triad when it renounced ground-launched missiles.*

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## New island emerges after undersea volcano erupts off Japan

#VolcanicIsland #Volcano #Iwojima  
#PacificRingofFire #InternationalAffairs

The **unnamed undersea volcano**, located about 1 kilometre (half a mile) off the southern

coast of **Iwo Jima**, which Japan calls **Ioto**, started its latest series of eruptions on Oct. 21.

Within 10 days, volcanic ash and rocks piled up on the shallow seabed, its tip rising above the sea surface. By early November, it became a new island about 100 metres (328 feet) in diameter and as high as 20 metres (66 feet) above the sea.

**Volcanic activity has increased near Iwo Jima and similar undersea eruptions have occurred in recent years**, but the formation of a new island is a significant development.

Volcanic activity at the site has since subsided, and the newly formed island has somewhat shrunk because its "crumbly" formation is easily washed away by waves.

**The new island could survive longer if it is made of lava or something more durable than volcanic rocks such as pumice.**

**Undersea volcanos and seismic activities have formed new islands in the past.**

In 2013, an eruption at Nishinoshima in the Pacific Ocean south of Tokyo led to the formation of a new island, which kept growing during a decade-long eruption of the volcano.

Also in 2013, a small island surfaced from the seabed after a massive 7.7-magnitude earthquake in Pakistan.

In 2015, a new island was formed as a result of a month-long eruption of a submarine volcano off the coast of Tonga.

Of about 1,500 active volcanos in the world, 111 are in Japan, which sits on the so-called Pacific “ring of fire,” according to the Japan Meteorological Agency.

Iwo Jima was the site of some of the fiercest fighting of World War II.

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## SPORTS

### Sri Lanka's batter Angelo Mathews timed out: What is the rule?

*#TimedOutInCricket #TimedOut #CricketWorldCup2023 #Sports*

As Angelo Mathews walked out to bat on Monday, during Sri Lanka's World Cup clash against bitter rivals Bangladesh in New Delhi, the strap of his helmet seemingly broke. While he waited for a replacement, Bangladesh skipper Shakib Al Hasan appealed, and Mathews was given out.

After a lengthy argument with umpires Marais Erasmus and Richard Illingworth, as well as the Bangladesh skipper, Mathews walked back to the pavilion.

#### What s 'timed out'?

As per Rule 40 of the 2023 World Cup's Playing Conditions, **“After the fall of a wicket or the retirement of a batter, the incoming batter must, unless Time has been called, be ready to receive the ball or for the other batter to be ready to receive the next ball within 2 minutes of the dismissal or retirement.”**

**Failing to do so, the batter can be given out by the umpire if the other team makes an appeal.** The bowler or any fielder is not given credit for the dismissal.

#### Why is this mode of dismissal so rare?

There are currently 10 modes of dismissal in cricket. The most common (in descending order of frequency) are caught, bowled, leg before wicket (lbw), run out, and stumped. The controversial 'Mankad' comes under the category of a runout.

Less common are retired out, hit the ball twice, hit wicket, obstructing the field, and timed out. However, except timed out, even these rare modes of dismissal have been seen multiple times in international games. The rarity of this mode is due to the fact that the opposition never appeals for it.

**In cricket, a batter can only be given out if the opposition appeals for the wicket. “Neither umpire shall give a batter out, even though he may be out under these Playing Conditions, unless appealed to by a fielder,”** Rule 31.1 of the Playing Conditions states. A batter may decide to walk without an appeal being made (say, after a faint knick and caught behind), but other than that, the fielding team must appeal.

**The captain of a fielding team also has the option to withdraw an appeal, after which an umpire can overturn a decision to recall a batter given out** (case in point, the infamous Ian Bell runout in 2011, when Indian captain MS Dhoni withdrew his team's appeal). In this case, Shakib refused to do so, leaving umpires no choice but to give Mathews out.

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## Practice Questions

**1. With reference to the UNESCO Creative Cities Network (UCCN), consider the following statements:**

1. It was created in 2004 to promote cooperation among cities that have identified creativity as a strategic factor for sustainable urban development.
2. It encourages a culture of creativity in urban planning and solutions to urban problems.
3. Kozhikode is the only Indian city included in the network.
4. The cities which are part of the network have to achieve the UN agenda of sustainable development.

**How many of the statement(s) given above is/are correct?**

- A. only one
- B. only two
- C. only three
- D. all four

**2. Consider the following statements about CAR-T cell therapy:**

1. It modifies immune cells by turning them into potent cancer fighters.
2. NexCar19 is a type of CAR-T therapy developed indigenously in India.

**Which of the statement(s) given above is/are not correct?**

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

**3. With reference to the Air Quality Index (AQI), consider the following statements:**

1. It was launched by the central government in 2019 as part of the Swachh Bharat campaign.
2. The AQI transforms complex air quality data of various pollutants into a single number.

3. The pollutants measured include carbon dioxide.
4. Particulate matter, most harmful pollutants among Index causes respiratory problems and reduces visibility.

**How many of the statement(s) given above is/are correct?**

- A. only one
- B. only two
- C. only three
- D. all four

**4. With reference to the rice in India, consider the following statements:**

1. India is the biggest exporter of rice in the world.
2. India has banned the export of non-basmati white rice.
3. India's main export market for Basmati rice was China for FY 2022-23.

**How many of the statement(s) given above is/are correct?**

- A. only one
- B. only two
- C. all three
- D. none

**5. Consider the following statements:**

1. The country lies to the south-west of the Indian mainland.
2. It comprises nearly 1,200 low-lying coral islands sprawled across 90,000 sq km in the Indian Ocean.
3. The Indian Navy initiated "Operation Cactus" in 1988 in response to a coup attempt.

**The above-mentioned statements refer to which of the following country?**

- A. Mauritius
- B. Fiji