



SIVARAJAVEL IAS ACADEMY
FOUNDER - DIRECTOR OF **SMART LEADERS IAS**

the **CATALYST**

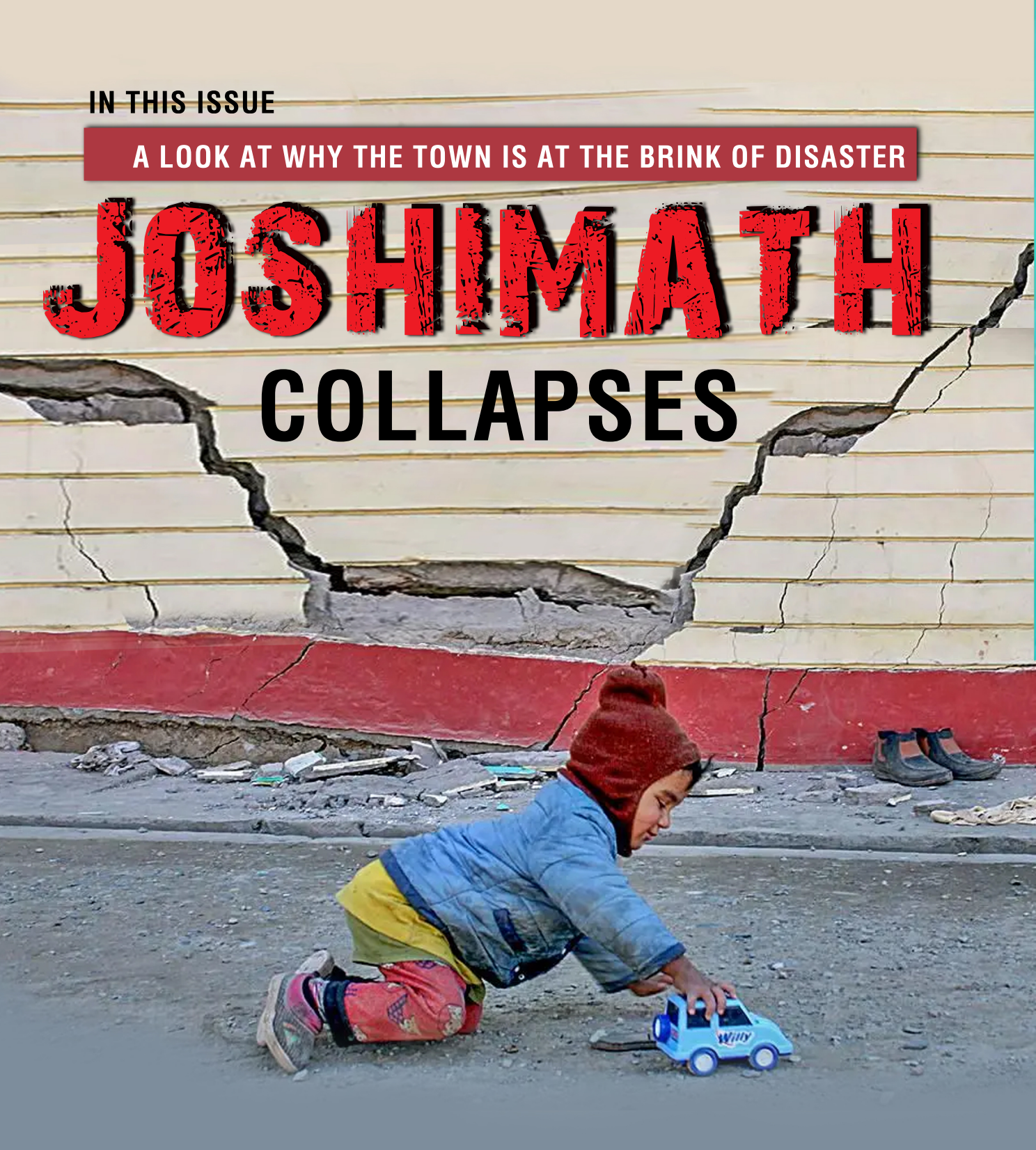
A Monthly Publication

JANUARY 2023

IN THIS ISSUE

A LOOK AT WHY THE TOWN IS AT THE BRINK OF DISASTER

JOSHIMATH **COLLAPSES**



JANUARY 2023

The CATALYST

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Sivarajavel IAS Academy 's

The CATALYST is a monthly magazine for current affairs which tries to give aspirants an in-depth comprehension of certain topics which appeared in different sources over the month. The Magazine has been designed in such a way that the reading experience is enriching and insightful for the readers.

The contents have been grouped into a thematic structure to help aspirants focus on the overall GS syllabus.

Section I contains theme based Current affairs Analysis:

- I. Within the Sub themes first few topics will be Prelims oriented followed by indepth coverage of Mains Topics.
- II. A Section with an Essay Topic is also added.
- III. A book summary has been included
- IV. The last section will have Questions for practice*.
- V. Fact Sheet and Quotes have also been provided

**New sections will be added or removed based on the new updates we include in the forthcoming issues.*

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From the Editor's Desk

Dear Readers,

UPSC Notification is out and I hope all of you have applied.

Any errors in the application can be rectified during the correction window that will be live after the closing date of application. So do not panic and just focus on your studies.

Not many will read the full notification of UPSC. Have you noticed what UPSC demands from an candidate? Turn the next page to see the some excerpts on what UPSC requires from a civil servant.

Now is the time to hit full throttle in your preparation. Be productive and dont while away your time changing strategies every single day. Stick to Basics. Nothing replaces the efficiency of studying for hours consistently.

Any doubts or lack of motivation, kindly come and meet us. We will always be ready to guide and counsel you. All the best.

In this JAN Issue (From Jan 1 to Jan 30, 2023, Current Affairs), we have covered a range of topics with special emphasis on **Joshimath Sinking, Delay in Census, Combating Narcotics, Sovereign Green Bonds etc**

Some design changes has been implemented since this month. Hope it enables you to engage with the book better in terms of look and aesthetics.

We aspire to enrich the forthcoming issues. We are constantly motivated by the reception given by our dear readers. All feedback is welcome and suggestions to improve the magazine can be sent to sivarajaveliasacademy@gmail.com.

Sincerely,
P.Mohan



10 shades required from a CIVIL SERVANT;

(Words from the latest UPSC 2023 notification)

1. Possess mental alertness, variety, and depth of interest; the *ability for social cohesion and leadership; and intellectual and moral integrity.*
2. Possess a *general awareness of a variety of subjects*, which will have relevance for a career in the civil service.
3. Possess an *intelligent interest in the events of national and international importance that are happening around them both within and outside* their own state or country, as well as in modern currents of thought and in new discoveries that should rouse the curiosity of well-educated youth.
4. Possess a *basic understanding of all relevant issues and the ability to analyze and take a view on conflicting socio-economic goals, objectives, and demands.*
5. Possess mental caliber, *critical powers of assimilation, clear and logical exposition*, a balance of judgement, intellectual qualities, and social traits.
6. Possess an *intelligent interest in their special subjects of academic study.*
7. Possess *intellectual traits and depth of understanding* rather than merely the range of their information and memory.
8. Possess the *ability to write essays on multiple topics* by keeping closely to the subject of the essay and arranging his or her ideas in an orderly fashion in a concise manner with effective and exact expression.
9. Possess the *ability to give a relevant, meaningful, and succinct answer on matters of general interest* in an orderly, effective, and exact expression combined with due *economy of words in legible handwriting.*
10. Possess the *ability to hold a natural conversation* that is also directed and purposeful.

Summarised by
K.S Praveen

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POLITY & GOVERNANCE

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RULES FOR LIVE-STREAMING PROCEEDINGS

Why in news?

The Delhi High Court has notified the rules for live-streaming of its proceedings and that of all the subordinate courts in the Capital.

About

Live Streaming of video conferencing of proceedings has been started in High Courts of Gujarat, Orissa, Karnataka, Jharkhand, Patna and Madhya Pradesh and the Supreme Court of India thus allowing media and other interested persons to join the proceedings.

Under the guidance of eCommittee, Supreme Court of India, a sub-committee was constituted for framing Model Rules for Live Streaming. The said rules have been forwarded to Computer Committee of High Courts for the feedback and suggestion.

Delhi HC Rules on live streaming

As per the rules, live-streaming will not be allowed in cases such as matrimonial matters, cases of child adoption and child custody, cases concerning sexual offences, matters involving abuse of children etc.

Framed by the High Court with the approval of Lieutenant-Governor Vinai Kumar Saxena, the rules aim to “imbue greater transparency, inclusivity, and foster access to justice”.

The ‘Live Streaming and Recording of Court Proceedings Rules of the High Court of Delhi, 2022’ came into effect on January 13, when it was published in the Gazette of India.

Live-streaming of proceedings is already under way in the High Courts of Gujarat, Orissa, Karnataka, Jharkhand, Patna and Madhya Pradesh, as well as the Supreme Court of India.

According to the rules, no person or entity (including print and electronic media, and social media platforms) other than an authorised person or entity can record, share or disseminate live-streamed proceedings or archival data.

The use of authorised recordings in their

original form may be permitted by the court, inter-alia to disseminate news and for training, academic and educational purposes. Authorised recordings handed over for the aforesaid purposes shall not be further edited or processed,” the rules clarified.

Such recordings will not be used for commercial, promotional purposes or advertising in any form

Possible Benefits of live streaming

It can make the justice delivery system affordable, transparent, speedy and accountable by limiting the paper filings.

It can be time saving and hence can reduce the backlog of pending cases and reduce the number of unscrupulous activities.

Concerns:

- Lack of technical manpower in courts and awareness amongst litigants, advocates and their acceptance to the system change.
- A huge concern will be the cyber security threat.
- The live streaming of the Courts are susceptible to abuses. Thus, issues of privacy may arise.
- Infrastructure, especially the internet connectivity is also a big challenge in implementing the live proceedings of Courts.

E- courts Project

The eCourts Project was conceptualized on the basis of the “National Policy and Action Plan for Implementation of Information and Communication Technology (ICT) in the Indian Judiciary – 2005” submitted by eCommittee, Supreme Court of India with a vision to transform the Indian Judiciary by ICT enablement of Courts.

Objectives

To provide efficient & time-bound citizen centric services delivery as detailed in eCourt Project Litigant’s Charter.

To develop, install & implement decision

support systems in courts.

To automate the processes to provide transparency in accessibility of information to its stakeholders.

To enhance judicial productivity, both qualitatively & quantitatively, to make the justice delivery system affordable, accessible, cost effective, predictable, reliable and transparent

CHARGESHEETS

Why in news?

The Supreme Court on Friday held that chargesheets are not 'public documents' and enabling their free public access violates the provisions of the Criminal Code of Procedure as it compromises the rights of the accused, victim, and the investigation agencies

About

A chargesheet, as defined under **Section 173 CrPC**, is the **final report** prepared by a police officer or investigative agencies after completing their investigation of a case.

"The charge-sheet is nothing but a final report of the police officer under s. 173(2) of the CrPC," the apex court held in its 1991 ruling in *K Veeraswami vs UOI & Ors*.

A chargesheet must be filed against the accused **within a prescribed period of 60-90 days**, otherwise the arrest is illegal and the accused is entitled to bail.

After preparing the chargesheet, the officer-in-charge of the police station forwards it to a Magistrate, who is empowered to take notice of the offences mentioned in it.

The chargesheet should contain **details of names, the nature of the information, and offences**. Whether the accused is under arrest, in custody, or has been released, whether any action was taken against him, are all important questions that the chargesheet answers.

Further, when the chargesheet relates to offences for which there is sufficient evidence against the accused, the officer forwards it to the Magistrate, complete with all documents. This forms the **basis for the prosecution's case** and the charges to be framed.

Why is a chargesheet not a 'public document'?

A chargesheet cannot be made publicly available as it's **not a 'public document' under Sections 74 and 76 of the Evidence Act**.

Section 74 of the Evidence Act **defines 'public documents'** as those which form the acts or records of sovereign authority, official bodies, tribunals, and of public offices either legislative, judicial or executive in any part of India, Commonwealth or a foreign country.

Meanwhile, **Section 76** of the Evidence Act mandates every public officer having custody over such documents to **provide its copy pursuant to a demand and payment of legal fee**, accompanied by a certificate of attestation

As per **Section 75 of the Evidence Act**, all documents other than those listed under Section 74' are private documents.

Chargesheet vs FIR

The term 'chargesheet' has been expressly **defined under Section 173 of the CrPC** but **'First Information Report' or FIR, has not been defined in either the Indian Penal Code (IPC) or the CrPC**. It is only mentioned in the rules under Section 154 of CrPC, which deals with 'Information in Cognizable Cases'.

While the chargesheet is the final report filed towards the end of an investigation, an FIR is filed at the 'first' instance' that the police is informed of a cognizable offense or offence for which one can be arrested without a warrant; such as rape, murder, kidnapping.

Further, an FIR does not decide a person's guilt but a chargesheet is complete with evidence and is often used during the trial to prove the offenses the accused is charged with.

VILLAGE DEFENCE COMMITTEES (VDGS)

Jammu and Kashmir L-G Manoj Sinha recently said Village Defence Guards (VDGs) would be set up in the UT. The scheme to set up VDGs in vulnerable areas of J&K was approved by the Union Ministry of Home Affairs.

About J&K Village Defence Committee (VDCs)

The VDCs were first formed in the erstwhile Doda district in the mid-1990s as a force multiplier against militant attacks.

The VDCs have now been renamed as Village Defence Guards (VDG). Each VDG will be provided with a gun and 100 rounds of ammunition to tackle militants in case of attack until the arrival of security forces.

In the VDCs, only the Special Police Officers (SPOs) leading them were provided with monthly remuneration.

A minimum of 10-15 ex-servicemen, ex-policemen and able-bodied local youth were enrolled in each VDC on a voluntary basis.

Background

The idea was taken from the 1965 and 1971 Indo-Pak wars when the government armed ex-

servicemen and abled-bodied youth in villages along the border to guard against the infiltration of Pakistani spies.

The militancy that began in Kashmir in the early 1990s had spread to the adjoining Doda district by the mid-1990s. As the killings increased, prompting the migration of Hindus from villages to nearby towns, the Home Ministry in 1995 decided to set up the VDCs so as to stop this exodus, coming after Kashmiri Pandits were forced to flee the state in the early 1990s.

Later, the scheme was expanded to other areas of the Jammu division as militants extended their activities.

Controversies

Along with the successes, the VDCs also faced allegations of human rights violations and other crimes, including murder, rape and extortion.

In 2008, the Supreme Court directed the state government to stop supporting and providing arms to *Salwa Judum* (anti-Naxalite militia mobilized by the Chhattisgarh State). According to SC, the state government has no right to provide arms to a civilian and allow him to kill someone else.

OBSCENITY LAWS IN INDIA

Why in news?

A political leader appealed to the authorities to take action against actor Urfi Javed for “roaming the streets of Mumbai and exhibiting her body” on grounds of obscenity.

About

An obscenity is any utterance or act that strongly offends the prevalent morality of the time. Such loaded language can be used to indicate strong moral repugnance and outrage, in expressions such as “obscene profits” and “the obscenity of war”. As a legal term, it usually refers to graphic depictions of people engaged in sexual and excretory activity, and related utterances of

profane speech.

Hicklin Test

Until 2014, the judiciary used the Hicklin test to determine if something is obscene or not.

The Hicklin Test was established in English Law after the case of **Regina vs Hicklin (1868)**.

According to it, a work can be considered obscene **if any portion of it is found to “deprave and corrupt those whose minds are open to such influences”**.

The test was most famously used by the Supreme Court to ban DH Lawrence’s “Lady Chatterley’s Lover”.

Laws in India

In India the Obscenity law is the same as had been framed by the British Government. Charges of obscenity have been levelled against various writers and poets till date; the law has not yet been revised

Under the Indian Penal Code (IPC), **Sections 292, 293 and 294** deal with the offence of obscenity.

Section 292 IPC - says that any content shall be deemed to be obscene if it is lascivious or appeals to the prurient interest, or if its effect tends to deprave and corrupt persons likely to read, see or hear the content.

Section 293 criminalises the sale or distribution of obscene objects to anyone who

is under the age of 20, or an attempt to do so. Although **it is a bailable offence**, the maximum punishment for the first conviction is **three years of imprisonment** and a fine up to Rs 2,000, and for the second conviction seven years with a fine up to Rs 5,000.

Section 294 prohibits obscene acts and songs in **public spaces**.

With the advent of the digital age, laws were made to criminalise obscene conduct on the internet also. **Section 67 of the Information Technology Act** says that anyone who publishes or transmits obscene material in electronic form can be punished.

WORLD REPORT 2023 OF HUMAN RIGHTS WATCH

Recently, The World Report 2023 of Human Rights Watch (HRW) said that Indian authorities had intensified and broadened their crackdown on activist groups and the media through 2022.

Highlights of the report

It said authorities across India arrested activists, journalists, and other critics of the government on what it called “politically motivated” criminal charges, including that of terrorism.

It added that they also misused laws forbidding forced religious conversions to target Christians, especially from Dalit and Adivasi communities.

In Jammu and Kashmir, even after three years of dilution of Article 370, the government continued to restrict free expression, peaceful assembly, and other basic rights there.

It added that rights groups were harassed by

Indian authorities throughout the country through tax raids, the use of the Foreign Contributions Regulation Act, and other allegations of financial irregularities.

About Human Rights Watch

Human Rights Watch (HRW) is an international non-governmental organization headquartered in New York City.

It conducts research and advocacy on human rights on behalf of refugees, children, migrants, and political prisoners.

The group pressures governments, policymakers, companies, and individual human rights abusers to denounce abuse and respect human rights.

In 1997, Human Rights Watch shared the Nobel Peace Prize as a founding member of the International Campaign to Ban Landmines.

SUPREME COURT EXPANDS ARTICLE 19 AMBIT

Why in News?

By ruling that a citizen can seek enforcement of the fundamental rights to freedom of speech not just against the state, the Supreme Court has, effectively, extended the ground for seeking these

rights against other citizens.

Key highlights of Supreme Court's order and its interpretation

A fundamental right under Article 19/21 can be enforced even against persons other than the

State or its instrumentalities

The court took this view while ruling that the right of free speech and expression guaranteed under the Article 19(1)(a) cannot be curbed by any additional grounds other than those already laid down in Article 19(2).

The court, extending free speech against private citizens, opens up a range of possibilities in Constitutional law.

This interpretation could also bring an obligation on the state to ensure private entities also abide by Constitutional norms. These questions could hypothetically range from seeking enforcement of privacy rights against a private doctor to seeking the right to free speech against a private social media entity.

Previous Rulings

The Court relied on the 2017 verdict in Puttaswamy where a nine-judge bench unanimously upheld privacy as a fundamental right. One of the key arguments by the government was that privacy is a right enforceable against other citizens and, therefore, cannot be elevated to the status of a fundamental right against the state.

International Interpretations

The Court also referred to several foreign jurisdictions, contrasting the American approach with the European Courts. Referring to the landmark New York Times vs. Sullivan, in which the US Supreme Court found that defamation law, as applied by the state against The New York Times, was inconsistent with the Constitutional guarantee of the freedom of speech and expression, the SC noted a shift in US law from a “purely vertical approach” to a “horizontal approach.”

A vertical application of rights would mean it can be enforced only against the state while a horizontal approach would mean it is enforceable against other citizens.

For example, a horizontal application of the right to life would enable a citizen to bring a case against a private entity for causing pollution, which would be a violation of the right to a clean environment.

Article 19

Article 19 which guarantees freedom of speech and expression is a right invoked against the state. Some fundamental rights such as those prohibiting untouchability, trafficking and bonded labour are explicitly against both the state and other individuals.

It is available only to citizens and not to foreigners.

Protection of certain rights regarding freedom of speech etc

(1) All citizens shall have the right

(a) to freedom of speech and expression;

(b) to assemble peaceably and without arms;

(c) to form associations or unions;

(d) to move freely throughout the territory of India;

(e) to reside and settle in any part of the territory of India; and

(f) omitted

(g) to practise any profession, or to carry on any occupation, trade or business

Article 19(2) in The Constitution Of India 1949,

Nothing in sub clause (a) of clause (1) shall affect the operation of any existing law, or prevent the State from making any law, in so far as such law imposes reasonable restrictions on the exercise of the right conferred by the said sub clause in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence.

Some fundamental rights, such as those prohibiting untouchability, trafficking, and bonded labor, are explicitly against both the state and other individuals.

ASSAM DELIMITATION

Why in news

Within a week of the announcement, the process of data collection through the office of the Assam Chief Electoral Officer has started. While the EC has said it will formulate its own guidelines for the process, no time frame has been announced.

The most-recent delimitation exercise, that of Jammu and Kashmir, took a little over two years to complete.

What is the importance of delimitation?

Boundaries of Assembly and Parliamentary constituencies are required to be updated from time to time to ensure that the population size in each seat is roughly the same.

The basic principle is that one vote should have the same value, irrespective of the constituency. Apart from population, geographical features, boundaries of administrative units and connectivity are also considered.

Why is delimitation being done in Assam alone?

The Constitution says boundaries of Assembly constituencies should be updated after every decadal Census, but through amendments in 1976 and 2001, the process of delimitation was put off for 25 years each

time. So far, delimitation for the whole country has been carried out four times — under Delimitation Acts in 1952, 1962, 1972 and 2002 — and remains in abeyance till 2026.

During the last delimitation, which was completed in 2008, the government decided to leave out Assam, Arunachal Pradesh, Manipur and Nagaland, as well as Jammu and Kashmir.

For Assam, the government cited security concerns and the potential for disturbing law and order, among others, when it put off the exercise through an order on February 8, 2008.

In 2020, the government set up a Delimitation Commission for J&K, Assam, Arunachal Pradesh, Manipur and Nagaland. But a year later, in March 2021, the government omitted the four North-Eastern states when it extended the tenure of the Commission.

The commission, headed by Justice Ranjana Desai, went on with redrawing the boundaries of J&K, giving its final award in May 2022. Now, the government and the EC have revived the delimitation plan for Assam, but are yet to state publicly what led to the decision.

Why is EC and not an independent Delimitation Commission?

The Election Commission

is empowered to carry out delimitation of Parliamentary and Assembly constituencies of Arunachal Pradesh, Assam, Manipur and Nagaland, as per Section-8A of the Representation of the People Act, 1950.

The section says “if the President is satisfied that the situation and the conditions prevailing” in the states are conducive for conducting delimitation, then he or she may rescind the deferment order.

An order under the same section was issued by the President on February 28, 2020, saying that there had been “a significant improvement in the security situation”, allowing for the delimitation exercise in all four of the states.

Why is the 2001 Census being used?

According to Article 170 of the Constitution, the population numbers to be used for drawing boundaries of constituencies would be as per the 2001 Census until the first Census after 2026 is published. In the case of Jammu and Kashmir, the Jammu and Kashmir Reorganisation Act, 2019 passed by Parliament had mentioned the population in the 2011 Census as the basis of delimitation.

What are the Opposition's concerns?

Opposition leaders, while

saying that delimitation is required, have questioned the use of the 2001 Census figures,

given that 2011 Census data is available and the 2021 Census process is on.

Assembly elections in Assam are due in 2026.

DELAY IN CENSUS

Why in the News?

Recently, the government postponed the decennial census exercise (Census 2021) till at least September 2023, as it informed states that administrative boundaries would be frozen beginning July 1, 2023. It was intended to be conducted between 2020-21 but did not take place due to the spread of COVID-19.

Background of census

The Census is the enumeration of the population of the country and it is being conducted at an interval of 10 years by the Office of the Registrar General and Census Commissioner of India under the Ministry of Home Affairs.

In the Census, data is collected on demographic and various socio-economic parameters like education, language, marriage, fertility, disability, occupation and migration of the individuals.

The Census is one of the most credible sources of information on the following:

1. Economic Activity.
2. Literacy and Education.
3. Housing & Household Amenities.
4. Urbanization, Fertility, and Mortality.
5. Scheduled Castes and

Scheduled Tribes.

It was first started under British Viceroy Lord Mayo in 1872 and the first systematic census in India was held in 1881.

The Census 2021 will be the 15th Census and will be conducted in two phases, i.e., house listing and population enumeration.

Periodicity of the Census

Constitutional provision

The Constitution talks about the use of Census data for the delimitation of constituencies and for determining the quantum of reservation for Scheduled Castes and Scheduled Tribes.

However, it does not say what should be the periodicity of the census.

Census Act, of 1948

It provides the legal background for several activities relating to the Census without mentioning anything about its periodicity.

It says, "The Central Government may declare its intention of taking a census, whenever it may consider it necessary or desirable so to do, and thereupon the census shall be taken".

This provision puts the

onus of deciding when to conduct a Census on the executive.

This is unlike the position in several countries such as the U.S. and Japan where the Constitution or the Census law mandates a Census with defined periodicity.

Significance of Census

The Census provides population data and characteristics, housing and amenities for every village and town.

It helps in framing government programs to uplift vulnerable sections and it is used to validate or reject estimates of various sample surveys.

The Census data are used to determine the number of seats to be reserved for SCs, STs in Parliament and State legislatures and delimitation of constituencies.

In case of panchayats and municipal bodies, reservation of seats for SCs and STs is based on their proportion in the population. Other than the Census, there is no other source that can provide this information.

It is also the basis for reviewing the country's progress in the past decade, monitoring the ongoing schemes of the

government and planning for the future.

The Census is crucial to determine the population of migrants and migration patterns.

The start of the pandemic saw a sea of migrants on the country's roads, and the only data available with the government was from 2011, which could not answer queries on the numbers, causes and patterns of migration.

Need to Freeze Administrative Boundaries

Before every Census, states are required to provide information on changes in the number of notified districts, villages, towns and other administrative units such as tehsils, talukas and police stations to the Registrar General of India (RGI).

Freezing of boundary limits of administrative units, at least three months prior, thus is a prerequisite for conducting the census, to prevent State governments' tendency to create new districts and tehsils or reorganise existing ones.

If changes in administration boundaries happen during a Census, there would be chaos in the field over supervision of such areas. This could lead to some areas being left out of the Census.

The house-listing operations were traditionally taken up in various States at different points of time between

March and September of the year prior to the Census.

As a result, the government may have decided to freeze administrative boundaries to coincide with house-listing operations, thereby shortening the time between the freezing of boundaries and the actual Census enumeration.

Implications of the Delay in Census Non-availability of reliable data:

Though India has population projections at the State and national level, but it is not feasible to get reliable projections at lower geographic levels such as for districts and cities until census is not conducted.

Limitation of sample surveys:

Information on the improvement in literacy and educational levels, economic activity, migration, etc., or the impact of schemes like Swachh Bharat Abhiyan is derived from sample surveys.

But these surveys cannot be used to find answers related to literacy rates in villages or proportion of people in tehsil getting regular potable water supply.

Such information related to population characteristics, housing, amenities, etc., are provided by timely conducted census.

Ambiguity in granting

reservation:

Delay in the Census means that the data from the 2011 Census would continue to be used to determine the reservation of seats for SCs, STs, etc., in legislature, local bodies, etc.

Since many towns and panchayats have seen rapid changes in the composition of their population over the last decade, delaying census would mean that either too many or too few seats are being reserved.

Dynamic rural-urban distribution:

The rural-urban population has been rapidly changing and there is high population growth in the urban areas over the years due to migration.

For example, areas under the Bengaluru Municipality grew by 49.3% during 2001-11, while the Municipal Corporation of Greater Mumbai (11.9%), Delhi (11.7%), and Chennai (7%) had much lower growth rates.

Thus, to enumerate these population dynamics, timely census is critical.

Enumerating Covid mortality:

The pandemic impact on age distribution in severely affected areas would give an indirect approximation of the number of deaths.

The census could validate or reject the various estimates of the number of deaths due to the pandemic.

Discrepancies in PDS entitlement:

The National Food Security Act, 2013, entitles subsidised food grains to 75% of the rural population and 50% of the urban population, utilizing 2011 Census (121 crore).

However, today India's population has grown to about 137 crore and current delay in Census data would deprive more than 10 crore people of subsidised food entitlements.

Proposed digital Census

The upcoming Census will also be the first Census both in

digital mode and through paper schedules (questionnaires/forms). In 2022, the Union government amended the Census Rules framed in the year 1990 to allow the details to be captured and stored in an electronic form and also make a provision enabling self-enumeration by respondents.

The Home Ministry informed the Parliament in December that mobile and web applications for the collection of data and a portal (CMMS) for management and monitoring of various Census-related activities had been developed at a cost of ₹24.84 crore so far.

Conclusion

The first Census after 2026 would be used for delimitation of Parliamentary and Assembly constituencies and for the distribution of parliamentary seats among the States.

Due to the disparity in population growth rates between the States, there could be changes in the distribution of seats in Parliament, and hence the Census is likely to be held in a more politically charged atmosphere, thus it is necessary that this Census is done as early as possible.

DIGITAL LEGAL SYSTEM

Context

In a country with over 65 crore active internet users, online dispute resolution has immense potential to cut case backlog

Pendency of cases in Indian judiciary

India takes an average of 2,184 days to dispose of a case in its subordinate courts, 1,128 days in its High Courts, and 1,095 days in the Supreme

Court, bringing the total life cycle of a case in India to 12+ years.

Over 4.7 crore cases are pending across various courts in India. Of them, 87.4 percent were pending in subordinate courts, 12.4 percent in High Courts, and nearly 1.8 lakh cases have been pending for over 30 years!

Many reasons account for this clogged judicial system, including a dearth of personnel

(there are only two judges per one lakh Indians), an insufficient number of courts, a highly litigious Indian society, etc.

Cost of delayed justice

This means that we are already looking at a timeline of 300+ years to dispose of only the backlog, and India and its citizens bear the burden of over ₹80,000 crore each year due to such delays.

The cost of delayed justice stands at 0.77 percent of the GDP, in addition to the pain and agony of those who have to wait for years for outcomes.

Digital technology in the judiciary

In India, e-governance in the field of administration of justice began in the late 1990s,



but it accelerated after the enactment of the Information and Technology Act, 2000.

In the year of 2006, e-courts were launched as a part of the National e-Governance Plan (NEGP).

Digitisation of case files

Saving of space and preservation of old documents: This was necessary as not only was a large space required to store so many files, it was also becoming difficult to manually preserve the decades-old documents.

Traceability: Another purpose was to ensure that these files are traceable electronically as and when required.

Reducing the risk of missing court records: In *State of Uttar Pradesh v. Abhay Raj Singh*, it was held by the Supreme Court that if court records go missing and reconstruction is not possible, the courts are bound to set aside the conviction.

Saving of time: With digitisation, it will take much less time for the lower courts to transmit the records as and when called for. The lawyers benefit because they or their staff are no longer required to visit the reporting sections or other sections of the court to know about the status of their cases.

This has been sought to be implemented by the e-Committee of the Supreme Court by issuing directions to

ensure that e-filing of cases/petitions by state governments in all matters be made mandatory from January 1, 2022.

Scope for virtual hearing in certain cases

Cases related to matrimonial issues and domestic violence bounced cheques, motor accident compensation referred to mediation centres and lok adalats could be included in the list of cases fit for disposal through the virtual hearing.

The hearing of matrimonial cases through video-conferencing was approved by the Supreme Court in the matter of *Krishna Veni Nagam v Harish Nagam* (2017).

The direction was short-lived and a coordinate bench of the Supreme Court in the case of *Santhini v Vijaya Venkatesh* (2018) referred the matter for reconsideration before a larger bench.

Virtual hearings cannot be a substitute for physical court hearings in all cases.

However, in appropriate cases and certain categories of cases as identified by the court administration in consultation with the members of the Bar, virtual hearing should be made mandatory.

Live streaming of cases

In 2018, the Supreme Court allowed the live-streaming of cases of constitutional and national importance on the

basis of the judgment in *Swapnil Tripathi*.

Step towards transparency: The livestreaming of court proceedings is a step towards ensuring transparency and openness.

While several reservations were expressed against it, the Gujarat HC in July 2021 became the first court in the country to livestream its proceedings.

Its example was followed by other HCs like Karnataka, Odisha, Madhya Pradesh and Patna.

Alternative Resolution

Alternative Dispute Resolution (ADR), one that obviates trial, can resolve disputes faster and cheaper than traditional litigation. Along with Online Dispute Resolution (ODR), the judicial system can be considerably reformed.

A robust ODR ecosystem can reduce the burden of courts and run-of-the-mill civil cases, leaving the judiciary to focus on more nuanced cases that cannot move out of the courtroom.

Additionally, ODR is not merely the conversion of paper documents to digital files, or the virtualization of proceedings via online video calls.

India's judiciary uses an estimated 11 billion sheets of paper each year, which translates into 109 billion litres of water, which ODR has the power to significantly reduce.

Benefits of the digital legal system

Reduced need for storage infrastructure

This space could be utilized for increasing courtrooms and recruiting more judges for enhanced access to justice and speedy Justice delivery. Judges - Population ratio: 20 per Million for India (whereas for other countries it is approximately double).

Increased traceability of Case files

This will reduce adjournments due to the traceability of affidavits which were stored electronically.

Reduced time for Court proceedings

The time consumed in summoning records from the lower courts to the appellate courts is one of the major factors causing delays in cases. Due to the digitization of the records, this time would reduce significantly.

Ensuring real justice

In 'State of Uttar Pradesh v. Abhay Raj Singh', it was held by the Supreme Court that if court records go missing and reconstruction is not possible, the courts are bound to set aside the conviction. This would allow the accused to not be held accountable for the crimes committed.

This would lead to a miscarriage of Justice and hence digitization provides a panacea against this.

Ease of Procedure

Lawyers can check the status of the filing, the status of applications and affidavits, the date of the next hearing, orders passed by the courts, etc. just by clicking on an app. It would no more be required to physically visit the courts to know the status of the case.

Openness and transparency

A litigant can be more informed about the status of his/ her court case. This will

lead to enhanced trust in the Judiciary.

Challenges

Internet connectivity issues and the need for a well-equipped space where lawyers can conduct their cases are some of the major problems requiring attention. Political will and the support of judges and lawyers are also necessary.

Awareness and training is mandatory as the Judges, court staff and lawyers are not well-versed with digital technology and its benefits. The need of the hour is for them to be made aware of these and receive adequate training.

Conclusion

Digitization can help truly democratize the judicial process in India, and make it available to everyone – the haves and the have-nots, the rich and mighty, and the downtrodden and destitute, alike.

The Judiciary must seek to leverage technology leadership and innovation with private partnerships.

REMOTE VOTING MACHINE

Though voter turnout has increased over the years since the first few general elections after Independence when it hovered around 50%, the last three Lok Sabha polls have seen an average of one-third of registered voters sit out the elections.

In its letter to parties, the EC expressed concern over the

stagnation in voter turnout. In 2019, 67.40% of the 91.20 crore registered electors voted, slightly higher than 66.44% in 2014. In 2009, the turnout was 58.21%.

The EC letter said it was concerned that about 30 crore electors were not exercising their franchise, as well as about the differential voter turnout in

different states and UTs.

One of the reasons, according to the EC, was internal migration that took electors away from their home constituencies.

Electors can have their names added to the electoral rolls of the constituency they ordinarily reside in, but many chose to retain the Voter ID

from their home constituencies for various reasons.

Hearing a petition on the alleged denial of voting opportunities to migrants, the Supreme Court had in 2015 directed the EC to explore options for remote voting.

The EC had formed a committee of officers to come up with solutions for remote voting in 2016, however, there were several unanswered questions. The term domestic migrant was not defined and counted in a central database.

The EC letter pointed out that the Registrar General of India, the Union Labour and Employment Ministry and the National Sample Survey Organisation had different meanings of “migrant”.

The 2011 Census says 45.36 crore Indians or 37% of the population are “migrants” and 75% of these migrants moved due to marriage or other family related reasons.

While the committee had considered options of internet voting, proxy voting, early voting and postal ballots for migrants, it did not eventually end up recommending these.

The committee recommended the creation of a robust electoral roll. Now, the EC has come up with a

technological solution to the problem.

What is the current proposal for remote voting?

Working with the Electronics Corporation of India, a company under the Department of Atomic Energy, the EC has come up with a prototype Remote Voting Machine (RVM), which is a modified version of the existing Electronic Voting Machine (EVM).

The RVM will be able to handle 72 constituencies in a single remote polling booth.

The special remote polling booths would be set up in different states when elections are on in the home state of migrants.

The EC proposed using this in a State Assembly election as a pilot so internal migrants within a state can cast their ballots.

The remote voter will have to pre-register for the facility by applying online or offline with the Returning Officer of the home constituency.

The special polling stations would then be set up in the places of current residence of the remote voters.

The RVM is a standalone and non-networked system, the EC said in its concept note. Instead of a paper ballot sheet, the RVM would have a dynamic ballot display that can change with the selection of different constituencies.

The system would have a device similar to the VVPAT so voters can verify their votes.

The units will save the number of votes for each candidate for each of the constituencies, to be tallied on counting day.

The results would then be shared with the home RO.

How will the EC keep the process secure?

According to the EC, the RVM, like the EVM, would not be connected to the internet.

The RO in the remote location will load the symbols of candidates into the unit using a laptop. These laptops, an EC source said, would not be connected to the internet.

Representatives of political parties and candidates would be invited to be present when the symbols are loaded onto the unit.

The symbols would be visible on a display unit for all to see.



INTERNATIONAL RELATIONS



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PERU PROTESTS

Why in news?

At least 40 people have died in clashes between Peruvian security forces and protesters in the Andean country's worst outbreak of violence in over 20 years. Protesters are calling for fresh elections and government accountability.

About

Protests began after Congress removed President Pedro Castillo on Dec. 7, who was arrested and sentenced to 18 months of pre-trial detention on rebellion charges. Castillo, 53, was embroiled in multiple corruption investigations and tried to illegally dissolve Congress ahead of a planned impeachment vote.

His removal was the latest blow in a years-long clash between Peru's executive and legislature. Castillo's vice president, Dina Boluarte, ascended to the job as Peru's sixth president in five years.

Protesters are demanding Boluarte's resignation, Congress' closure, a new constitution and Castillo's release. There have also been marches calling for an end to the unrest.

Peru -

Peru is South America's 3rd largest country and the 19th largest country in the world. Located on the coast of the Pacific Ocean is, Lima - the

capital, the largest and the most populous city of Peru.

Peru is a nation located on the western coast of South America. It is situated just to the south of the Equator and is geographically positioned both in the western and southern hemispheres of the Earth. Peru is bordered by Colombia and Ecuador to the north; by Brazil to the east; by Bolivia to the southeast and by Chile to the south. It is also bounded by the South Pacific Ocean to the west.

System of governance

The Republic of Peru is a unitary state with a multi-party semi-presidential system. The current government was established by the 1993 Constitution of Peru. The government is composed of three branches, being executive, judicial, and legislative branches.

Presidential system: Democracies in which the government does not depend on a legislative majority to exist are presidential.

Parliamentary system: Democracies in which the government depends on a legislative majority to exist and in which the head of state is not popularly elected for a fixed term are parliamentary.

Semi-Presidential system: Democracies in which the government depends on a legislative majority to exist and in which the head of state is popularly elected for a fixed term are semi-presidential.

There are two types of semi-presidential democracy.

1. In a **premier-presidential system**, the government is responsible to the legislature but not the president.
2. In a **president-parliamentary system**, the government is responsible to the legislature and the president.

In a president-parliamentary democracy, there is no guarantee that the president and the prime minister will come from the same party. Cohabitation – a president from one political bloc and a prime minister from another may occur when the party of the president does not control a majority in the legislature.



INTERNATIONAL HOLOCAUST REMEMBRANCE DAY

Why in News?

International Holocaust Remembrance Day (also called Yom HaShoah in Jewish) is a day observed on **27 January** in memory of the millions of Jews that were murdered by the Nazis.

Why this date?

27 January was chosen to commemorate the date that Auschwitz concentration camp was liberated by the Red Army of the USSR in 1945.

About

Holocaust means destruction on a large scale. International Holocaust Remembrance Day was established by the United Nations General Assembly resolution 60/7 on 1 November 2005.

International Holocaust Remembrance Day

is about remembering the six million Jews that were captured and killed by the Nazis. This day is also about educating people about genocide and its history in Nazi Germany so that history doesn't repeat itself.

International Holocaust Remembrance Day 2023 Theme

The theme of International Holocaust Remembrance Day 2023 is "Ordinary People". This theme aims to point out the fact that it was "ordinary people" who let the mass killings of Jews happen in Nazi Germany.

The theme aims to educate people on how remaining silent as an ordinary observer in the wake of crime happening around you makes you as guilty as the actual murderers.

YOUNG PROFESSIONALS SCHEME

Why in news?

The governments of India and the U.K. marked Pravasi Bharatiya Divas on January 9 by kicking off the Young Professionals Scheme.

About

It was conceived as part of an India-U.K. Migration and Mobility MoU signed in May 2021 and was announced in November at the G20 summit in Bali.

It will permit up to 3,000 of their degree-holding citizens aged between 18 and 30 to live and work in each other's countries for two years.

The programme will be reciprocal, also allowing UK professionals in the same position to participate in a professional exchange by living and working in India.

The signing of the agreement belies more complex issues around the movement of persons

across borders.

This scheme makes India the first visa-national country to benefit from the scheme.

Benefits of the Young Professionals Scheme

The Young Professionals Scheme offers a unique opportunity for young Indians and Britons to gain international experience and expand their cultural horizons.

It also has the potential to strengthen ties between the two countries by fostering cultural exchange and building networks of professionals.

INDIA - EGYPT RELATIONS

Content

Recently India and Egypt agreed to elevate the bilateral relationship to a “strategic partnership”. The strategic partnership will have broadly four elements:

political, defence, and security;

economic engagement;

scientific and academic collaboration;

cultural and people-to-people contacts.

that hosts the League of Arab States and a diplomatic presence that punches above its weight in global affairs, Egypt is a pivotal player. It is also a country with which India enjoyed an exceptionally close relationship in the first couple of decades after our Independence.

Brief History

The history of contacts between India and Egypt, two of the world’s oldest civilisations, can be traced back to at least the time of

Nehru was a close friend of President Gamal Abdel Nasser, and India and Egypt signed a friendship treaty in 1955. In 1961, Nehru and Nasser, along with Yugoslavia’s President Josip Broz Tito, Indonesia’s President Sukarno, and Ghana’s President Kwame Nkrumah, established the Non-Aligned Movement (NAM).

Prime Ministers Rajiv Gandhi, P V Narasimha Rao, I K Gujral, and Dr Manmohan Singh visited Egypt in 1985, 1995, 1997, and 2009 (NAM Summit) respectively, and Egypt’s President Hosni Mubarak came to India in 1982, 1983 (NAM Summit), and 2008. After the 2011 revolution, President Mohamed Morsi visited India in March 2013.



Sisi was invited as the Chief Guest at this year’s Republic Day. It is the first time that an Egyptian President has been accorded this honour. A military contingent from Egypt participated in the parade

With a population of almost 110 million, a location that straddles Africa and Asia, a standing army that is the largest in the region, a capital

Emperor Asoka. In modern times, Mahatma Gandhi and the Egyptian revolutionary Saad Zaghloul shared common goals on independence from British colonial rule, and the two nations made a joint announcement of establishment of diplomatic relations at the ambassadorial level three days after India became free.

Prime Minister Jawaharlal

Geo-strategic concerns

China’s bilateral trade with Egypt is currently at \$15 billion, double that of India’s \$7.26 billion in 2021-22. Sisi has been wooing Chinese investments, and has travelled to China as many as seven times in the last eight years.

Egypt, the most populous country in West Asia, occupies a crucial geo-strategic location — 12% of global trade passes through the Suez Canal — and is a key player in the region. It is a major market for India and can act as a gateway to both Europe and Africa. It also has bilateral trade pacts with important West Asian and African nations.

Symbiotic relations

Both countries also demonstrated mutual goodwill by helping each other at crucial times: Egypt by sending Remdesivir and urgent medical supplies during our devastating second wave of Covid-19, and India by sending wheat to tide over the supply-side disruptions caused by the Ukraine war.

New Delhi wants to supply India-made defence equipment such as the LCA Tejas, missiles like Akash, DRDO's Smart Anti-Airfield Weapon, and radars to Egypt. A pact was signed when Defence Minister Rajnath Singh visited Cairo last year, and the two countries have decided to also participate in exercises and cooperate in training.

Difficult time for Egypt

Egypt's economy has been in shambles over the past few years due to

The collapse of tourism during the pandemic

Russia-Ukraine war has impacted its supply of food — almost 80% of Egypt's grain came from these two countries — and hit its foreign exchange reserves.

Inflation is at a five-year high of 21 per cent.

Egypt has approached the International Monetary Fund (IMF) for the fourth time in six

years for a bailout. It received a \$12 billion IMF loan in 2016, and has also got budgetary support of about \$8 billion from Saudi Arabia and the UAE.

Despite restrictions on the export of wheat, India had last year allowed shipments of 61,500 metric tonnes to Egypt. But the country needs more.

From India, Egypt has sought investments in infrastructure namely Metro projects in Cairo and Alexandria, a Suez Canal economic zone, a second channel of the Suez Canal, and a new administrative capital in a Cairo suburb. More than 50 Indian companies have invested more than \$3.15 billion in Egypt.

India's Investment on Egypt

The largest of all the investment is the \$1.5-billion PVC and caustic soda plant set up in Port Said by the Sanmar Group, followed by the Aditya Birla Group, Asian Paints, Dabur, UFlex and a host of others.

After several abortive starts and forced by the gravity of the economic crisis, the Egyptian Government finally seems to be getting serious about implementing both economic and administrative reforms.

The ambitious plan

to develop the Suez Canal Economic Zone (SCZONE) into a global manufacturing hub is now gathering critical mass. ReNew Power has announced plans to set up a massive green hydrogen facility with an investment of \$8 billion.

Attractive tax incentives, the strategic location and free trade agreements that make it easy to access the European markets are key factors behind such a major investment.

Way Ahead

For India, a deeper economic engagement with Egypt, therefore, acquires an additional strategic imperative.

While Egypt clearly needs to do more to market itself as an investment destination in India, it is also important for industry bodies such as the CII, FICCI and ASSOCHAM to adopt a more proactive approach.

For now, there are clear indications that India and Egypt may finally achieve some potential in bilateral ties that has remained unfulfilled in the past four decades.

More than six decades ago, the two countries founded the NAM. They now have an opportunity to forge a new path ahead, not just for their strategic and economic interests, but as the voice of the Global South.



SOCIETY &

SOCIAL JUSTICE

What's Inside?

1. ASER REPORT 2022

BIHAR CASTE CENSUS

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ASER REPORT 2022

Why in the News?

Recently, the 17th Annual Status of Education Report (ASER) 2022 was released by NGO Pratham, which highlights the impact of the pandemic on education.

About ASER

The ASER is an annual, citizen-led household survey that aims to understand whether children in rural India are enrolled in school and whether they are learning.

ASER has been conducted every year since 2005 in all rural districts of India. It is the largest citizen-led survey in India.

ASER tools and procedures are designed by ASER Centre, the research and assessment arm of Pratham, which is one of the largest non-governmental organizations in the country created to improve the quality of education in India.

ASER 2022 reached almost 700,000 children in over 19,000 villages across 616 districts in India, and generated district, state, and national level estimates of children's enrolment status and foundational skills.

Methodology

Unlike most other large-scale learning assessments, ASER is a household-based rather than school-based survey.

This design enables all children to be included –

those who have never been to school or have dropped out, as well as those who are in government schools, private schools, religious schools, or anywhere else.

Information on schooling status is collected for all children in the age group 3-16 living in sampled households.

Children in the age group 5-16 are tested in basic reading and basic arithmetic.

Significance:

ASER has had a major influence in bringing the issue of learning to the centre of the stage in discussions and debates on education in India.

ASER data has been used in many reports such as NITI Aayog's 3-Year Action Agenda for 2017-18 to 2019-20, Economic Survey of India 2021-22, and World Bank's World Development Report 2018.

Findings of the report

Enrolment and attendance

Overall enrolment: The enrolment rate for the 6 to 14 age group has been above 95% for the past 15 years. Despite school closures during the pandemic, overall enrolment figures have increased from 97.2% in 2018 to 98.4% in 2022.

Government school enrolment: The proportion of children (aged 6 to 14) enrolled in government schools

increased sharply from 65.6% in 2018 to 72.9% in 2022.

The proportion of girls who are not currently enrolled: In 2022, the all-India figure for 11-14-year-old girls not enrolled in school stands at 2%. This figure is around 4% only in Uttar Pradesh and is lower in all other states.

The proportion of 15-16-year-old girls not enrolled has continued to drop, standing at 7.9% in 2022. Only 3 states have more than 10% of girls in this age group out of school: Madhya Pradesh (17%), Uttar Pradesh (15%), and Chhattisgarh (11.2%).

Enrolment in the pre-primary age group: Across rural India, the proportion of 3-year-olds enrolled in some form of early childhood education stands at 78.3% in 2022, an increase of 7.1 percentage points over 2018 levels.

Paid private tuition classes.

Nationally, the proportion of children in Standard I-VIII taking paid private tuition classes increased from 26.4% in 2018 to 30.5% in 2022.

Learning levels: Foundational skills in reading and arithmetic

Nationally, children's basic reading ability has dropped to pre-2012 levels, reversing the slow improvement achieved in the intervening years. Drops are

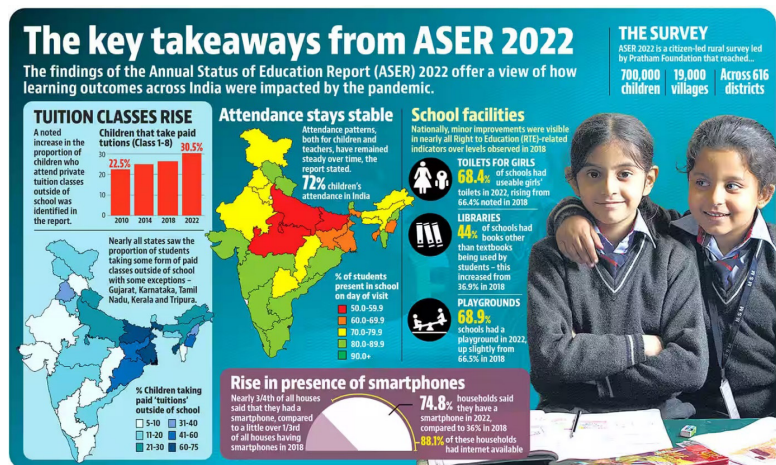
visible in both government and private schools in most states, and for both boys and girls.

Nationally, children's basic arithmetic levels have declined over 2018 levels for most grades. But the declines are less steep and the picture is more varied than in the case of basic reading.

Nationally, children's ability to read simple English sentences has stayed more or less at the 2016 level for children in Standard V (from 24.7% in 2016 to 24.5% in 2022). Slight improvements are visible for children in Standard VIII (from 45.3% in 2016 to 46.7% in 2022).

Teacher and student attendance

At the All-India level, no major change is seen in students' and teachers' attendance. Average teacher



attendance increased slightly, from 85.4% in 2018 to 87.1% in 2022. Average student attendance continues to hover at around 72% for the past several years.

School facilities

The fraction of schools with useable girls' toilets increased from 66.4% in 2018 to 68.4% in 2022.

The proportion of schools with drinking water available

increased from 74.8% to 76%, and the proportion of schools with books other than textbooks being used by students increased from 36.9% to 44% over the same period.

Most sports-related indicators also remain close to the levels observed in 2018. In 2022, 68.9% of schools have a playground, up slightly from 66.5% in 2018.

BIHAR CASTE SURVEY

About

The Caste Based Survey in Bihar, which began on January 7, is being carried out in two stages. The first phase was a household counting exercise, which has now been completed with district administrations expected to send in their final reports by the end of January.

During the second stage, which is set to begin from April, information on people's caste and their socio-economic conditions will be collected. However, the form for the purpose has not been finalised.

There is a drop-down box, which will have a list of about 200-300 castes and the enumerators will have to just choose from one of them after collecting the information from the concerned citizen.

The General Administration Department (GAD) is the nodal department for the survey.

Caste Census

Caste Census is the demand to include the caste-wise tabulation of India's population in the upcoming exercise including the data on SCs, STs, OBCs and other castes - their socioeconomic status.

History of Caste census in India

Caste was a key variable in all censuses from 1872 to 1931.

1931 was the last census that contained data on all castes

including SC, STs, OBCs, and other castes.

From the census of 1941, this practice was discontinued and the data other than SCs and STs were not collected as a part of the census.

From then on the census contained data only on religion, scheduled caste, and scheduled Tribes as codified in the census Act of 1948.

There have been many requests to include the caste variable in the census. Many states have passed unanimous resolutions requesting the center to include caste as a variable in the census.

In 2011, the Socioeconomic caste census was conducted and its proceeds were released in 2016. But the parliamentary panel termed the census to be with many errors and unreliable.

Recently, Maharashtra and Odisha have also passed resolutions regarding this matter.

Need for Caste-Based survey in Bihar

The decennial Census of India, the latest of which was supposed to have been conducted in 2011, measures demographic data like age, marital status, religion, whether Scheduled Caste/Scheduled Tribe, mother tongue, education level, disability, economic activity, migration,

and fertility.

As a result, there is readily available data on the number of individuals belonging to SCs or STs and to different religious groups. So there is no ready data available on the exact figures for the number of people belonging to 3,743 OBCs in India.

It was based on the data from the 1931 census that the Mandal Commission made its recommendation for bringing 27 percent reservation for OBCs. The commission used extrapolated data and determined that 52 percent of the total population of India, outside of ST and SC, belonged to OBCs.

These estimates because of their extrapolation and inaccuracy cannot be treated as scientific evidence backing reservations of OBCs which are existing as a hot potato of the politics in India for ages.

Arguments against the inclusion of Caste in census

Definition of caste: There is no clear consensus on how to define and classify

castes, which can lead to confusion and inaccuracies in the census data.

Underreporting: Some individuals may choose not to disclose their caste, either

out of fear of discrimination or to avoid being identified as

belonging to a lower caste.

Inaccuracies and manipulation of data : There have been concerns that the data

collected in a caste census may be manipulated to serve political or other interests.

Ethical concerns : Critics argue that a caste census reinforces the caste system and can perpetuate social inequalities .It can cause social disharmony .There is a danger of negative vote bank politics exploiting caste-based census

Arguments in favor of inclusion of Caste in census

The census is the data that aids the government in planning and mobilization of the resources of the nation. Likewise ,the data of the census aids in better policy-making aimed towards the progress of the particular backward sections of the society) **Targetting of Welfare Schemes(**

This can aid in identifying the disparities between different castes in terms of status and opportunity and propel the society towards social justice through affirmative actions

This can establish the role of caste in the socio-economic status of the people in terms of wealth ,property ,etc.,

Indian Constitution also favours conducting a caste census.

Article 340 mandates the appointment of a commission

to investigate the conditions of socially and educationally backward classes and make recommendations as to the steps that should be taken by governments.

Is caste-based census against the aim of a casteless society?

It is imperative to take pragmatic steps toward building a casteless society. The misrecognition of existing disparities can never make a casteless society.

Protesting against conducting a caste-based census would hardly solve the issue ,for shunning ourselves from the truth won't make the bitter truth sweet .A country which has suffered the caste system for over a thousand years can't become ' casteless' overnight .A caste-based census was extremely important in a country like ours given the reservations and the quotas that we have to plan .So ,instead of criticizing the system ,we need to find a solution within the system which would lead us to our goal

The Indian Constitution doesn't give us an option not to belong to any caste .Our society does ,but not the Constitution. The constitution strives hard to eliminate discrimination based on caste and creed .In that road, caste-based census can help towards a casteless society.

Way Forward

If India has to emerge as a confident and strong nation,

it must shed its hesitancy and ostrich-like escapism in conducting a caste-linked socio-economic census .This will kick-start a process that will eventually take the caste system away from an Indian.

A caste census without data integrity would be much worse.

Instead of going behind the caste based census ,the government can subclassify the Backward Classes like in Tamil Nadu ,Andhra Pradesh, West Bengal etc .This will provide the benefit to intended beneficiaries.

Since the government has already appointed Justice G Rohini Panel on Sub-categorisation of OBCs .The Panel has to fast pace the sub-classification process.

The government can use technologies like Artificial Intelligence and machine learning to assess the SECC data and condense them into meaningful categories and some important caste-based information .This will provide the necessary time to analyse the need for a caste census.

Economic Development & Agriculture



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EXPECTED LOSS-BASED APPROACH FOR LOAN PROVISIONING

Why in news?

The Reserve Bank of India (RBI) on Monday proposed a framework for adoption of an 'expected loss-based' approach for provisioning by banks. The RBI has sought feedback on the paper till February 28, 2023.

About

When granting loans to their clients, banks always expose themselves to credit risk – the risk that the borrower may not pay back the loan. When this happens, the loan is said to become non-performing. A loan becomes non-performing when the bank considers that the borrower is unlikely to repay, or when the borrower is 90 days late on a payment.

Non-performing loans (NPLs) reduce banks' earnings and cause losses, which weighs on their soundness. Banks with high levels of non-performing loans are unable to lend to households and companies. This is harmful to the economy as a whole.

Every bank has to prepare for making a loss on its loans. To offset this credit risk, the bank estimates the expected future loss on the loan and books a corresponding provision. Hence, A loan loss provision is an income statement expense set aside to allow for uncollected loans and loan payments.

Banks are required to account for potential loan defaults and expenses to ensure they are presenting an accurate assessment of their overall financial health.

'Incurred loss' approach

Presently, banks are required to make loan loss provisions based on an 'incurred loss' approach, which used to be the standard globally till recently. Its key drawback was that usually banks made provisions with a significant delay after the borrower may have started facing financial difficulties, thereby increasing their credit risk. This led to systemic issues.

Expected Loss-Based Approach

Under the proposed framework, banks will be required to classify financial assets (primarily loans, including irrevocable loan commitments, and investments classified as held-to-maturity or available-for-sale) into one of three categories – Stage 1, Stage 2, and Stage 3, depending upon the assessed credit losses on them, **at the time of initial recognition as well as on each subsequent reporting date** and make necessary provisions. Banks would be allowed to design and implement their own models for measuring expected credit losses for the purpose of estimating loss provisions in line with the proposed principles.

COMPETITION COMMISSION OF INDIA

Why in News?

Google has said that the order passed by the Competition Commission of India (CCI) against Android's operating system policies will result in devices getting expensive in India and lead to proliferation of unchecked apps that will pose threats for individual and national security.

About

The CCI's order "strikes a blow" at the efforts

to accelerate digital adoption in the country, Google said, adding that the order against Android that could have far reaching consequences.

The Competition Commission of India has been established to enforce the competition law under the Competition Act 2002. The Commission consists of a Chairperson and not more than 6 Members appointed by the Central Government.

It is a **quasi-judicial body** tasked with the following duties:

Prevent practices that have a negative effect on competition.

Encourage and maintain market competition.

Safeguard the interests of all consumers.

Safeguard commercial liberty.

Investigate problems related to or ancillary to trade.

The Commission is also mandated to give its opinion on competition issues to government or statutory authority and to undertake competition advocacy for creating awareness of competition law.

Competition Act

The Parliament of India passed the Competition Act, 2002 on January 13, 2003, which repealed the **Monopolies and Restrictive Trade Practices Act, 1969**. This was done based on the recommendations of the **Raghavan Committee**. It came into force on March 31st, 2003. The Competition Act, 2002 was changed twice after its enactment, with the Competition (Amendment) Act, 2007 and the Competition (Amendment) Act, 2009. It was a result of India's drive for globalisation and economic liberalisation.

The primary goal of the Act is to control the anti-competitive behaviour of a firm or company that has a negative impact on competition in India's market. Furthermore, the Act seeks to encourage and maintain market competition, safeguard the interests of consumers, and safeguard market freedom in our country.

The Competition Act, 2002, was adopted in India to achieve the dual goals of **regulating anti-competitive conduct and lending support to the agreements of the World Trade Organisation (WTO)**.

The Act also establishes the **Competition Commission of India (CCI)** as a market controller for stopping and controlling anti-competitive behaviour in the country. It also establishes the **Competition Appellate Tribunal (COMPAT)**, a quasi-judicial authority formed to listen to and decide on appeals against any direction issued or decision taken by the CCI.

The Competition Act, 2002 primarily covers four aspects.

1. Anti-competitive agreements
2. Abuse of the dominant position
3. Combinations and their regulation
4. The Competition Commission of India

The Competition Act aims to govern two types of agreements:

- Horizontal Agreements, and
- Vertical Agreements.

Horizontal Agreements are agreements between two or more business entities working at the same level of production and distribution

Vertical Agreements are the agreements formed between firms or individuals at various levels or tiers of the manufacturing chain

WORLD ECONOMIC FORUM

Why in News?

The World Economic Forum's Annual Meeting 2023, held in the Swiss town of Davos, ended on January 20

About

WEF Meet 2023

The theme this year was 'Cooperation in a Fragmented World'.

More than 50 "high-impact initiatives" was launched at the event.

Maharashtra Institution for Transformation (MITRA) signed a partnership with the forum on urban transformation to give the state government "strategic and technical direction"

A thematic centre on healthcare and life sciences is to be set up in Telangana.

The World Economic Forum (WEF) has chosen Hyderabad, Telangana for establishing its Center for the Fourth Industrial Revolution (C4IR).

The **Coalition for Epidemic Preparedness and Innovations (CEPI)** aims to develop new

vaccines for future pandemics.

The **Great Reset Initiative** is based on the assessment that the world economy is in deep trouble.

The Forum launched a new **network of online regulators** from the United Kingdom, Australia, Ireland and Fiji, which aims to create synergies across geographies and protect end users.

The **Circular Transformation of Industries initiative** generated commitments from 20-plus leading organizations to drive circularity systemically and at scale to enable an innovative, sustainable and resilient economy through industry-level projects.

On climate, energy, nature and sustainability, a new initiative, **Giving to Amplify Earth Action (GAEA)**, will leverage philanthropic capital to help generate the \$3 trillion needed each year from public and private sources to tackle the climate crisis and nature loss.

The **Global Battery Alliance** launched a proof of concept for its **Battery Passport** to help facilitate the rapid scaling of sustainable, circular and responsible battery value chains to meet the targets of the Paris Agreement through electrification of the transport and power sectors.

The president of Tanzania and NITI Aayog CEO committed to joining the **Food Action Alliance**.

The Forum signed a new partnership with the government of **Indonesia** to support its ambitions to scale **blue carbon restoration and ocean conservation efforts**.

World Economic Forum (WEF)

The World Economic Forum (WEF) is an international non-governmental and lobbying organisation based in **Cologne, canton of Geneva, Switzerland**. It was founded on 24 January 1971 by German engineer and economist Klaus Schwab.

The foundation, which is mostly funded by its 1,000 member companies – typically global enterprises with more than US\$5 billion in turnover – as well as public subsidies,

The WEF is mostly known for its annual meeting at the end of January in Davos, a mountain resort in the eastern Alps region of Switzerland.

The meeting brings together some 3,000 paying members and selected participants – among whom are investors, business leaders, political leaders, economists, celebrities and journalists – for up to five days to discuss global issues across 500 sessions

SHORTSELLING

Why in news?

Short seller Hindenburg Research on January 25 disclosed short positions in Adani Group, alleging stock manipulation and accounting fraud in its latest investigative report.

About

Short selling occurs when an investor borrows a security and sells it on the open market, planning to **buy it back later for less money**.

Short sellers bet on, and **profit from, a drop in a security's price**. This can be contrasted with long investors who want the price to go up.

Short selling has a high risk/reward ratio: It can offer big profits, but losses can mount quickly

and infinitely due to margin calls.

Also, in short selling, the trader usually does not own the securities he sells, but merely borrows them.

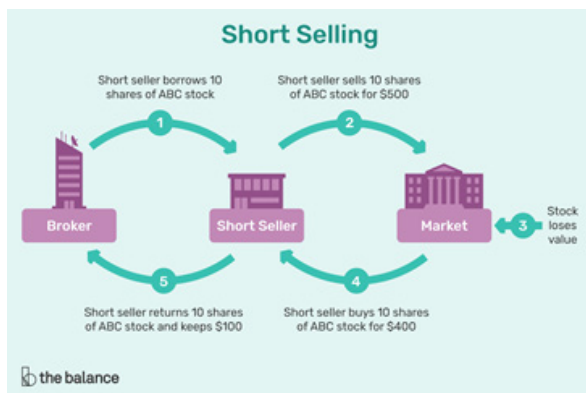
In the stock market, traders usually short stocks by selling shares they have borrowed from others through brokerages.

When the price of the shares falls to the expected levels, the trader would purchase the shares at the lower price and return them to the owner, booking a profit in the process.

If, however, the price of the shares appreciates instead of falling, the trader will be forced to buy shares at a higher price to return to the owner, thereby booking a loss.

Pros of short selling

- Possibility of high profits
- Little initial capital required
- Leveraged investments possible
- Hedge against other holdings



Cons of short selling

- Potentially unlimited losses
- Margin account necessary
- Margin interest incurred
- Short squeezes

Is short-selling ethical?

While short selling itself is a standard stock market practice, not all short selling can be considered ethical.

Some short sellers may act unethically in

a scheme known as “short and distort,” which happens when someone takes a short position and then uses a smear campaign in the public to attempt to influence a decline in the stock value. The opposite of this scheme on the investing side is called “pump and dump,” which is when someone buys stock (takes a long position) and then provides incorrect information to the public in an attempt to influence an increase in the stock value. These types of unethical schemes have become more popular over time as more people—specifically more small investors—gravitate to online trading.

Follow-on public offer (FPO)

A follow-on public offer (FPO), also known as a **secondary offering**, is the additional issuance of shares after the initial public offering (IPO).

Companies usually announce FPOs to raise equity or reduce debt.

The two main types of FPOs are dilutive—meaning new shares are added—and non-dilutive—meaning existing private shares are sold publicly.

When a company raises funds from the public for the first time and then gets listed it's called an IPO. Whereas when a company that is already listed on the exchange raises funds from the public it's called FPO. Chronologically, FPO comes after an IPO

NATIONAL WATERWAYS

Why in the News?

The Inland Waterways Authority of India is spreading the scope of the National Waterways (NW) as it plans to develop and operationalise NW 5 and a part of NW 64.

About

National Waterways are an important mode of transport for both passengers and cargo. In India, the National Waterways include Inland waterways and sea routes for trade purposes.

India has about 14,500 kilometers of navigable waterways, although they **only contribute to**

around 1% of the country's transportation.

National Waterways Act aids in the management of the country's waterways. Out of the 111 national waterways proclaimed by the National Waterways Act, **13 are active** for shipping and navigation and are used by cargo or passenger vessels.

The government of India established the Inland Waterways Authority of India (IWAI) in accordance with the National Waterways Act to regulate and develop the inland waterways used for navigation and shipping.

FOURTH INDUSTRIAL REVOLUTION - AN ANALYSIS

Context

A few months back, US researchers unveiled a pacemaker that dissolves in the human body after completing its job.

The four wireless sensors

demonstrated in October 2021 by a team of US scientists.

Xenobots, which are less than a millimetre long, were created in 2020 from the stem cells of the African clawed frog and can be programmed using

revolutions.

Order of revolution

The first industrial revolution used water and steam power to mechanise production (1800s). The second used electric power to create mass production (early 1900s). The third used electronics and information technology to automate production (late 1900s). The 4IR, which is building on the third revolution, has data at its core.

Fourth Industrial Revolution (4IR)

According to management firm Boston Consulting, 4IR is a collection of nine technologies: cloud computing, big data, augmented reality, system integration, autonomous robots, cybersecurity, simulation, additive manufacturing, and the internet of things (IoT).

Interests by the Countries on 4IR





Germany is giving incentives to companies that are embracing 4IR technologies in production.

Kenya is using blockchain to verify property records and transactions. Even the UN has adopted the same policy under its Industrial Development Organization.

Consultancy firm PricewaterhouseCoopers estimates that the uptake will increase significantly by 2030, when the technologies will be

Navigating the next industrial revolution



Revolution	Year	Information
	1 1784	Steam, water, mechanical production equipment
	2 1870	Division of labour, electricity, mass production
	3 1969	Electronics, IT, automated production
	4 ?	Cyber-physical systems

of the pacemaker monitor vitals such as temperature, oxygen levels and the heart's electrical activity.

The device then analyses the vitals and decides when to pace the heart and at what rate. Doctors can wirelessly access the information on a tablet or smartphone.

The pacemaker is a near-perfect example of the ongoing fourth industrial revolution (4IR), which, simply put, is the use of different technologies to blur the boundaries between the digital, physical and biological worlds.

Xenobots- the first living Robot

Another example of this blurring of worlds is the reproductive ability of the first living robot, called xenobots,

artificial intelligence.

When the researchers put the xenobots into a petri dish, they were able to gather hundreds of tiny stem cells inside their mouths and create new xenobots a few days later.

Once perfected, xenobots could be useful for tasks like cleaning up microplastics and regrowing or replacing dead cells and tissues inside human bodies.

There are similar innovations taking place in the fields of agriculture, manufacturing, mobility (autonomous vehicles), retail stores and almost the entire services industry.

Such inventions, which often seem like science fiction becoming real, are what make the ongoing 4IR different from the earlier three industrial

mature enough to be brought out of science laboratories and put to practical use. The urgency around embracing 4IR technologies is visible even in India.

In November 2020, the Modern Coach Factory (MCF) at Raebareli, Uttar Pradesh, rolled out smart railway coaches that are fitted with a battery of sensors to provide a comfortable experience to passengers.

The sensors monitor odour levels in toilets, check if the doors are safely closed, avoid fire outbreaks and stop unauthorised travel using CCTV cameras with face recognition capabilities, among other technologies.

In May 2020, the Union Ministry of Heavy Industries launched the Smart Advanced Manufacturing and Rapid Transformation Hub (SAMARTH) scheme, which brings together manufacturers, vendors, and customers to make them aware of 4IR technologies.

In this year's budget speech, Union finance minister announced a slew of new 4IR-driven projects, including Drone Shakti, to encourage start-ups that will facilitate the use of drone services.

India even has a 4IR centre in Mumbai run by WEF, which is closely working with several state governments. The Centre has recently come up with the Fourth Industrial Revolution for Sustainable Transformation (FIRST) Cancer Care model

in which 4IR technologies would be used to provide better healthcare for cancer patients.

India is also exploring digital twin technology for creating models. A digital twin means creating a highly complex virtual model that is the exact counterpart (or twin) of a physical thing, which can be anything from a car, building or even a person.

The impact on people

The Fourth Industrial Revolution, finally, will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships. It is already changing our health and leading to a "quantified" self, and sooner than we think it may lead to human augmentation. The list is endless because it is bound only by our imagination.

Already, artificial intelligence is all around us, from self-driving cars and drones to virtual assistants and software that translate or invest. Impressive progress has been made in AI in recent years, driven by exponential increases in computing power and by the availability of vast amounts of data, from software used to discover new drugs to algorithms used to predict our cultural interests. Digital

fabrication technologies, meanwhile, are interacting with the biological world on a daily basis.

Conclusion

The future depends on whether we take into account all kinds of diversity -economic, geographical, gender and age. Technologies need to be more inclusive and acceptable to all.

Neither technology nor the disruption that comes with it is an exogenous force over which humans have no control. All of us are responsible for guiding its evolution, in the decisions we make on a daily basis as citizens, consumers, and investors.

We should thus grasp the opportunity and power we have to shape the Fourth Industrial Revolution and direct it toward a future that reflects our common objectives and values.

In the end, it all comes down to people and values. We need to shape a future that works for all of us by putting people first and empowering them. In its most pessimistic, dehumanized form, the Fourth Industrial Revolution may indeed have the potential to "robotize" humanity and thus to deprive us of our heart and soul.

But as a complement to the best parts of human nature—creativity, empathy, stewardship—it can also lift humanity into a new collective and moral consciousness based on a shared sense of destiny. It is incumbent on us all to make sure the latter prevails.

THE MORAL AND INTELLECTUAL CRISES IN ECONOMIC POLICIES

Context

Davos and Delhi have framed the moral and intellectual crises affecting Indian economic policies.

In the first instance, speaking at a session at the World Economic Forum in Davos on India's road to a \$10 trillion economy, the Chairman of Tata Sons said, "For me, the three things most important are growth, growth, and growth."

In the second instance, a report from Delhi said that 150 homeless people had been removed from beneath a flyover by police who had been directed to clear the city of beggars ahead of various G-20 events to be held in the city.

Problems - Job demand, employment 'informality'

Our moral crisis is the pathetic attempt to cover up the declining employment elasticity of India's shining growth. Job creation has not kept pace with the demand for jobs. Moreover, most jobs hardly pay enough and have no social security.

Employment is also crunched because the organised manufacturing and service sectors are also employing fewer people per unit of capital in order to improve their own labour productivity.

The Indian economy's problem is the large size of its "informal" sector and the small scale of its enterprises. Whereas, around the world and in India too, innovations in business models are changing the forms of large enterprises and creating more informality of employment.

Employment in the formal sector is also becoming informal with outsourcing, contract employment, and gig work.

Concepts of "economies of scale" are changing to "economies of scope", and enterprise forms from concentrated to dispersed units.

Confusion in employment policies

India's formal sector cannot create enough good jobs. Further confusion in India's employment policies is evident with the concern of economists about there being too few women in the workforce.

In the official narrative, too few Indian women venture out of their homes to earn money. With more women in the workforce the economy would grow faster.

More Indian women have been working outside their homes to earn money than any other country perhaps.

For centuries, they have worked in large numbers on farms, as caregivers and

domestic workers in others' homes, as municipal sweepers, and weavers and producers of handicrafts in small enterprises.

They are also employed as teachers and as Anganwadi and ASHAs (Accredited Social Health Activists) providing essential services to communities.

On Women

The essential services that women provide to society (including mothering and family care) are not considered productive work for the economy.

Their work is not valued and they are paid too little. Instead, they are being pulled into the limited jobs the formal economy offers to increase GDP.

Pushing more women into the formal economy will improve the "female participation rate" in the formal economy and may add to GDP too.

However, it will not solve the basic problem — which is that the formal sectors of India's economy cannot generate enough good jobs to meet the needs of India's 1.4 billion population, now the largest in the world.

Growth of GDP is like a disease. It kills the economy's natural and social hosts. Natural resources are converted into commodities to feed the

economic machine. Nature is reengineered for more GDP growth — more dams, more roads, and even more tourists in the Himalayas.

Way Ahead

Conventional economics says that the productivity of the agriculture sector must be improved by using more capital-intensive methods and moving people out of agriculture and rural areas, into cities and into manufacturing

and modern services (such as information technology).

Growth of GDP is not the purpose of human civilisation. India's leaders must find a path to reach "poorna swaraj" — social, political, and economic freedoms — for all Indians.

Economic growth must create equal opportunities for all to learn and earn with dignity and not harm the natural environment that sustains all life.

Increasing GDP with more investments is easier than changing the shape of the economy to make it more inclusive while increasing its size.

A new paradigm of economic science and policy is required, the development of which has become essential for humanity's survival in this millennium. India should lead the way in the G-20 and beyond.

SOVEREIGN GREEN BONDS

Why in news?

India has sold its first sovereign green bonds worth ₹8,000 crore, the Reserve Bank of India (RBI) said in statement. However, the yields below comparable government bonds.

Green Bonds

Green Bonds are **standard, fixed-income financial instruments** (where the proceeds are exclusively utilized for financing climate change mitigation or adaptation related projects or programs.

Currently, there is no standard international definition for what projects/programs qualifies for Green Bonds. They are commonly issued as either self-labeled corporate bonds, asset-backed securities, green project bonds, supranational/international bonds, government and municipal bonds, etc. for climate change related programs/projects.

Green bonds are bonds issued by any sovereign entity, inter-governmental groups or alliances and corporates with the aim that **the proceeds of the bonds are utilised for projects classified as environmentally sustainable**. The framework for the sovereign green bond was issued by the government on November 2022.

Need for Green Bonds;

In August last year, the government said it stands committed to **reduce Emissions Intensity of GDP by 45 per cent** from the 2005 level by 2030 and achieve about 50 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by the same year.

In line with the commitment to significantly reduce the carbon intensity of the economy, the Union Budget 2022-23 made an announcement to issue Sovereign Green Bonds.

The country's climate actions have so far been largely financed from domestic resources and it is now targeting generation of additional global financial resources. The issuance of the Sovereign Green Bonds will help the Indian government in tapping the requisite finance from potential investors for deployment in public sector projects aimed at reducing the carbon intensity of the economy.

History

The very first green bond was issued in 2007 with the AAA-rated issuance from multilateral institutions European Investment Bank (EIB) (and World Bank). The market starting to kick off in 2014 and since then each year has closed at record all time highs.

Today, more than 50 countries have issued green bonds, with the United States being the largest source of

green bond issuances .The organization Climate Bonds Initiative is a valuable resource for those who want to follow the green bonds market's growth. According to the organization, global green bond issuance in 2020 was estimated to be 350\$ billion.

Green Bond Principles

Green bonds enable capital-raising and investment for new and existing projects with environmental benefits. The Green Bond Principles (GBP) seek to support issuers in financing environmentally sound and sustainable projects that foster a net-zero emissions economy and protect the environment .GBP-aligned issuance should provide transparent green credentials alongside an investment opportunity.

The Framework for Sovereign Green Bonds by the Government of India has been designed to comply with all the four components and key recommendations of the International Capital Market Association (ICMA) (Green Bond Principles) (2021). The four core components as outlined by ICMA green bond principles are:

1. Use of proceeds
2. Project evaluation and selection
3. Management of proceeds ;and
4. Reporting

Green Bonds in India

India issued its first green bond in 2015 and became the second-largest emerging market in 2019 with a 10.3\$ billion worth transaction .This amount roughly equals half of India's green financing expenditure in 2019.

Management of Proceeds

The proceeds of the bonds will be deposited to the Consolidated Fund of India (CFI) (in line with the regular treasury policy, and then funds from the CFI will be made available for eligible green projects .For the purposes of ensuring that the proceeds' allocation and accounting is transparent ,clear and beyond doubt ,a separate account will be created and maintained by the Ministry of Finance Government of India.

Eligible Projects

All eligible Green Expenditures will include public expenditure undertaken by the Government in the form of investment ,subsidies, grant-in-aids ,or tax foregone)or a combination of all or some of these (or select operational expenditures, R&D expenditures in public sector projects that help in reducing the carbon intensity of the economy and enable country to meet its Sustainable Development Goals) SDGs(

Excluded Projects

Projects involving new or existing extraction ,production

and distribution of fossil fuels, including improvements and upgrades ;or where the core energy source is fossil-fuel based

Nuclear power generation

Direct waste incineration

Alcohol ,weapons ,tobacco, gaming ,or palm oil industries

Renewable energy projects generating energy from biomass using feedstock originating from protected areas

Landfill projects

Hydropower plants larger than 25 MW Expenditures directly related to fossil fuel are excluded.

However ,investments/ expenditures aimed at a relatively cleaner Compressed Natural Gas (CNG) (is allowed as an' eligible expenditure 'when used in public transportation projects only .Subsidy/incentive for private transportation using CNG is neither envisaged nor included.

Potential Impact of Green Bonds in India

With implementation of Green Bonds ,there is a **multiplier effect** due to lower costs ,increased capital inflow, and access to finance at various stages of the project lifecycle.

Low cost-long term debt:

With low financing cost, there is a direct impact in reduction of cost of generation from Renewable Energy. With reduction in the cost of power generation ,there is larger adoption of RE projects

from stakeholders such as consumers ,IPPs ,technology manufacturers ,and distribution companies.

Increased capital access:

With Green Bonds being tradable instruments ,there is improved liquidity ;hence exit for investors during any point of time post investment is possible ,thus allowing for flexibility in managing liquidity requirements on a short term basis .Such flexible instruments attract a larger pool of investors to the Renewable Energy sector.

Financing across development stages :Green Bonds can facilitate access to capital for various development stages) pre-construction, construction and post commissioning (for IPPs and project developers ,thus leading to larger implementation of projects.

Benefits of Green Bonds

Benefits for Financial Institutions

1 .Overcome challenge of sector limits :FIs in India have self imposed limits

which restrict exposure to a particular sector .With Green Bonds ,FIs have an option to offload holding assets through RE portfolio issuance ,thereby allowing the institutions to adhere to the sector limits, while deploying bond proceeds into new projects.

2 .Ability to manage asset liability mismatch :A key challenge faced by mainstream banks in India is the asset liability mismatch as deposits are largely short-term .The lack of long-term liquidity in the system does not allow banks to procure long-term lending to the sector .Green Bonds address this challenge as they allow FIs to raise long-term capital from the market.

Benefits for Developers

1 .Access to capital at attractive terms :Project developers currently have limited options of approaching FIs in India who offer low tenures and high rates .Green Bonds will allow developers to access international capital at attractive terms.

2 .Excessive cash flow for capacity expansion :Developers

can generate surplus cash flow through longer tenure and bullet payment structures for bonds that allows access to capital to expand capacity without proportional equity infusion.

Benefits for the State

To fulfill the net zero commitments ,the Government of India will require large investments for the Renewable Energy sector .For this ,it is important to explore options beyond the traditional sources of funds .Green Bonds ,in this regards ,will enable India to attract capital and consequently scale its RE investments and meet the target set under the National Action Plan on Climate Change.

GEOGRAPHY,

ENVIRONMENT,

BIODIVERSITY AND DISASTER MANAGEMENT

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NATIONAL GREEN HYDROGEN MISSION

Why in news?

The Union Cabinet, chaired by the Hon'ble Prime Minister Shri Narendra Modi, has approved National Green Hydrogen Mission. The initial outlay for the Mission will be Rs.19,744 crore, including an outlay of Rs.17,490 crore for the SIGHT programme, Rs.1,466 crore for pilot

Green hydrogen potential

It is a clean burning molecule that can decarbonise a range of sectors including iron and steel, chemicals, and transportation.

Renewable energy that cannot be stored or used by the grid can be channeled to produce

Hydrogen types



projects, Rs.400 crore for R&D, and Rs. 388 crore towards other Mission components

About

Green Hydrogen

Hydrogen gas can be used as a fuel in transportation, power generation and industrial activities. It does not release greenhouse gas emissions such as carbon dioxide when it is burned. Green hydrogen is the name given to hydrogen gas that has been produced using renewable energy, such as wind or solar power, which create no greenhouse gas emissions.

hydrogen.

Green hydrogen is not commercially viable at present. The current cost in India is around Rs 350-400 per kg; it is likely to become viable only at a production cost of under Rs 100/ kg. This is what the Hydrogen Energy Mission aims for.

MISSION OBJECTIVES

To make India the Global Hub for production, usage and export of Green Hydrogen and its derivatives.

To build capabilities to produce at least 5

Million Metric Tonne (MMT) of Green Hydrogen per annum by 2030, with potential to reach 10 MMT per annum with growth of export markets.

To support replacement of fossil fuels and fossil fuel based feedstocks with renewable fuels and feedstocks based on Green Hydrogen.

Replacement of Hydrogen produced from fossil fuel sources with Green Hydrogen in ammonia production and petroleum refining,

Blending Green Hydrogen in City Gas Distribution systems, production of steel with Green Hydrogen, and use of Green Hydrogen-derived synthetic fuels (including Green Ammonia, Green Methanol, etc.) to replace fossil fuels in various sectors including mobility, shipping, and aviation.

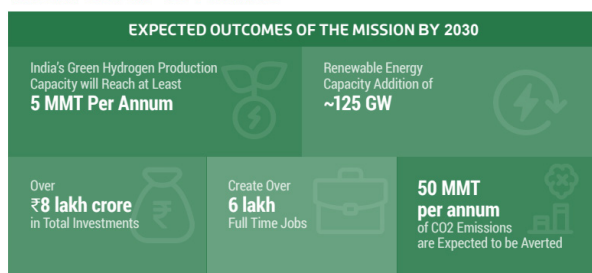
To make India a leader in technology and manufacturing of electrolyzers and other enabling technologies for Green Hydrogen.

Enablers

All concerned Ministries, Departments, agencies and institutions of the Central and State Government will undertake focused and coordinated steps to ensure successful achievement of the Mission objectives

Ministry of New and Renewable Energy (MNRE) will be responsible for overall coordination and implementation of the Mission. The Mission Secretariat, headquartered in MNRE, will formulate schemes and programmes for financial incentives to support production, utilization and export of Green Hydrogen and its derivatives

10. EXPECTED OUTCOMES



Ministry of Power (MoP) will implement policies and regulations to ensure delivery of

renewable energy for Green Hydrogen production at least possible costs

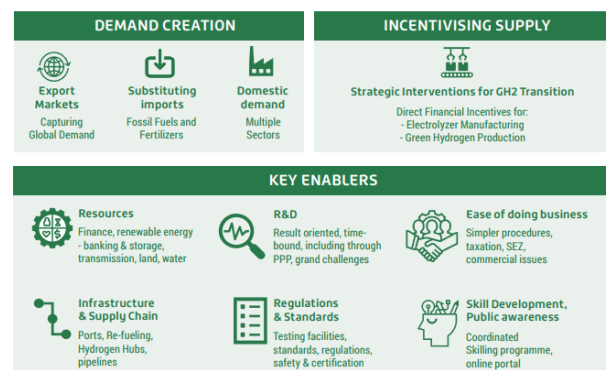
Innovative models

Innovative models to source Green Hydrogen through use of decentralized renewable energy generation such as rooftop solar and small/micro hydel plants will also be explored.

Decentralised Green Hydrogen production will be advantageous to reduce the requirement of its transportation for end-use. This would also allow for optimal utilization of various resources such as land, water, renewable energy potential etc.

Decentralized production would be explored through: • Biomass-based hydrogen production systems • Modular electrolyzers connected to rooftop solar or other decentralized RE plants like small hydro etc.

To optimize water requirements, the use of industrial or municipal wastewater for hydrogen production, wherever feasible, will also be emphasized.



STRATEGIC INTERVENTIONS FOR GREEN HYDROGEN TRANSITION (SIGHT)

A wide ranging and expansive bouquet of financial incentives and non-financial measures are proposed under the Mission to encourage production of low-cost Green Hydrogen and domestic manufacturing of related equipment and technologies. Depending upon the markets and technology development, specific incentive schemes and programmes will continue to evolve as the Mission progresses.

At the initial stage, two distinct financial incentive mechanisms, targeted at support for domestic manufacturing of electrolyzers, and production of green hydrogen are proposed.

Pilot Project Avenues

For other hard to abate sectors, the Mission proposes pilot projects for replacing fossil fuels and fossil fuel-based feedstocks with Green Hydrogen and its derivatives. This includes sectors like steel, long-range heavy-duty mobility, energy storage and shipping etc.

Green Hydrogen Hubs

The Mission will accordingly identify and develop regions capable of supporting large scale production and/or utilization of Hydrogen as Green Hydrogen Hubs.

Development of Trunk infrastructure for such hubs will be supported under the Mission. Projects in the Hubs will be planned in an integrated manner to allow pooling of resources and achievement of scale. It is planned to set up at least two such Green Hydrogen hubs in the initial phase

LAND SUBSIDENCE

Why in news?

Joshimath has been declared a landslide and subsidence-hit zone, with the Centre emphasising that the immediate priority is the safety of people and asking experts to prepare short and long-term conservation and rehabilitation plans.

About

Land Subsidence

Subsidence is ground sinking.

It is caused by underground material movement, but is most commonly caused by the removal of water, oil, natural gas, or mineral resources from the ground through pumping, fracking, or mining activities.

Natural events such as earthquakes, soil compaction, glacial isostatic adjustment, erosion, sinkhole formation, and adding water to fine soils deposited by wind can also cause subsidence (a natural process known as loess deposits), explains a report by the National Oceanic and Atmospheric Administration (US).

Subsidence can occur over very large areas, such as entire states or provinces, or over very small areas, such as a corner of a yard.

In India, the main cause of subsidence is the unregulated pumping of groundwater and the rapid pace of urbanisation.

Detection technique

The tool of choice used to detect and map land-surface deformation is known as interferometric synthetic aperture radar (InSAR). InSAR uses repeat-pass radar images from Earth-orbiting satellites to monitor subsidence and uplift at incredible detail.

Once subsidence is identified and mapped, assessments of the InSAR data can be done to improve our understanding of the subsidence processes.

In Joshimath

A panel chaired by Garhwal Commissioner Mahesh Chandra Mishra submitted a report in 1978 stating that major construction work should not be carried out in the city and the Niti and Mana valleys because these areas are located on moraines, which are masses of rocks, sediment, and soil transported and deposited by a glacier.

Joshimath, is actually built on ancient landslide debris. Joshimath is built on a fault plane. The ongoing crisis in Joshimath is primarily the result of human activity. The population has grown dramatically, as has the number of visitors. Unchecked infrastructure development has occurred. Blasting is used to build tunnels for hydropower projects, causing local earthquake tremors and shaking debris above the rocks, leading to cracks

The tunnel building for the upcoming hydropower project is the biggest cause for land subsidence in the area (NTPC's Tapovan Vishnugad Hydro Power Project)

Tapovan Vishnugad Hydro electric Project

The Tapovan Vishnugad Hydropower Plant is a 520 MW run-of-river hydroelectric project being constructed on Dhauliganga River in Chamoli District of Uttarakhand, India. The plant is expected to generate over 2.5 TWh of electricity annually

The dam, whilst still being under construction, was severely damaged due to a flash flood caused

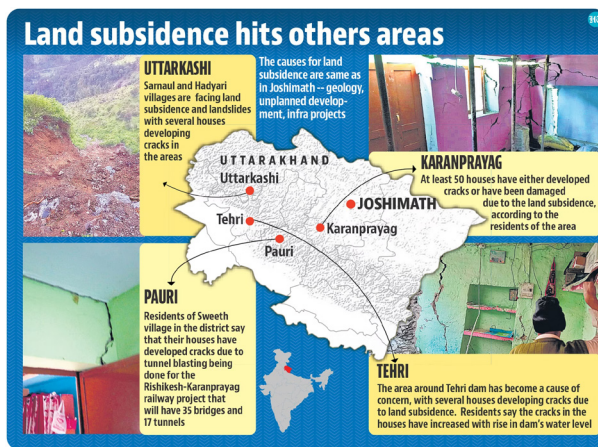
lead to large amounts of water mixed with sand & stone rushing into the Dhauliganga River, which caused severe damage to the NTPC Tapowan project.

UNESCO Land Subsidence International Initiative

The UNESCO Land Subsidence International Initiative (known as "Working Group on Land Subsidence" until 2018) enhances the scientific understanding and technical knowledge required to identify and characterize hazards related to natural and anthropogenic land-level lowering.

LaSII promotes and facilitates the international exchange of information regarding the design, implementation and evaluation of risk assessments and mitigation measures, and the definition of resource-management strategies that support sustainable development in areas vulnerable to land-level lowering.

Recognizing that land subsidence is globally prevalent and that much of the subsidence is related to hydrological processes affected by human development of local land and water resources, "Land Subsidence" was included in the United Nations Educational, Scientific and Cultural Organization (UNESCO) programme of the International Hydrological Decade, 1965-1974.



by the Uttarakhand glacier burst; the avalanche

NATIONAL AQUIFER MAPPING AND MANAGEMENT PROGRAMME

Why in news?

The National Aquifer Mapping and Management programme, which is aimed at delineating aquifer and water availability, is set to be completed in one year, G. Asok Kumar, Director General, National Mission for Clean Ganga, Union Ministry of Jal Shakti, said

About

Groundwater resource mapping (often referred to as aquifer mapping) provides a holistic understanding of aquifers and ways of

its sustainable use.

Since the formation of Central Ground Water Board (CGWB) in 1972, the primary objective of surveys was to delineate potential areas for groundwater exploitation and recommending maximum possible extraction to the user departments.

On the basis of the recommendations of the 12th Plan Working Group on Sustainable Groundwater Management of the erstwhile Planning Commission (now NITI Aayog), the ambitious National Aquifer Mapping and

Management Programme (NAQUIM) was launched in 2012, with CGWB as the executing body.

The programme aims to cover more than 25 million km² that have been delineated as “hydrogeologically mappable”.

Objectives

Major objectives of the programme are

Delineation and characterization of aquifers in three dimensions

Identification and quantification of issues

Development of management plans to ensure sustainability of ground water resources.

Under the initiative, management plans for each aquifer system are being prepared suggesting various interventions to optimize ground water withdrawal and identifying aquifers with portable groundwater for drinking purpose in quality affected areas.

The management options also includes identification of feasible area for artificial recharge to ground water and water conservation which help in arresting declining water levels besides demand side management option including crop diversification, increasing water use efficiency etc.

CGWB

Central Ground Water Board (CGWB),

a subordinate office of the Ministry of Water Resources, Government of India, is the National Apex Agency entrusted with the responsibilities of providing scientific inputs for management, exploration, monitoring, assessment, augmentation and regulation of ground water resources of the country.

Central Ground Water Board was established in 1970 by renaming the Exploratory Tube wells Organization under the Ministry of Agriculture, Government of India. It was merged with the Ground Water Wing of the Geological Survey of India during 1972.

Major activities being taken up by Central Ground Water Board include macro/micro-level ground water management studies, exploratory drilling programme, monitoring of ground water levels and water quality through a network of ground water observation wells comprising both large diameter open wells and purpose-built bore/tube wells (piezometers), implementation of demonstrative schemes for artificial recharge and rainwater harvesting for recharge augmentation

CGWA

Various activities related to regulation of ground water development in the country are being looked after by the Central Ground Water Authority (CGWA), constituted under the Environmental (Protection) Act, 1986.

NATIONAL CLEAN AIR PROGRAM

Why in news?

Four years since the introduction of the National Clean Air Programme (NCAP) — India's first national policy on curbing air pollution — air quality has improved in only 49 out of 131 cities in FY 21-22, compared to the previous year, according to a report by the Centre for Research on Energy and Clean Air (CREA), on January 10.

About

The National Clean Air Programme or NCAP is a government programme launched by the Union Ministry of Environment, Forests and Climate Change in 2019.

The programme is a pollution control initiative

The NCAP aims to bring a 20%-30% reduction in pollution levels from PM_{2.5} and PM₁₀ particles by 2024, using 2017 pollution levels as a base.

Aims of the Programme

To expand the national air quality monitoring network.

To build capacity for air pollution management

To raise public awareness about the hazards of air pollution

The NCAP also aims to have a feasible plan for the prevention, management and control of

air pollution.

It covers 132 of India's most polluted or so-called non-attainment cities. This is defined as a city whose air quality did not meet the national ambient air quality standards (NAAQS) of 2011 to 2015. The NCAP covers 132 cities – 82 of these have been funded by the Programme, while 50 cities have received funds from the 15th Finance Commission;

Status of NCAP at the fourth year

Only about half of NCAP cities have real time monitoring: In 2019, only 51 out of 132 NCAP cities had real time monitoring stations. The number grew to 63 in 2021; six more NCAP cities have installed real time monitors in 2022 so far.

The performance assessment of NCAP cities is done only on the basis of PM10 monitoring is because the network of PM10 monitoring is more extensive than that of PM2.5.

Seven cities show negligible (less than 5%)

NAAQS- NAAQs are the standards for ambient air quality with reference to various identified pollutant notified by the CPCB under the Air (Prevention and Control of Pollution) Act, 1981.

TABLE 2: NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Sr. No	Pollutants	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural, and Other Areas	Ecologically Sensitive Area
1	Sulphur dioxide (SO ₂), µg/m ³	Annual* 24 hours**	50 80	20 80
2	Nitrogen dioxide (NO ₂), µg/m ³	Annual* 24 hours**	40 80	30 80
3	Particulate matter (Size <10 µm) or PM ₁₀ , µg/m ³	Annual* 24 hours**	60 100	60 100
4	Particulate matter (Size<2.5 µm) or PM _{2.5} , µg/m ³	Annual* 24 hours**	40 60	40 60
5	Ozone (O ₃), µg/m ³	8 hours** 1 hours **	100 180	100 180
6	Lead (Pb), µg/m ³	Annual* 24 hours**	0.50 1.0	0.50 1.0
7	Carbon monoxide (CO), mg/m ³	8 hours** 1 hours **	02 04	02 04
8	Ammonia (NH ₃), µg/m ³	Annual* 24 hours**	100 400	100 400
9	Benzene (C ₆ H ₆), µg/m ³	Annual*	05	05
10	Benzo(a) pyrene (BaP)-particulate phase only, ng/m ³	Annual*	01	01
11	Arsenic (As), ng/m ³	Annual*	06	06
12	Nickel (Ni), ng/m ³	Annual*	20	20

National Air Quality Index

The AQI was launched by the Prime Minister in April, 2015 starting with 14

cities and now extended 71 cities in 17 states. The AQI tool for the effective

communication of air quality status to people in terms, which are

easy to understand.

It transforms complex quality data of various pollutants into a single number (index value), nomenclature

and colour. There are six AQI categories, namely, good, satisfactory, moderately polluted, poor, verypoor, and severe.

Each of these categories is decided based on the ambient concentration values of air pollutants and their likely health impacts (known as health breakpoints). The AQ sub-index and health breakpoints are evolved for eight pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Lead (Pb)) for which short-term (upto 24-hours) National Ambient Air Quality Standards are prescribed.

change: these include Delhi and Ghaziabad. There are 16 cities that have registered a significant increase (5 per cent or more) in their PM_{2.5} levels – Khanna, Jaipur, and Udaipur have registered the most deterioration with their 2021 annual value increasing by over 20 per cent compared to the 2019 annual value. Faridabad with 6% increase is only NCR NCAP city in this pool of cities with a significant worsening of air quality. It is also the only city outside the non-attainment list.

Nine NCAP cities met the annual NAAQS in 2021. These are Chennai, Hubballi, Bengaluru, Rajamahendravaram, Mumbai, Sagar, Nashik, Dewas and Chandigarh.

Way Forward

It is clear that the current practice of keeping the focus only on selected cities without considering the larger urban and regional landscape can limit the effectiveness of the NCAP programme and resource investment.

the ongoing funding strategy based on performance of cities on air quality improvement requires robust air quality monitoring of all key parameters along with strong data quality control and a standardised protocol for establishing air quality trends, especially for real time data, for reporting compliance with clean air targets

PROPOSED NEELAKURINJI SANCTUARY

Why in news?

Though the Union government has included Neelakurinji (*Strobilanthes kunthiana*) on the list of protected plants from the State, the proposal for a Neelakurinji sanctuary in Idukki still remains a distant dream.

About

On October 6, 2006, former forest minister Benoy Viswom had announced a 32-sq km Neelakurinji sanctuary at the Kottakamboor-Vattavada area in Devikulam taluk, Munnar. The park aimed at protecting Neelakurinji plants

NeelaKurinji

It is a shrub that is found in the shola forests of the Western Ghats in Kerala, Karnataka and Tamil Nadu. The purplish blue flower blossoms only once in 12 years, and gave the Nilgiri Mountains range its name

The Paliyan tribal people living in Tamil Nadu used it as a reference to calculate their age. This plant flowers during September–October.

Plants that bloom at long intervals like *Strobilanthes kunthiana* are known as plietesials. Other commonly used expressions or terms which apply to part or all of the plietesial life history include gregarious flowering, mast seeding and supra-annual synchronized semelparity

It is listed in Schedule III of the Wildlife (Protection) Act, 1972, including it on the list of protected plants.

Besides the Western Ghats, Neelakurinji is also seen in the Shevroy in the Eastern Ghats, Sanduru hills of Bellary district in Karnataka.

The Eravikulam National Park, near Munnar, is known for widespread blooming of the kurinji, with the next flowering season expected in 2030.

Kurinjimala Sanctuary protects the kurinji in approximately 32 km² core habitat in Kottakamboor and Vattavada villages in Idukki district of Kerala. This was the proposed area of sanctuary



VISCOSE STAPLE FIBRE

Why in news?

The Association of Man-made Fibre Industry of India (AMFII) has appealed to the Union Finance Ministry to accept the recommendations of the Directorate General of Trade Remedies (DGTR) on levy of anti-dumping duty (ADD) on imports of Viscose Staple Fibre from Indonesia.

About Viscose Staple Fiber

Viscose Staple Fiber (VSF), is a natural, bio-degradable fiber with characteristics somewhat similar to cotton is obtained from wood pulp or cotton pulp. As an extremely versatile and easily blendable fiber, VSF is widely used in apparels, home textiles, dress material, knitted wear and non-woven applications.

Gloss, chromatography, heat, corrosion of VSF are much better than synthetic, so fabric made by VSF are beautiful colors and hanging dynamic.

Viscose has long been used as a great alternative to silk. It's cheaper to produce and blends well with other fabrics. Its lightweight composition drapes beautifully and has a soft texture, perfect for garment creation.

India's FTAs with ASEAN nations allow for export of VSF to India at zero duty. The association has indicated to the finance minister that a Chinese backed player has set large VSF plants in Indonesia to flood the Indian market by taking advantage of the FTA

Antidumping Duty

If a company exports a product at a price lower than the price it normally charges on its own home market, it is said to be "dumping" the product.

WTO agreement allows governments to act against dumping where there is genuine ("material") injury to the competing domestic industry. In order to do that the government has to be able to show that dumping is taking place, calculate the extent of dumping (how much lower the export price is compared to the exporter's home market price), and show that the dumping is causing injury or threatening to do so.

An anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.

In order to protect their respective economy, many countries impose duties on products they believe are being dumped in their national market; this is done with the rationale that these products have the potential to undercut local businesses and the local economy.

While the intention of anti-dumping duties is to save domestic jobs, these tariffs can also lead to higher prices for domestic consumers.

In the long-term, anti-dumping duties can reduce the international competition of domestic companies producing similar goods.

YANGTZE FINLESS PORPOISE

Why in news?

Reports had shown these cetaceans were pushed out of certain stretches of their habitat due to sand mining.

About

The Yangtze finless porpoise (*Neophocaena asiaeorientalis*) is a species of toothed whale

The Yangtze finless porpoise belongs to the

group of animals which also includes dolphins and whales. It is the only freshwater porpoise in the world and breeds just once in 18 months

It is endemic to the Yangtze River in China.

Yangtze finless porpoises don't just occur in the Yangtze River, but also in the water bodies that connect to it, including the Dongting and Poyang Lakes and the Tian'e-Zhou Oxbow Nature Reserve. Their preferred climate is tropical or warm



temperatures.

The Yangtze finless porpoise is considered critically endangered and it is estimated that only about 1,000 remain.

Yangtze porpoises use echolocation, or natural sonar, to navigate their surroundings

Challenges to their survival

Plastic pollution

Pollution from agriculture, chemical production, and other industrial processes like textile dyeing

Noise pollution from the powerful propellers and motors of passing boats near three gorges dam

Massive dredging vessels harvesting sand from the bottom of the river

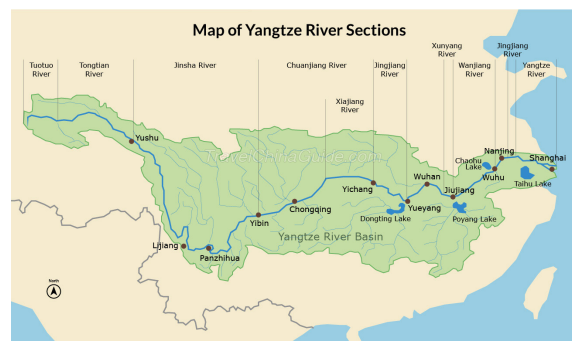
Poorly planned hydrological engineering projects

Yangtze River

It is the third-longest in the world, and the longest in the world to flow entirely within one country.

It rises at Jari Hill in the Tanggula Mountains of the Tibetan Plateau and flows 6,300 km (3,900 mi) in a generally easterly direction to the East China Sea.

The Three Gorges Dam on the Yangtze is the largest hydro-electric power station in the world that is in use



SPOT-BELLIED EAGLE OWL

Why in news?

A wildlife team recently stumbled upon a spot-bellied eagle owl (*Bubo Nipalensis*) for the first time in the Seshachalam forest, and for the third time in Andhra Pradesh.

About

The spot-bellied eagle-owl (*Ketupa nipalensis*), also known as the forest eagle-owl. It is a large species of owl.

This species is distributed through the Lower Himalayas from Kumaon east to Burma, thence to central Laos and central Vietnam. They are found throughout the Indian subcontinent and peninsular Southeast Asia, reaching the southernmost limits of their range in Sri Lanka.



They are found in a range of climates from the temperate woodlands of Nepal to the humid, tropical rainforest of Southeast Asia.

They are known to prey on large birds and also on mammals like golden jackals, hares, civets and chevrotains.

The bird makes a strange scream similar to humans and it is hence called the 'ghost of the forest' in India and 'devil bird' in Sri Lanka

Despite its unknown and probably declining population size, the spot-bellied eagle-owl is evaluated as least concern on the IUCN Red List

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) : Appendix II.

GANJAM KEWDA OIL

Why in news?

Families in the coastal pockets of Odisha's Ganjam district have been eking out a living by preparing aromatic kewda oil for years, and a recent growth in demand has put a smile on their faces.

About

Ganjam kewda (*Pandanus fascicularis*) oil is steam-distilled from the flower of the aromatic screwpine plant and used as an aromatic in the food industry and other sectors. It is registered under the Geographical Indications of Goods (Registration and Protection) Act, 1999 by the Government of India.

The flower of the kewda plant grows on a small tree or shrub; it is both cultivated and grows wild in coastal areas. Kewra plant is dioecious, with male and female flowers produced on different plants

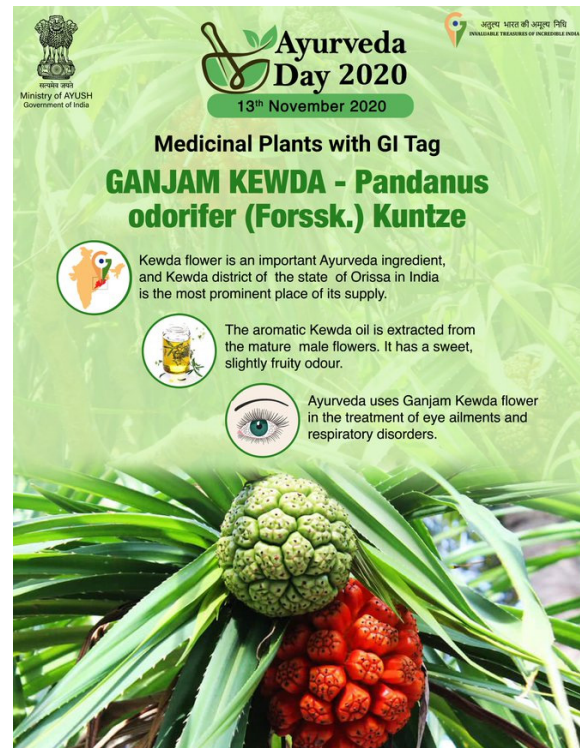
The flower is harvested from around 5,000 hectares in the district. Its oil is produced in Ganjam, Chatrapur, Chikiti and Rangeilunda blocks of the district,

Kewda oil makers sell to Kannauj, Agra, Kanpur, New Delhi, Mumbai and other places at around Rs 5 lakh a litre

There is a Fragment and Flavour Development Center (FFDC) extension unit at Berhampore, Ganjam under the Union Ministry of Micro, Small

and Medium Enterprises.

Flower producer groups eliminated the role of middlemen and provided proper marketing facilities.



FFDC is also training oil makers and helping them purchase modern equipment to start distilling units through the government-managed District Industry Center

EARTH'S INNER CORE ROTATING SLOWER

Why in News?

A recent study shows that Earth's inner core is rotating slower than its surface

About

Earth's inner core, a hot iron ball the size of Pluto, has stopped spinning faster than the planet's surface and might now be rotating slower than it, research suggested.

Roughly 5,000 kilometers below the surface we live on, this "planet within the planet" can spin independently because it floats in the liquid

metal outer core.

The inner core started rotating slightly faster than the rest of the planet in the early 1970s.

But it had been slowing down before coming in sync with Earth's rotation around 2009, it said.

Methodology

The research analyzed seismic waves from repeating earthquakes over the last six decades. By analyzing changes in the time and propagation of these signals, they could estimate the rotation of the inner core, which is believed to move

independently from the mantle and rest of the planet.

Findings

The inner core started rotating slightly faster than the rest of the planet in the early 1970s. But it had been slowing down before coming in sync with Earth's rotation around 2009.

There has been a “negative trend”, meaning the inner core is now rotating slower than the surface. Next change may occur in the mid-2040s.

The results seem to indicate that the Earth's inner core changes its speed of rotation every 60-70 years on average.

Significance

The Study can motivate some researchers to build and test models which treat the whole Earth as an integrated dynamic system.

The slowdown could change how rapidly the entire planet spins, as well as influence how the core evolves with time.

Core of the earth

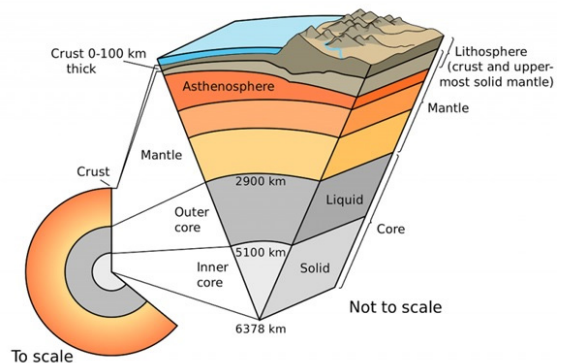
It is the innermost layer surrounding the earth's center.

The core is separated from the mantle by Guttenberg's Discontinuity.

It is composed mainly of iron (Fe) and nickel (Ni) and hence it is also called as

The core constitutes nearly 15% of earth's volume and 32.5% of earth's mass.

The core is the densest layer of the earth with



its density ranges between 9.5-14.5g/cm³.

The Core consists of two sub-layers: the inner core and the outer core.

The inner core is in solid state and the outer core is in the liquid state (or semi-liquid).

The discontinuity between the upper core and the lower core is called Lehmann Discontinuity.

Barysphere is sometimes used to refer to the core of the earth or sometimes the whole interior.

MASS MORTALITY OF OLIVE RIDLEY TURTLES

Why in News?

Since early January, a group of locals have photographed as many as 70 Olive Ridley turtles which have been found dead in their breeding grounds between Kakinada and Antarvedi in the Godavari region of Andhra Pradesh.

About Olive ridley turtles

They (Scientific Name: *Lepidochelys olivacea*) are the smallest and most abundant of all sea turtles found in the world, inhabiting warm waters of the Pacific, Atlantic and Indian oceans.

These turtles are best known for their unique mass nesting called Arribada, where thousands of females come together on the same beach to

lay eggs.

Though found in abundance, their numbers have been declining over the past few years, and the species is recognized as Vulnerable by the IUCN Red list.

The turtles' olive-coloured carapace (heart-shaped and rounded) gives them their name and they are carnivores that feed mainly on jellyfish, shrimp, snails, crabs, molluscs, etc.

These turtles spend their entire lives in the ocean, and migrate thousands of kms between feeding and mating grounds in the course of a year.

Breeding Grounds of Olive Ridley in India

The Olive Ridely Turtles come to the beaches

of Odisha coast annually between November and December and stay on until April and May for nesting.

The turtles choose the narrow beaches near estuaries and bays for laying their egg.

Threats to Olive Ridleys

They face serious threats across their migratory route, habitat and nesting beaches, due to human activities such as -

Turtle unfriendly fishing practices such as the accidental killing of adult turtles through entanglement in trawl nets and gill nets.

Poaching for their meat, shell, leather and their eggs. This is despite the fact that international trade in these turtles and their products is banned under CITES Appendix I.

Development and exploitation of nesting beaches for ports and tourist centers.

Mass mortality of Olive Ridleys:

The breeding grounds between Kakinada and Antarvedi have been witnessing the mass mortality of the turtles over the past few weeks.

This is mainly attributed to the effluents that are discharged from the aqua ponds along the coast and the discharges from the pipelines of the onshore oil exploration sites.

A complaint had also been filed in the National

Green Tribunal (NGT) against the marine and groundwater pollution in the Konaseema region.

Other threats to Olive Ridleys:

Operation of fishing boats in the ecologically sensitive rookery (a breeding colony) zone along the 30-km coastline in the Godavari estuary which includes the Coringa Wildlife Sanctuary and Hope Island.

Steps for safe breeding and conservation of Olive Ridleys

Legal protection: They are legally protected under Schedule I of the Wildlife Protection Act, 1972.

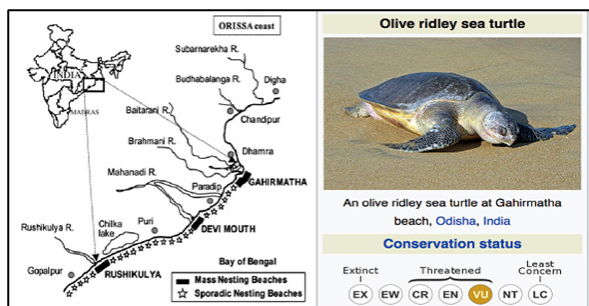
Setting up of rookeries (a group of nesting rooks): To ensure safe breeding and collect eggs through the ex-situ conservation method.

Fencing off the nesting area and patrolling it: WWF-India, along with the fishermen community, has been involved in protecting the mass nesting site at Rushikulya, Orissa.

Turtle Excluder Devices (TEDs): The Orissa government has made it mandatory for trawls to use TEDs - a net designed to allow the turtles to escape while retaining the catch.

Operation Olivia: As the nesting period stretches over six months, the Indian Coast Guard undertakes the Olive Ridley Turtle protection program every year.

ASIAN WATERBIRD CENSUS 2023



Why in News?

The Asian Waterbird Census 2023 (AWC) was conducted recently.

About

It is a citizen-science programme supporting conservation and management of wetlands and waterbirds worldwide.

AWC is part of the global International Waterbird Census (IWC) coordinated by Wetlands International.

AWC runs in parallel with other regional programmes of the IWC in Africa, Europe, West Asia, the Neotropics and the Caribbean.

AWC in India

It was initiated in the Indian subcontinent in

1987 and since then has grown rapidly to cover major regions of Asia, from Afghanistan eastwards to Japan, Southeast Asia and Australasia.

In India, AWC is jointly coordinated by the Bombay Natural History Society (BNHS) and Wetlands International.

Significance

It gives an idea of the birds at the wetland and the health of the wetland; the more the waterbirds, the more suitable the wetland is.

It helps in better implementation of the Convention on Migratory Species (CMS) and the Convention on Biological Diversity's (CBD).

Findings of the Census of 2023

A shift in migration patterns of waterbirds appears to be taking place in the northern parts of Alappuzha.

It showed that the populations of some migratory waterbirds, especially duck species, visiting the region are falling.

The most shocking aspect was that duck species like Northern Shoveler, Common teal and Eurasian wigeon, sighted in the previous surveys, were totally missing this time around. Climate change has affected the number of birds visiting the region.

DOMESTIC GOAT AS A DRUG FACTORY

Why in News?

India's domestic goats have attracted the attention of biotechnology companies wishing to produce therapeutic proteins in bulk.

About

many developing countries.

The goat has played an important economic role in human communities from the time it was domesticated about 10,000 years ago.

It has even been argued that the domestication of goats was an important step in mankind's shift

Wetlands International

- It is the only global not-for-profit organization dedicated to the conservation and restoration of wetlands.
- It works through a network of offices, partners and experts to achieve goals. Most of the work is financed on a project basis by governments and private donors.
- It is also supported by government and NGO membership.

Bombay Natural History Society (BNHS)

- It is a pan-India wildlife research organization, has been promoting the cause of nature conservation since 1883.
- It is the Partner of BirdLife International in India.
- Mission: Conservation of nature, primarily biological diversity through action based on research, education and public awareness.
- BNHS has been designated as a Scientific and Industrial Research Organization (SIRO) by the Department of Science & Technology, Government of India.

Domestication of Goats

The domestic goat (*Capra hircus*) is a familiar presence in the rural landscape of India and in

from a hunting-gathering lifestyle to agricultural settlements.

Various breeds found in India

The Food and Agriculture Organisation (FAO) estimates that the world has 830 million goats belonging to about 1,000 breeds. India has 150 million from over 20 prominent breeds including-

Marwari: Rajasthan has the most number of goats — the Marwari goat found here is hardy and well-adapted to the climate of deserts.

Osmanabadi: Another hardy breed, found in the dry regions of Maharashtra, Telangana and North Karnataka is the Osmanabadi.

Malabari: Also called Tellicherry of North Kerala, it is a prolific breed with low-fat meat, and shares these traits with the beetal goat of Punjab.

Black Bengal goat: The east Indian Black Bengal goat is a vital contributor to the livelihoods of the rural poor of Bangladesh. It contributes over 20 million square feet of skin and hides to the world's demands for leather goods, from fire-fighters gloves to fashionable handbags.

Jamunapari: These goats from Uttar Pradesh were favoured as they yield 300 kg of milk during eight months of lactation. Once in England, the Jamunapari was bred with local breeds to produce the Anglo-Nubian, a champion producer of high-fat milk.

Why are goats significant for farmers?

Goats have a quick generation time of about two years.

General benefits of goat milk out-powers high-fat buffalo milk.

As many farmers lack the space or funds to rear cattle, the goat is rightly called “the poor man’s cow”.

There are no specific fodder requirements for goats. It can feed even on the neem leaves.

Significance in therapeutics: Antithrombin production

Goats have attracted the attention of biotechnology companies wishing to produce therapeutic proteins in bulk.

The first success came with ATryn, the trade name for a goat-produced antithrombin III molecule.

Antithrombin keeps the blood free from clots, and its deficiency (usually inherited) can lead to serious complications such as pulmonary embolisms.

Affected individuals need antithrombin injections twice a week, usually purified from donated blood.

Recently, the monoclonal antibody cetuximab, which has been approved by the FDA as an anti-cancer drug against certain lung cancers, has also been produced in cloned goat lines.

Why is it a significant development?

Transgenic goats carrying a copy of the human antithrombin gene have cells in their mammary glands that release this protein into milk.

It has been claimed that one goat could produce antithrombin equivalent to what was obtained from 90,000 units of human blood.

Large quantities can be made this way (10 grams per litre of milk).

GREEN COMET

Why in the News?

Recently discovered, Green Comet can be witnessed after nearly 50 thousand years and next expected to be seen after the same number of years.

About Green comet

It approached the sun in the middle of January 2023, it is now moving away from it, along its

own orbit.

The orbit indicates it comes from the edge of our solar system, a distant reservoir of comets we call the Oort cloud.

The Oort cloud is thought to be a big, spherical region of outer space enveloping our sun, consisting of innumerable small objects, such as comets and asteroids.

It is the most distant region of our solar system and Home of the Comets.

Why is it green in colour ?

Comets are frozen rocky or gas-filled objects that are remnants of the formation of the solar system. Due to their composition, characteristics and the path they move in, they tend to leave a light behind them.

Here, the comet itself is green (called the head of the comet) and emits a whitish light behind it (often called the tail of the comet).

The green glow is thought to arise from the presence of diatomic carbon – pairs of carbon atoms that are bound together – in the head of the comet. The molecule emits green light when excited by the ultraviolet rays in solar radiation.

Distance from Earth

The green comet could be at a distance of 2.5 light minutes from Earth, meaning a “mere” 27 million miles.

Naming

It will be closest to Earth in early February of 2023. Termed the C/2022 E3 (ZTF), the comet was named to refer to those who first spotted it – astronomers at the Zwicky Transient Facility (ZTF) in the US, in March 2022.

Visible

Comets could be visible with telescopes and binoculars, and might even be visible to the naked eye under a clear night sky.

Northern Hemisphere: Comet will be seen in the morning sky, as it moves swiftly toward the northwest during January 2023.

Southern Hemisphere: It'll become visible in the Southern Hemisphere in early February 2023.

Specifically in India: In Indian skies, it can be spotted at 16° above the horizon in the Bootes constellation, when looking in the northwest direction.

Gravity on Comets

Just like other bodies in space, comets also have orbits.

They are sometimes pulled in close to the sun because of the sun's gravity acting on them.

As they orbit near the Sun, they heat up and spew gases and dust into a glowing head that can be larger than a planet.

The remains of dust following this burning up, from a distance, look like a trail of light to humans on Earth.

Comets, therefore, have often been seen giving out blue or whitish light, or even green.

Uniqueness of Green Comet

It comes under the category of long-period comets, which take more than 200 years to orbit the Sun; the green comet is not easily spotted.

With a highly elliptical orbit, the comet will head back to the Oort cloud and make its next appearance roughly 50,000 years later.

NOBLE HELEN-NEW BUTTERFLY

Swallowtail butterfly disappearing from its previously known ranges from Myanmar and southern China to Vietnam has been recorded for the first time in India.

Three butterfly enthusiasts — Atanu Bose, Loren Sonowal and Monsoon Jyoti Gogoi — recorded the “extremely rare” Noble's Helen (*Papilio noblei*) from three locations in the Namdapha National Park of Arunachal Pradesh between September 2019 and September 2021.

Their report was published in the latest edition of the Journal of Entomology and Zoology Studies.

The Noble's Helen, closest to the *Papilio antonio* from the Philippines and characterised by a much large dorsal white spot, was once common in the montane forest at moderate elevations in northern Thailand.

Apart from Thailand, this species of swallowtail butterfly has been reported from Myanmar, Yunnan and Hubai regions of China,

Laos, Cambodia and Vietnam.

The species has not completely disappeared from Thailand but is now known to be very rare in the ranges it was previously recorded.

The recording of Noble's Helen for the first time in India is encouraging for nature lovers.

Butterflies are considered vital indicators representing the state of biodiversity and key

ecosystem functions.

The trio of Mr. Bose, Mr. Sonowal and Mr. Gogoi photographed the Noble's Helen live from 19th Mile, Lunkai Nala, and near Deban Camp within the 1,985

sq. km-Namdapha, also India's easternmost tiger reserve.

CLOUD FORESTS

According to a new report, "Cloud Forest Assets: Financing is a Valuable Nature-Based Solution," released by Earth Security – a global nature-based asset management advisory firm.

About cloud forests

- Cloud Forests are montane rainforests. They refer to the vegetation of tropical mountainous regions where there is heavy rainfall and persistent condensation resulting from the cooling of the moisture being pushed upwards by the mountains.

- They are usually characterized by a persistent, frequent and seasonal low-lying layer of mist and cloud cover usually at the canopy level.

- Cloud forests are rare since the exceptional conditions that create these forests are only found in tropical areas with tall mountains.

- Due to their unique characteristics, cloud forests are usually found along the sides of the mountains at elevations of between 3000 and 10000 feet but as low as 1650 feet in the Tropics between coordinates 23°N and 23°S.

- Only 1% of the global woodlands are considered as cloud forests following a decline from 11% in the 1970s due to interferences by human activities and global warming.

- Just 25 countries hold 90 per cent of the world's cloud forests.

Significance

- Their hydrological function is of existential value to millions of people living downstream.

- They capture moisture from the air, providing fresh and clean water to people and industries below.

- These 25 countries have around 979 hydropower dams and around half of them use water from the cloud forest.

- The total value of hydroelectricity that currently depends on cloud-affected forests across these 25 countries is estimated to be \$118 billion over 10 years.

Cloud forest bonds

Cloud Forest Bond will incentivise governments to protect their cloud forests — forests that are on top of tropical mountains, largely shrouded in mist.

It will provide governments with financial actors like philanthropy, public finance and private



investment to capture the economic value of the ecosystem services of the cloud forests.

Such a tool will encourage carbon storage

and provide funding to set up sovereign-level carbon finance schemes as well as payments for ecosystem services.

The Cloud Forest Bonds will allow developing countries to improve their debt position and fund the creation of new, long-term income streams from services provided by nature.

Forest protection is highest where land ownership rights of indigenous peoples and local communities are fully recognised and exercised

– by providing a fair share of the benefits from forest carbon and water revenues

“A Cloud Forest 25 (CF25) Investment Initiative” to establish a collective of all 25 countries that have high cloud forest to accelerate the international application of market templates and aggregate the blended finance and data needed to achieve solutions at scale.

ANNUAL REPTILE CENSUS, 2023

According to the annual reptile census 2023, the population of saltwater crocodiles in the water bodies of Bhitarkanika National Park and its nearby areas in Odisha's Kendrapara district has marginally increased.

Bhitarkanika is the abode of 20 whitish estuarine crocodiles.

In 1975, the ministry of forest and environment, in collaboration with the United Nations Development Programme (UNDP) started a crocodile breeding and rearing project in Dangamala within Bhitarkanika.

Thanks to the success of the project, the crocodile population started increasing in the creeks, rivers and other water bodies of the park and its nearby areas.

In 2006, the Guinness Book of World Records recorded a 23-foot-long salt-water crocodile in Bhitarkanika as the largest crocodile in the world.

The breeding and rearing programme for three species of crocodilians - saltwater crocodile, mugger and gharial - had been started in 1975 in 34 places in West Bengal, Madhya Pradesh, Uttar Pradesh, Bihar and other states in India and Nepal.

But the saltwater crocodile conservation

programme in Bhitarkanika is the most successful one as in 1975, Bhitarkanika was the home of only 96 crocodiles.

About Bhitarkanika National Park

Bhitarkanika is a unique habitat of mangrove forests criss-crossed with numerous creeks and mud flats located in the Kendra Para district of Orissa.

It is a ***Ramsar Site under Ramsar Convention on wetlands.***

Bhitarkanika located in the estuary of Brahmani, Baitarani, and Dharma and Mahanadi River systems.

Bhitarkanika National Park is a prime habitat of leopard cat, fishing cat, jungle cat, sambar deer, salt water crocodile, water monitor lizards, terrapin, hornbill, bar headed geese, white bellied sea eagle, tern, sea gull, waders and a large variety of resident and migratory birds.

Nutrients from Bhitarkanika are flushed out to the Gahirmatha Marine Sanctuary, which attracts the world's largest population of Olive Ridley Sea turtles (nearly half a million turtles) for the congregation and nesting every winter.

INDIAN SKIMMERS

As per the Asian Waterbird Census 2023 which has been started recently, the Godavari estuary in Andhra Pradesh has become a prime and safe habitat for the Indian Skimmer (Rynchops

albicollis). Around 250 Indian Skimmers, were sighted in Coringa Wildlife Sanctuary.

About Asian Waterbird Census



• Every January, thousands of volunteers across Asia and Australasia visit wetlands in their countries and count waterbirds.

• The Asian Waterbird Census is an integral part of the global waterbird monitoring programme, the International Waterbird Census (IWC), coordinated by Wetlands International.

About Indian Skimmers

• Another common name for Indian skimmers is Indian scissors bill.

• They are more widespread in winter; the Indian skimmer is found in the coastal estuaries of western and eastern India.

• The species can be sighted near the Chambal River in Central India, in few parts of Odisha and in Andhra Pradesh.

• Major Threats includes habitat degradation, excessive and widespread increases in disturbances near the rivers.

• Protection Status:

i. IUCN Red List Status: Endangered

ii. CITES: Not listed

About Coringa Wildlife Sanctuary

• The Government declared a part of the Godavari mangrove system as Coringa Wildlife Sanctuary in 1978 to rehabilitate the saltwater crocodile and to protect other endangered species, such as Olive Ridley turtles and Indian Otters.

NEW DUST CONTROL TECHNOLOGY BY CMPDIL

Recently, Central Mine Planning and Design Institute Limited (CMPDIL) invented a method for Controlling the Generation and Movement of Fugitive Dust.

Fugitive dust is a type of particulate matter that causes air pollution because it is produced by many sources but is released into the atmosphere without passing through a confined flow stream.

About New Dust Control Technology

• It aims to minimize and control the fugitive dust in mining areas; useful in Coal Mines, Thermal Power Plants, Railway Sidings

and Ports.

• It will help in reducing dust generation from open sources and provide noise attenuation.

About Central Mine Planning and Design Institute Limited (CMPDIL)

• CMPDIL is a Government of India enterprise having its corporate headquarters at Ranchi.

• It is a fully owned subsidiary of Coal India Limited (CIL) and a Schedule-B company. It is a Mini Ratna (Category I) company since 2019.

LIQUIFIED NATURAL GAS

Why in the News?

Europe turns to LNG instead of Russia. The European Union (EU) is reducing its dependence on Russian gas by rapidly expanding imports of Liquefied Natural Gas (LNG).

What is LNG?

LNG is natural gas reduced to a liquid state

(liquefaction) through intense cooling to around -161 degrees Celsius (-259 Fahrenheit). This liquid gas is 600 times smaller than the original volume and is half the weight of water.

LNG is a compressed fossil fuel, which is constituted almost wholly of methane.

Liquefaction: The process of making or

becoming liquid. LNG is frozen in order to turn it into liquid form.

Applications: Power generation, Energy Storage, Transportation, Industrial usage, etc.

Benefits

Greater fuel efficiency: LNG has a higher energy content per unit volume than natural gas in its gaseous form, which means more energy can be stored and transported in the same space.

Increased energy security: LNG can be stored and used as needed, reducing dependence on a single source of energy.

Export potential: LNG can be transported by ship, allowing for greater flexibility in sourcing and distribution.

LNG takes up less storage space on a vehicle than CNG, and it also offers an energy density that can be compared to diesel fuel.

Lower carbon emissions: When burned, LNG produces less carbon dioxide than coal or oil.

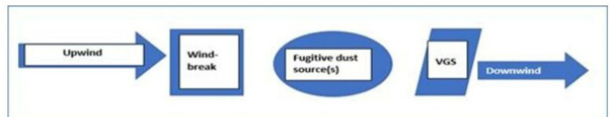
Concerns

High cost of production: The process of liquefying and transporting LNG is expensive.

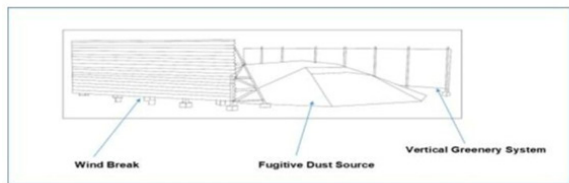
Environmental impact: The extraction, liquefaction, and transport of LNG can have significant environmental impacts, including greenhouse gas emissions and disruption to local ecosystems.

Risk of leaks and spills: LNG is highly flammable and can pose a risk of leaks and spills during transport.

Limited infrastructure: There is currently limited infrastructure for the storage and



Synchronized Application of Windbreak and Vertical Greenery System (VGS) for Fugitive Dust Control - a New Idea



Synchronized application of Wind break and VGS

distribution of LNG, which can make it difficult to implement on a large scale.

Limited availability: Natural gas resources are not evenly distributed around the world and LNG will not be a solution for all countries.

WEST BENGAL'S FIRST 'M SAND' FACILITY

In an attempt towards environmental sustainability and reducing over-mining of sand, Coal India Limited (CIL) has started a facility in West Bengal to produce manufactured sand, the first such initiative in the State.

The manufactured sand is being produced, an estimated 3 lakh cubic metre per year, in the Kajora area of Eastern Coalfields Ltd (ECL), a subsidiary of CIL, from overburden material of open cast mines. Set up through private participation, the M sand facility has started operations since September 2022.

What is M Sand?

Sand is one of the major geological resources of the country and **M sand is a form of artificial sand manufactured by crushing large hard stones**

into fine particles.

Conversion of overburden material into sand is a step to ensure environmental sustainability. Coal India Limited is committed to the cause of green mining.

According to sources, ECL needs 12 lakh cubic metre per year sand for stowing (sand filling mined out portions) purposes in its underground mines. M Sand will, therefore, meet 25% of the sand requirement of ECL, bringing home immediate savings of an estimated ₹6 crore per year.

The CIL'S decision to manufacture sand is a step towards sustainability particularly when illegal mining from riverbeds and riverbanks have adverse affect on river morphology.

BHOPAL GAS TRAGEDY AND ITS AFTERMATH

Bhopal Gas Tragedy

Bhopal disaster is a chemical leak in 1984 in the city of Bhopal, Madhya Pradesh state, India. At the time, it was called the worst industrial accident in history.

On December, 1984, about 45 tons of the dangerous gas **methyl isocyanate** escaped from an insecticide plant that was owned by the Indian subsidiary of the American firm Union Carbide Corporation.

The gas drifted over the densely populated neighbourhoods around the plant, killing thousands of people immediately and creating a panic as tens of thousands of others attempted to flee Bhopal.

Methyl Isocyanate

Methyl Isocyanate is a colourless liquid used for making pesticides. MIC is safe when maintained properly. The chemical is highly reactive to heat. When exposed to water, the compounds in MIC react with each other causing a heat reaction.

Methyl Isocyanate is no longer in production, although it is still used in pesticides. The Bayer CropScience plant in Institute, West Virginia is currently the only storage location of MIC left across the globe.

Impact of methyl isocyanate leak

Doctors were not aware of proper treatment methods the incident. Methyl isocyanate gas leak killed more than 15,000 people and affected over 600,000 workers. The stillbirth rate and the neonatal mortality rate increased by up to 300% and 200% respectively. The gas leak impact trees and animals too. Within a couple of days, trees in the nearby area became barren. Bloated animal carcasses had to be disposed of. People ran on the streets, vomiting and dying. The city ran out of cremation grounds.

Legal Consequences

The **Environment Protection Act** was passed in 1986, creating the Ministry of Environment and Forests (MoEF) (and strengthening India's commitment to the environment). Under the new act, the MoEF was given overall responsibility for administering and enforcing environmental laws and policies.

The **Bhopal Gas Leak Disaster Act**, passed by the Indian government in March 1985, provided the government with the authority to represent all disaster victims, whether they were residents of India or not.

The **Public Liability Insurance Act of 1991** was passed.

It provides public liability

insurance for providing immediate relief to the persons affected by an accident occurring while handling any hazardous substance.

1989 saw the completion of an **out-of-court settlement in which UCC** agreed to pay 470 \$million in damages and did so immediately.

Recently, on 20th September, 2022, a **plea was made to the supreme court to enhance the compensation**. It was argued that the compensation was based on "assumptions of truth" which were "unrelated to realities." The government is unsure about this decision, so that they will hear the matter again.

Union Carbide Corporation

Union Carbide Corporation, a major American manufacturer of chemicals, petrochemicals, and related products. It became a subsidiary of the Dow Chemical Company in 2001.

The company was formed in 1917.

Formed during wartime, the company immediately took on the manufacture of new diversified products, providing helium, ferrozirconium, and activated carbon for the U.S. military, thus setting the pattern for the company's future development. After World War I, it retained its chemicals business and moved into the

consumer field,

World War II further expanded the company's research and development activities. Union Carbide was a major contributor to the development of the first atomic bomb. Union Carbide had already become a pioneer in the manufacture of petrochemicals.

The Curative Petition

imprimatur of the apex court. The government has sought an additional amount of ₹675.96 crore in compensation from the pesticide company. The UCC has refused to pay a "farthing more." "The court made it clear that it would not" try "the curative petition like an ordinary suit and reopen the settlement

India : It had urged the court to look beyond the conservative principles of law) beyond the restrictions of the curative jurisdiction. (

Government : Parliament had enacted the Bhopal Gas Leak Disaster) Processing of Claims (Act of 1985

It has an obligation to protect the victims' interests

FIGHT FOR JUSTICE		
Dec 2-3, 1984 Thousands die after MIC gas leaks out	Criminal liability case against UC and its officials withdrawn	negligence); case transferred to CJM court
Dec 3, 1984 FIR registered at Hanumanganj police station	Oct 3, 1991 Supreme Court revokes criminal immunity granted to accused	Jan 29, 1998 Accused R B Roychowdhury dies
Dec 1, 1987 CBI files chargesheet against 12 accused, including Union Carbide chairman Warren Anderson, and eight Indian officials, for culpable homicide	Nov 11, 1991 Case against all accused revived in CJM court, Bhopal	June 7, 2010 All the accused sentenced to 2 years' imprisonment
Feb 14-15, 1989 Govt. of India and Union Carbide Corpn come to an agreement with the company committing to pay \$470 million as compensation.	June 22, 1992 Case committed to sessions court for trial	Dec, 2010 CBI files curative petition in SC for tougher sentence, files appeal against CJM order in sessions court. Convicts also appeal
	April 8, 1993 Sessions court frames charges against the accused	April 2011 SC dismisses curative petition
	Sep 13, 1996 SC reduces charges to IPC 304A (criminal	Sep 6, 2021 Accused RV Shetty dies

Thirty-nine years after the incident, a Constitution Bench of the Supreme Court led by Justice S.K. Kaul has reserved its judgment on a curative petition filed by the Centre in November 2010 to enhance the \$470 million (about ₹725 crore at the then exchange rate) compensation fixed in a 1989 settlement reached with Union Carbide Corporation) UCC, (now a wholly owned subsidiary of Dow Chemicals, with the

Curative Petition

The Curative Petition is the last chance available for the protection from the compensation of injustice in the court after the review petition is dismissed or has been exhausted. It is a concept that evolved by the Supreme Court of India in the matter of Rupa Ashok Hurra vs. Ashok Hurra and Anr. (2002) in which the question was whether an aggrieved person is entitled to any relief against the final judgement or order of the Supreme Court after the dismissal of a review petition.

The Supreme Court held that to prevent abuse of its process and to cure gross miscarriage of justice, it may reconsider its judgements in exercise of its inherent powers.

For that purpose, the court has devised what has been termed as a curative petition in which the petitioner is required to aver specifically that the grounds mentioned therein had been taken in the review petition filed earlier and that it was dismissed by circulation, which must be certified by a senior advocate

A party can take only two limited grounds in a curative petition:

- He/she was not given an opportunity to be heard,
- Judges were biased.

What are the rival contentions?

Attorney General of

"effectively and equitably."

The UCC:

Settlement was arrived at on the basis of a "consent

decree “sourced from a suit.

The liability of UCC for the tragedy was never established.

There was no” reopener clause “in the settlement.

Way Forward

While stressing that the victims should not be left to “fend for themselves ,“the

court ,in ,1991 had said the ”reasonable way to protect the interests of the victims is to hold that the Union of India, as a welfare state and in the circumstances under which the settlement was made ,should not be found wanting in making good the deficiency ,if any.”

The government has

interpreted these words by saying that it has done its duty by coming to the court with a plea to direct the UCC to top-up the compensation amount. The court ,in turn ,said if the government ,as a welfare state, felt the victims were entitled to more ,it should pay them.

JOSHIMATH CRISIS:

What is land subsidence

Almost a week after cracks appeared in many roads and hundreds of houses of Joshimath, Uttarakhand, authorities declared it a landslide and subsidence-hit zone.

The announcement came after a high-level meeting took place among the senior officials of the Central government, Uttarakhand state officials, and top officers from agencies including the National Disaster Management Authority (NDMA), Geological Survey of India (GSI) and the National Institute of Hydrology (NIH).

According to the National Oceanic and Atmospheric Administration (NOAA), subsidence is the “sinking of the ground because of underground material movement”.

It can happen for a host of reasons, man-made or natural, such as the removal of water, oil, or natural resources, along with mining activities. Earthquakes, soil erosion, and soil compaction are also some

of the well-known causes of subsidence.

The US-based agency’s website also mentions that this phenomenon can “happen over very large areas like whole states or provinces, or very small areas like the corner of your yard.”

What can be the reasons behind Joshimath’s subsidence?

The exact reason behind Joshimath land subsidence is still unknown but experts suggest that the incident might have occurred because of unplanned construction, over-population, obstruction of the natural flow of water and hydel power activities.

Not only this, the area is a seismic zone, which makes it prone to frequent earthquakes.

According to experts, Joshimath city has been built on an ancient landslide material — meaning it rests on a deposit of sand and stone, not rock, which doesn’t have high load-bearing capacity.

This makes the area

extremely vulnerable to ever-burgeoning infrastructure and population.

Moreover, the lack of a proper drainage system might have also contributed to the sinking of the area.

Experts say that unplanned and unauthorised construction has led to the blocking of the natural flow of water, which eventually results in frequent landslides.

As per the reports, residents have also blamed NTPC’s Tapovan Vishnugad Hydro Power Project for the incident.

They allege that the tunnel had water seepage “from a punctured aquifer, leading to the drying of water sources in Joshimath.” Experts suggest that it could be one of the reasons for the collapse of the area.

However, NTPC denied the allegations and in a statement said, “The tunnel built by NTPC does not pass under Joshimath town.

This tunnel is dug by a tunnel boring machine (TBM)

and no blasting is being carried out presently”, according to a report by The Indian Express.

Apart from the aforementioned possible reasons, reports have pointed out that subsidence in Joshimath might have been triggered by the reactivation of a geographic fault — defined as a fracture or zone of fractures between two blocks of rock — where the Indian Plate has pushed under the Eurasian Plate along the Himalayas.

Joshimath:Himalayan development model

It is now clear that all warnings in the Mishra Committee report almost 50 years back went unheeded in the race to develop Joshimath by successive governments since 2001.

It was clearly pointed out that Joshimath township is situated on debris of earlier landslides and would slip someday.

But development continued at a rapid pace with heavy construction activities such as initiating small hydro power projects at Tapovan and Rishi Ganga, tunnelling, road widening and mushrooming of buildings with scant regard to safety to accommodate increased tourist inflow, and disappearance of the green cover in the region.

All elements of a disaster were primed and only a trigger was needed to initiate the crisis.

Erosion of slopes

That trigger was provided by nature in February 2021 when a catastrophic flow of rock and glacier ice mass descended into Rishiganga and Dhauliganga valleys and flowed into Alaknanda river at Joshimath.

This extraordinary mass flow of mobile debris that contained boulders greater than 20 metres, scoured the valley walls up to 200 metres. On the way, the half-finished Tapovan dam was washed away and the tunnel was inundated with water.

The strong and violent flow sufficiently eroded the base of hill slopes in Alaknanda valley in Joshimath.

In a recent study, scientists from the Indian Institute of Remote Sensing, Dehradun, observed that Joshimath and the surrounding areas have been sinking at a rate of 6.5 cm (2.5 inches) per year based on satellite data from July 2020 to March 2022.

Their findings correlate well with the base erosion of Joshimath slope along the Alaknanda river.

The impact of the event was such that at Kanpur, at a distance of about 900 km from Joshimath, an unprecedented spike (80 times higher) in suspended sediment (turbidity) was observed in a canal that draws directly from the Ganga, making this event the most likely candidate for triggering the present subsidence in

Joshimath.

Only two events in the past can rival this incident — the 1970 Huascarán avalanche in Peru and the 2013 Kedarnath flash flood in Uttarakhand.

Land subsidence along slopes happens due to displacement of underground material under the influence of two important factors of gravity and water action.

It is a geohazard in the mountainous region controlled by a variety of subsurface displacement mechanisms that are not very well understood.

Subsidence zone

Since the displacement mechanisms happen below the ground, their progression to the point of surface deformation can only be speculated. In nature, these processes evolve over a long period of time, and some of the significant evidence may lie outside the area of the subsidence zone.

It is also possible that multiple conditions and processes come into play leading to subsidence on slopes.

In the case of Joshimath, evidences strongly suggest that certain subsurface processes such as the removal or rearrangement of subsurface materials to produce void space or significant volume reduction-solution, underground erosion, lateral flow, and compaction could have been set in motion or accelerated by construction activities.

One such incident could

be the reported puncturing of an underground aquifer during a tunnel boring close to Auli, discharging substantial amounts of water in December 2009. But a long-term scientific investigation to comprehend the complex processes is needed to prove the causality of this incident to subsidence.

In addition, there are several other geological evidences observed in the field around Joshimath that suggest a reduction in the shear strength of the debris leading to subsidence.

These evidences are weathered and highly jointed strata, freeze-thaw cycles runoff from mountain top

along vertical joints or cracks during rains, perched water tables and seeps, groundwater manipulation, and irrigation.

The accelerated push

The Joshimath tragic event raises pertinent questions on the accelerated push by the government on clean energy and national security. While the intentions are well-meaning, risks associated with rapid expansion of hydropower or other infrastructure developments in the fragile environment of Himalayas, need to be understood.

Any action without understanding the cause and effect of mountain hazards

would be detrimental to the cause.

The stress should be on environment and conservation for a sustainable development in the Himalayas without ignoring human sufferings and emerging socioeconomic impacts the developments cause.

The Joshimath tragedy is just unfolding and has already caused great misery to local people in terms of displacement and economic losses. The government should speed up the process of resettlement as the consequences arising out of an earthquake at this time or heavy rains predicted in the region could be catastrophic.

INDIA'S GROUNDWATER GOVERNANCE IS IN BETTER SHAPE

Context

India, with nearly 18% of the world's population, occupies about 2.4% of the total geographical area and consumes 4% of total water resources.

Groundwater is the water present below the earth's surface and is a vast resource of water.

Almost 22 percent of water is below the surface land in the form of groundwater. According to the World Bank Report, India is the largest groundwater user.

The Theme of UN World Water Day 2022: 'Groundwater, Making the Invisible Visible' is a reflection of the importance given to the resource across

the globe.

Importance of Groundwater

Groundwater is the backbone of India's agriculture and drinking water security in rural and urban areas

It meets nearly 80% of the country's drinking water and two-thirds of its irrigation needs.

Groundwater is pivotal to India's water security.

Steps taken by the government for sustainable groundwater management:

1. Reduction in groundwater extraction to below 70%

2. Increasing the network of groundwater observation wells,

3. Installing digital water level recorders for real-time monitoring,

4. Periodic monitoring of groundwater quality

5. Aquifer mapping and data dissemination

6. Having better regulation of groundwater extraction by industries

7. Promoting participatory groundwater management

8. Periodic groundwater resource assessment.

9. Creation of Jal Shakti

Ministry (a merger of the erstwhile Ministries of Water Resources, River Development and Ganga Rejuvenation along with Drinking Water and Sanitation).

10. Jal Shakti Abhiyan was launched to transform Jan Shakti into Jal Shakti through asset creation like

Rainwater harvesting ('Catch the Rain' campaign)

extensive awareness campaign.

Initiatives for the effective management and regulation of groundwater

Atal Bhujal Yojana (ABY): It looks to inculcate behavioral change made possible by incentivisation.

National Project on Aquifer Management (NAQUIM): It envisages the mapping of subsurface water bearing geological formations (aquifers) to help gather authentic data and enable informed decision-making.

There are around 65,025 groundwater monitoring stations in India, which include 7,885 automated stations.

Samples from fixed locations are obtained to check for the presence of heavy and trace metals.

A software, 'India-Groundwater Resource Estimation System (IN-GRES)', has also been developed.

What does the latest groundwater assessment show?

The groundwater resource assessment report 2022 shows a brighter future for groundwater situations in the country .

According to the latest assessment, there has been a 3% reduction in the number of 'overexploited' groundwater units and a 4% increase in the number of 'safe' category units as compared to 2017.

There was an improvement in groundwater conditions in 909 units. Overall extraction saw a declining trend of about 3.25% since 2017.

Around 9.37 BCM of additional groundwater potential was created through artificial water conservation structures.

The government's interventions for creating a positive impact on the overall groundwater scenario in India reflect the spirit of cooperative federalism.

What does the groundwater assessment indicate?

It shows that a time-bound and scientific approach is being adopted to monitor precious water resources.

It indicates a positive inclination in the management of groundwater.

Reasons for success

Implementation of comprehensive groundwater guidelines in 2020 for regulation

in various sectors

Making the processes of issuing a no-objection certificate transparent and time-bound using a web-based application..

Way Forward

A heli-borne based survey (state-of-the-art technology), has also been used along with traditional exploratory methods for rapid and accurate aquifer mapping.

Region-wise aquifer management plans are being prepared and shared with States.

Dynamic groundwater assessments will be done annually now and a groundwater estimation committee formed to revise the assessment methodology.

India will need adequate groundwater resources to manage anthropogenic pressures.

It is important to ensure source sustainability to provide safe drinking water to all rural households by 2024, under the Jal Jeevan Mission.

Communities will have to manage their groundwater resources better with the help of various government agencies and non-governmental organizations.

Steps must be taken to make India a water surplus nation, thus fulfilling the objective of a key United Nations Sustainable Development Goal, of water for all.

SCIENCE & TECHNOLOGY

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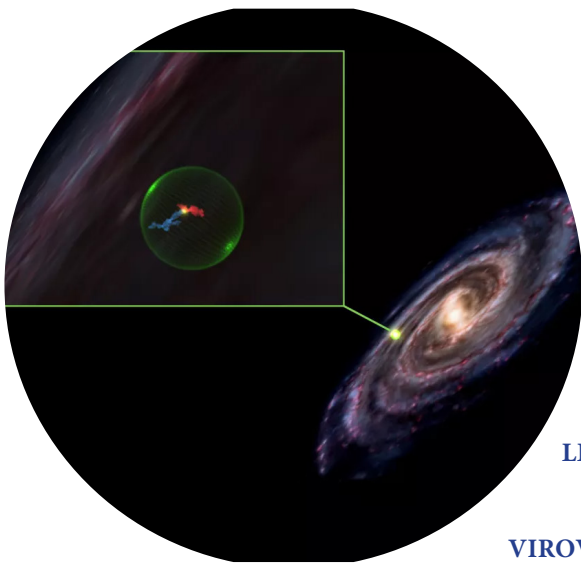
DRUG

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SWOT SATELLITE

Why in news?

After launching from Southern California, NASA's Surface Water and Ocean Topography or SWOT satellite unfolded its large mast and antenna panels after successfully deploying the solar panel arrays that power the spacecraft.

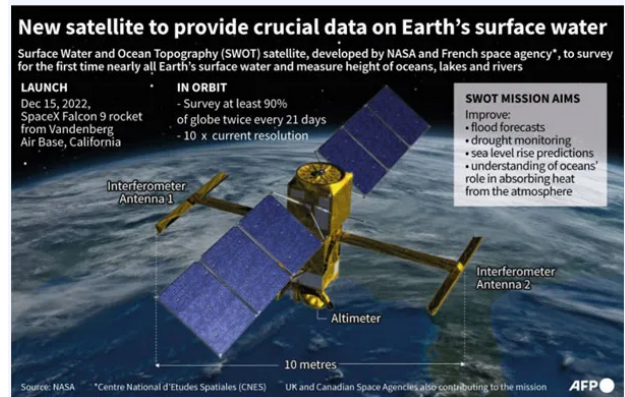
About

The Surface Water and Ocean Topography (SWOT) mission is a **satellite altimeter** jointly developed and operated by **NASA and CNES**, the French space agency, in partnership with the **Canadian Space Agency (CSA)** and **UK Space Agency (UKSA)**.

The objectives of the mission are to make the **first global survey of the Earth's surface water**, to observe the fine details of the **ocean surface topography**, and to measure how **terrestrial surface water bodies change over time**.

The past satellite missions like the **Jason series altimeters** (TOPEX/Poseidon, Jason-1, Jason-2, Jason-3) have provided variation in river and lake water surface elevations at **select locations**

A SpaceX Falcon 9 rocket launched the Surface Water and Ocean Topography (SWOT) satellite



SWOT is an **advanced radar satellite** that aims to provide scientists with a deeper understanding of the oceans and how climate change impacts them.

Significance

The SWOT's ability to discern smaller surface features will help study the **impact of rising ocean levels on coastlines**. More precise data along tidal zones would help predict how far storm-surge flooding may penetrate inland.

Freshwater bodies are another key focus of the SWOT, equipped to observe the **entire length of nearly all rivers** wider than 330 feet and more than 1 million lakes and reservoirs larger than 15 acres.

SHUKRAAYAN 1

Why in News?

An advisor to the space science programme recently said that the Indian Space Research Organisation is yet to receive approval from the Indian government for the Venus mission and that the mission could as a result be postponed to 2031.

About

SHUKRAYAAN-1

It is also called the Venus Mission. The Shukrayaan I mission will be an orbiter mission.

Its scientific payloads currently include a high-resolution **synthetic aperture radar (SAR)**

and a ground-penetrating radar.

SAR - It refers to a technique for producing **high-resolution images**. Because of the precision, the radar can penetrate clouds and darkness, which means that it can collect data day and night in any weather

SAR would examine Venus' surface, despite the clouds around the planet, which lowers visibility.

The mission is expected to study Venus's geological and volcanic activity, emissions on the ground, wind speed, cloud cover, and other planetary characteristics from an elliptical orbit.

Shukrayaan-I will be launched on either GSLV Mk II or GSLV Mk III, the latter allows

more instruments or fuel to be carried, according to ISRO.

Optimal launch windows from Earth to Venus occur once every 19 months.

Objectives

Investigation of surface process and shallow subsurface stratigraphy. Until now, no prior observation of the sub-surface of Venus has been done.Stratigraphy is a branch of geology in which rock layers and layering are studied.

Study of the structure, composition and dynamics of the atmosphere and Investigation of Solar wind interaction with Venusian ionosphere.

Significance

It will help to learn how Earth-like planets evolve and what conditions exist on Earth-sized exoplanets (Planets that orbit a star other than our sun).

It will help in modelling Earth’s climate and serves as a cautionary tale on how dramatically a planet’s climate can change.

About Venus

Venus is often called “Earth’s twin” because they’re similar in size and structure, but Venus has extreme surface heat and a dense, toxic atmosphere.

It rotates very slowly on its axis – one day on Venus lasts 243 Earth days.

The thick atmosphere of Venus traps heat creating a runaway greenhouse effect – making it the hottest planet in our solar system.

Phosphine, a possible indicator of microbial life, has been observed in the clouds of Venus.

Unlike the other planets in our solar system, Venus spins **clockwise** on its axis.

Other Venus Missions in Future

- U.S. - NASA - VERITAS - planned for 2031
- European space agency - EnVision - planned for 2031
- China may launch around 2026 or 2027.

Previous Missions Sent to Venus

USA	RUSSIA	JAPAN	EUROPE
<ul style="list-style-type: none">• Mariner series 1962-1974,• Pioneer Venus 1 and Pioneer Venus 2 in 1978,• Magellan in 1989.	<ul style="list-style-type: none">• Venera series of space crafts 1967-1983,• Vegas 1 and 2 in 1985.	Akatsuki in 2015	Venus Express in 2005.

LOCAL BUBBLES

Why in News?

The Taurus and Perseus molecular clouds are split by a giant ‘cavity’ likely created by an ancient supernova. Researchers from the Center for Astrophysics (CfA) | Harvard & Smithsonian

have generated a 3D magnetic map of this cavity called Local Bubble

About

The Local Bubble, or Local Cavity, is a relative

cavity in the interstellar medium (ISM) of the **Orion Arm in the Milky Way**.

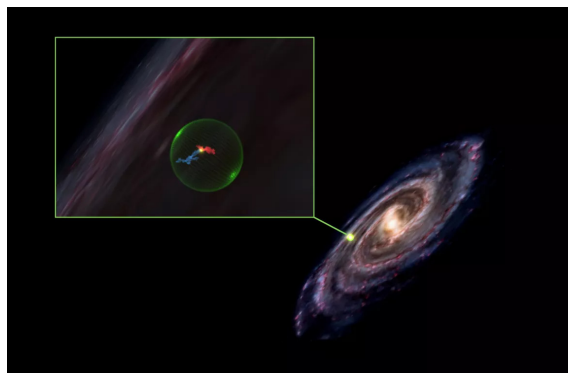
It contains the closest of celestial neighbours and among others, the Local Interstellar Cloud (which contains the Solar System), the neighbouring G-Cloud, the Ursa Major moving group (the closest stellar moving group) and the Hyades (the nearest open cluster).

Two clouds of gas, both alike in dignity, appear side by side in the fair Milky Way. Known as “**molecular clusters**,” these enormous provinces of star-forming gas stretch across the sky, seeming to form a bridge between the Taurus and Perseus constellations where new suns can grow and thrive for billions of years to come.

New 3D maps of the region, created with help from the **European Space Agency’s Gaia space observatory**, show that these canoodling clouds are actually hundreds of light-years apart — **separated by an enormous, empty orb** where neither gas, nor dust nor stars can find purchase.

Given the positions of the molecular clouds and the ages of the stars within them, the researchers estimated that both clouds formed as a result of the same **supernova explosion** about 10 million to 20 million years ago.

Explosions like these occur when large stars run out of fuel, shed their outer layers of hot gas and then collapse under their own gravity. This sudden collapse creates a powerful shockwave, pushing all that leftover gas and dust far away from the ex-star’s ramshackle remains.



BHAROS

Why in news?

While Android and iOS are two of the most well known mobile operating systems, a new Indian contender in the sector is BharOS. It is developed by the IIT Madras-incubated company JandK Operations Private Limited.

About

Funded by the **Department of Science and Technology (DST)**, the indigenous mobile operating system wants to cater to the approximately 100 crore mobile phone users in India, according to an IIT Madras press release on January 19.

BharOS is an Indian government-funded project to develop a free and open- source operating system (OS). The project aims to reduce the dependence on foreign OS in smartphones and promote the use of locally developed technology.

BharOS comes with No Default Apps (NDA). This means that there are no default apps. Users can download the apps they want to use. The

idea is to allow users to have more control over the permissions that apps have on their device, as they can choose to only download apps that they trust to access certain features or data on their devices.

The OS provides access to trusted apps from organisation-specific Private App Store Services (PASS). A PASS provides access to a curated list of apps that is said to be thoroughly vetted and meet certain security and privacy standards.

As of now, BharOS is being provided to



organisations that have stringent privacy and security requirements whose users handle sensitive information.

The OS can be installed on commercial off-the-shelf handsets, stated the IIT Madras press release.

DOOMSDAY CLOCK

Why in news?

The Bulletin of the Atomic Scientists set its symbolic “Doomsday Clock” closer to midnight than ever before, noting threats of nuclear war, disease and climate volatility had been exacerbated by Russia’s invasion of Ukraine.

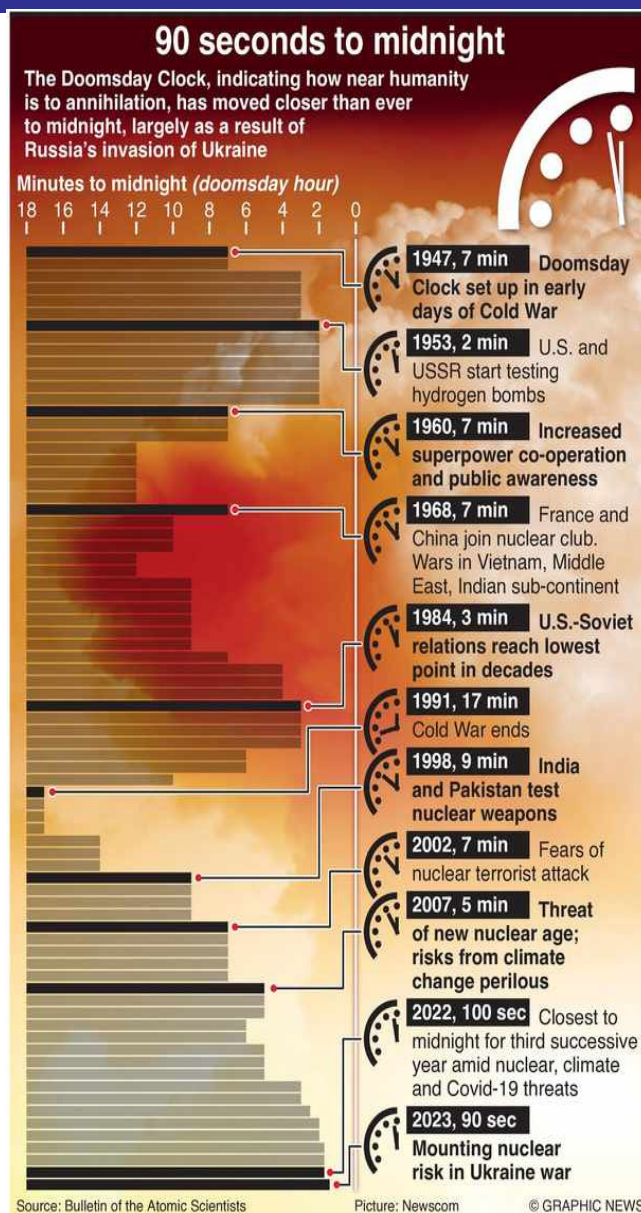
About

The Doomsday Clock is a symbol that represents how close we are to destroying the world with dangerous technologies of our own making. It warns how many metaphorical “minutes to midnight” humanity has left. Set every year by the Bulletin of the Atomic Scientists, it is intended to warn the public and inspire action.

When it was created in 1947, the placement of the Doomsday Clock was based on the threat posed by nuclear weapons. In 2007, the Bulletin began including catastrophic disruptions from climate change in its hand-setting deliberations.

The furthest the clock has been set was 17 minutes to midnight, in 1991, after the collapse of the Soviet Union and the signing of the Strategic Arms Reduction Treaty. Until recently, the closest it had ever been set was at two minutes to midnight—first in 1953, when the U.S. and Soviet Union both tested thermonuclear weapons, and then in 2018, citing “a breakdown in the international order” of nuclear actors.

Then, in 2023, the clock moved the closest it has ever been: 90 seconds to midnight.



ADITYA-L1

Why in News?

‘India’s first mission to study the sun to begin by June-July’

About

The Indian Space Research Organisation

(ISRO) is planning to launch the Aditya-L1 mission by June or July this year. Aditya-L1 is the first Indian space mission to observe the Sun and the solar corona.

The Aditya-L1 mission will be launched to the L1 orbit (which is the first Lagrangian point

of the Sun-Earth system).

L1 orbit allows Aditya-L1 to look at the Sun continuously. Aditya-L1 has seven payloads, of which the primary payload is the VELC, designed and fabricated by the Indian Institute of Astrophysics, Bengaluru. The other six payloads are being developed by the ISRO and other scientific institutions.

The mission has seven payloads on board to observe the photosphere, chromosphere, and the outermost layers of the sun viz.,

Visible Line Emission Coronagraph (VELC),
Solar Ultraviolet Imaging Telescope,
Aditya Solar Wind Particle Experiment,
Plasma Analyser Package for Aditya,
Solar Low Energy X-ray Spectrometer,
High Energy L1 Orbiting X-ray Spectrometer,
Magnetometer.

The mission will capture near-simultaneous photos of the many layers of the Sun's atmosphere, revealing how energy is routed and transported from one layer to the next.

Other Missions to the Sun

NASA's Parker Solar Probe: Its aim is to trace how energy and heat move through the Sun's corona and to study the source of the solar wind's acceleration.

Helios 2 solar probe: It was a joint venture between NASA and space agency of erstwhile West Germany, went within 43 million km of the Sun's surface in 1976.

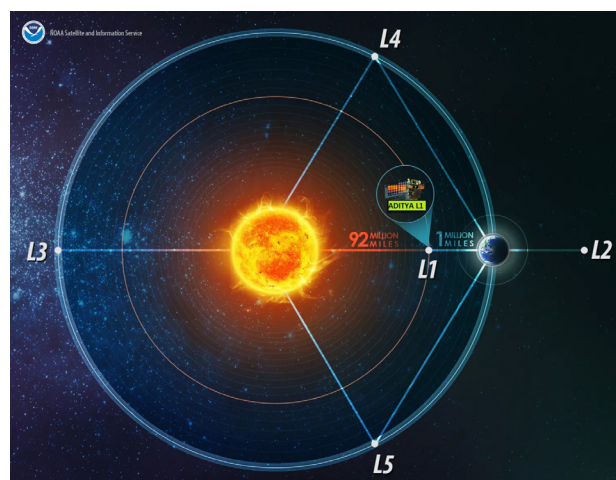
What are Lagrangian points?

These are specific locations in space where the gravitational forces of two large bodies, such as the Earth and the Moon or the Earth and the Sun, balance the centrifugal force experienced by a smaller object, such as a satellite.

There are five Lagrangian points, labelled L1 through L5, in the three-dimensional space surrounding two large bodies in orbit around each other.

L1, L2, and L3 are located on a line that connects the two large bodies and are **unstable equilibrium points**, meaning an object placed there will not stay in that position without continuous propulsion.

L4 and L5, on the other hand, are located at the third corners of a tetrahedron formed by the two large bodies and their barycenter, and are **stable equilibrium points**, meaning an object placed there will remain in that position without propulsion.



NOROVIRUS

Norovirus is a highly contagious virus that is also sometimes referred to as the 'stomach flu' or the 'winter vomiting bug'. It can be transmitted through contaminated food, water, and surfaces.

The primary route is oral-faecal.

It is similar to diarrhoea-inducing rotavirus and infects people across age groups. Disease outbreaks typically occur aboard cruise ships,

in nursing homes, dormitories, and other closed spaces.

According to the WHO, emerging evidence suggests that "norovirus infection is associated with intestinal inflammation, malnutrition and may cause longterm morbidity".

It adds that an estimated 685 million cases of norovirus are seen annually, including 200 million

cases amongst children under 5.

The initial symptoms of norovirus are vomiting and/or diarrhoea, which show up one or two days after exposure to the virus.

Patients also feel nauseous, and suffer from abdominal pain, fever, headaches and body aches. In extreme cases, loss of fluids could lead to dehydration.

GONORRHOEA OUTBREAK HIT KENYA

Recently, a strand of antimicrobial-resistant gonorrhoea outbreak has hit Kenya. Researchers have raised alarm, warning this infection is asymptomatic in some cases and can cause significant health challenges, including permanent damage to their reproductive systems.

About Gonorrhoea

Gonorrhoea is a sexually transmitted infection (STI) caused by the bacterium *Neisseria gonorrhoeae*.

It can infect both men and women and can occur in the genitals, rectum, and throat.

If left untreated, it can cause serious health problems, including infertility and an increased risk of Human Immunodeficiency Virus (HIV) infection.

According to the WHO, it is the second-most common disease to be sexually transmitted across the world after chlamydia.

Gonorrhoea is typically treated with antibiotics, but the bacteria have become increasingly resistant to many of the drugs that were once effective.

Anti-Microbial Resistance (AMR)

Antimicrobial resistance (AMR) is the ability of microorganisms (such as bacteria, viruses, fungi, and parasites) to resist the effects of antimicrobial drugs (such as antibiotics, antivirals, antifungals and antiparasitic).

Also, Microorganisms that develop antimicrobial resistance are sometimes referred to as “superbugs”.

DOPPLER WEATHER RADAR NETWORK

On the occasion of the 148th Foundation Day of India Meteorological Department (IMD), the Ministry of Earth Science has inaugurated the Doppler Weather Radar (DWR) systems in Jammu & Kashmir, Uttarakhand, and Himachal Pradesh.

The Ministry of Earth Science is also preparing to cover the entire country under the Doppler weather radar network by 2025 for more accurate forecasts related to extreme weather events.

About Doppler Weather Radars

Based on the Doppler principle, the radar is designed to improve precision in long-range weather forecasting and surveillance using a parabolic dish antenna and a foam sandwich spherical radome.

DWR has the equipment to measure rainfall

intensity, wind shear and velocity and locate a storm centre and the direction of a tornado or gust front.

Doppler Radar

Radar (Radio Detection and Ranging) is a device which uses electromagnetic waves in the microwaves region to detect the location (range & direction), altitude, intensity and movement of moving and non-moving objects.

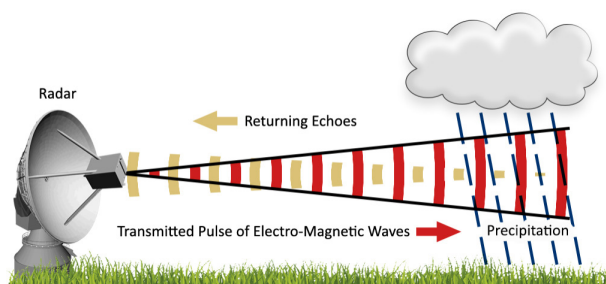
Doppler Radar is a specialized radar that uses the Doppler effect to produce velocity data about objects at a distance.

Doppler radar can be divided into several different categories according to the wavelength which are L, S, C, X, and K.

Doppler Effect

When the source and the signal are in relative motion to each other there is a change in the frequency observed by the observer. If they are moving closer, frequency increases and vice versa.

It does this by bouncing a microwave signal off a desired target and analyzing how the object's motion has altered the frequency of the returned



signal.

This variation gives direct and highly accurate measurements of the radial component of a target's velocity relative to the radar.

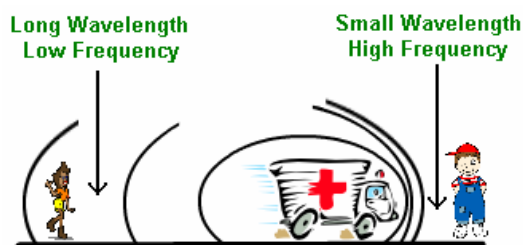
X band radars

They operate on a wavelength of 2.5-4 cm and a frequency of 8-12 GHz. Because of the smaller wavelength, the X-band radar is more sensitive

and can detect smaller particles.

These radars are used for studies on cloud development because they can detect tiny water particles and are also used to detect light precipitation such as snow.

X-band radars also attenuate (become less effective) very easily, so they are used for only



The Doppler Effect for a Moving Sound Source

very short-range weather observation.

Due to the small size of the radar, it can therefore be portable like the Doppler on Wheels (DOW). Most major aeroplanes are equipped with X-band radar to pick up turbulence and other weather phenomena.

This band is also shared with some police speed radars and some space radars.

LECANEMAB - NEW ALZHEIMER'S DRUG

The US Food and Drug Administration(FDA) has approved a new Alzheimer's drug named Lecanemab which is to be marketed as Leqembi.

What is Lecanemab?

Lecanemab, sold under the brand name Leqembi, is a medication approved for the treatment of Alzheimer's disease.

Working of the drug

The drug is a monoclonal antibody that binds itself to a protein in the brain called Amyloid beta.

By doing so, it helps the body destroy these proteins. People with Alzheimer's have high levels of Amyloid beta in their brains and, in the trial, Leqembi significantly lowered those amounts.

However, it remains unclear whether the

protein causes Alzheimer's or how reducing it affects the disease's progression.

Who can use this drug?

The drug should be used only for patients in the early and mild stages of Alzheimer's disease, matching the status of patients in the clinical trials of the drug.

It instructs doctors not to treat patients without doing tests to confirm that they have one of the hallmarks of Alzheimer's: a buildup of the protein amyloid, which Leqembi (like Aduhelm) attacks.

VIROVORE - ORGANISM THAT EATS VIRUSES

Researchers have found the first known “virovore,” or organism that eats viruses. Every sort of organism that can be discovered in the world feeds on organic matter. This is most likely a lot more like a complete, unexplored food chain.

According to the science magazine Newatlas, researcher John DeLong at the University of Nebraska-Lincoln wanted to find out if any microbes actively ate viruses, and whether such a diet could support the physiological growth of individuals and the population growth of a community.

What is the finding?

Scientists found that a species of Halteria - microscopic ciliates that populate freshwater worldwide can eat huge numbers of infectious chloroviruses that share their aquatic habitat.

For the first time, the team’s lab experiments have also shown that a virus-only diet, which the team calls “virovory,” is enough to fuel the physiological growth and even population growth of an organism.

These virus-eating species of protists — which are their own kingdom on the tree of life and are not an animal, plant, or fungi — are now classified as Virovores.

They’re made up of really good stuff: nucleic acids, a lot of nitrogen, and phosphorous.

Chloroviruses are known to infect microscopic green algae.

These organisms can sustain themselves with viruses, consuming many and growing in size. It is estimated that ciliates in a small pond might eat 10 trillion viruses a day.

SATYENDRA NATH BOSE

Why in News?

129th birth anniversary of Satyendra Nath Bose.

About

Early life

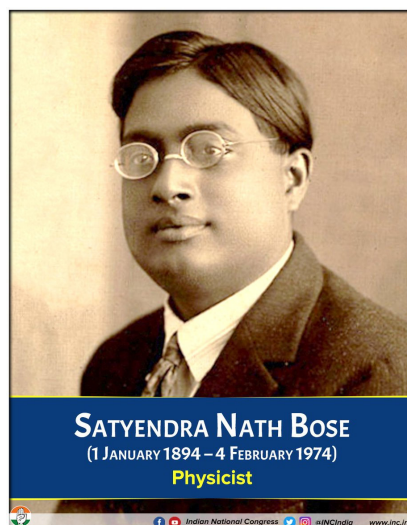
Born on January 1, 1894, Bose grew up and studied in Kolkata, where he solidified his position as an exemplary academician.

His father, an accountant in the Executive Engineering Department of the East Indian Railways, gave him an arithmetic problem to solve every day before going to work, encouraging Bose’s interest in mathematics.

By the age of 15, he began pursuing a Bachelor of Science degree at the Presidency College, and later finished his MSc in Mixed Mathematics in 1915.

Bose topped his class for both degrees and at 22, he was appointed as a lecturer at Calcutta University, along with astrophysicist Meghnad Saha.

These were tough times for Indian researchers as World War I had broken out and, European scientific journals came to India quite infrequently. Not only this, most of the research papers weren’t available in English and both Bose and Saha had to learn scientific terms in German and French languages to read published works. However, the new skill came in handy for them in 1919, when they published English translations of Albert



Einstein's special and general relativity papers.

Two years later, Bose was appointed to the position of Reader in Physics at the University of Dhaka.

It was here that he made his most significant contributions to physics.

The Breakthrough

While teaching Planck's formula for the distribution of energy from black body radiation, Bose began questioning the way particles were counted — his basic argument was that one photon of light is not distinguishable from another of the same colour — and came up with his own derivation, instead of relying on classical electrodynamics like his predecessors.

Bose first sent his findings, recorded in a paper titled Planck's Law and the Hypothesis of Light Quanta, to a famous science journal called The Philosophical Magazine. However, the paper was rejected. Bose didn't lose hope and made the bold decision of sending his research to Einstein.

In 1924 reached out to the German physicist while claiming that he had derived Planck's law for black body radiation (which refers to the spectrum of light emitted by any hot object) without any reference to classical electrodynamics.

Bose asked Einstein to review his research paper and, if he found it important enough, get it published.

Impressed by Bose's findings, Einstein not only arranged for the publication of the paper but also translated it into German. In his translator's note, he said, "Bose's derivation of Planck's law appears to me an important step forward. The method used here also yields the quantum theory of ideal gas, as I shall show else."

This recognition catapulted Bose to fame and glory. He went on to work with Einstein and together they developed what is now known as the Bose-Einstein statistics.

Today, in honour of his legacy, any particle that obeys the Bose-Einstein statistics is called

a boson.

The publication of the paper completely changed the Indian physicist's life and career.

He was soon granted study leave from his university for two years and allowed to visit Europe. During his trip, Bose got an opportunity to meet other famous scientists of that era, such as Paul Langevin and Madame Curie.

He also joined the laboratory of Maurice de Broglie where he learnt techniques of X-ray spectroscopy and crystallography, the branch of science that deals with the arrangement of atoms in crystalline solids.

Return to India

After his two-year stay in Europe, Bose came back to India and was appointed professor of physics and then Head of Department at Dhaka University in 1927. Here, he completely devoted himself to teaching and guiding research.

Bose designed equipment for setting up an X-ray crystallography laboratory at the university, and wrote several papers on a range of subjects, such as 'D2 Statistics', and 'Total Reflection of Electromagnetic Waves in the Ionosphere'.

In 1945, he left Dhaka to return to his alma mater, the University of Calcutta, as the Khaira Professor of Physics. He retired from the University of Calcutta in 1956 and spent a year as the Vice Chancellor at the Viswa-Bharati University.

Bose was awarded Padma Vibhushan, one of the highest civilian awards in the country, by the Indian government in 1954 and five years later, was appointed as National Professor, the highest honour in India for scholars.

He lived the remainder of his life in Kolkata, until his death in 1974.

WORLD'S FIRST VACCINE FOR HONEYBEES

Why in News?

The United States Department of Agriculture (USDA) has granted a conditional license for a vaccine for honeybees to curb American foulbrood.

About

American foulbrood (AFB), a fatal bacterial disease for the honeybees which is caused by the spore-forming bacterium *Paenibacillus larvae*.

It is not a stress-related disease and can infect the strongest to the weakest colony in an apiary. Heavy infections can affect most of the brood, severely weakening the colony and eventually killing it.

The disease cannot be cured. The bacteria *Melissococcus plutonius* causes another similar disease, European foulbrood. However, the incidence of EFB is generally higher when the colony is under stress.

The first such vaccine, developed by biotechnology company Dalan Animal Health, gives hope of a new weapon against diseases that routinely ravage colonies relied upon for food pollination.

The vaccine technology exposes queen bees to inactive (ie, "dead") bacteria, which enables the larvae hatched in the hive to resist infection.

Worker bees consume the vaccine with the queen candy, which is then digested and transferred to the glands that produce the royal jelly. Worker bees then feed the royal jelly containing the vaccine to the queen bee.

The queen digests the royal jelly and the vaccine is transferred to her ovaries. She is then released into the hive. The vaccine gets transferred to the developing eggs.

The immune priming showed no negative impact on queen fitness in tests, the company claimed. Tests also showed no negative impact on honey, it said.

About Bees

Bees are winged insects known for their role

in pollination and producing honey. They are entirely dependent on flowers for food, which consists of pollen and nectar, the latter sometimes modified and stored as honey. There is no doubt that bees and the flowers, as they pollinate, evolved simultaneously.

Significance

As bees go from flower to flower gathering pollen, a small amount is rubbed from their bodies and deposited on the flowers they visit. This loss of pollen is significant, for it often results in the cross-pollination of plants. Commercially bees are valued for honey and wax production.

Together with wild pollinators, bees play a major role in-

- maintaining biodiversity
- supporting forest regeneration
- promoting sustainability
- adaptation to climate change
- improving the quantity and quality of agricultural production.

Threats to the Bees

Honeybee populations are declining sharply, spurred by habitat loss, pesticide use and the climate crisis.

Fewer honeybees mean not just less honey but also less food — honeybees are critical to pollinating up to 95 crops in the US.

Bees and other pollinators, such as butterflies, bats and hummingbirds, are increasingly under threat from human activities. If the current trend continues, nutritious crops, such as fruits, nuts and many vegetable crops will be substituted increasingly by staple crops like rice, corn and potatoes. This will result in an imbalanced diet.

Intensive farming practices, land-use change, mono-cropping, pesticides and higher temperatures associated with climate change all pose problems for bee populations.



SECURITY

What's Inside?

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2. LEOPARD 2 TANK

*COMBATING THE MENACE OF
NARCOTICS CONSUMPTION*

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DEEP FAKES

Pg 84

DEFENCE ACQUISITION COUNCIL

Why in News ?

Defence Acquisition Council approves three acquisition proposals worth Rs 4,276 crore.

About

In the meeting of Defence Acquisition Council (DAC) chaired by Defence Minister Rajnath Singh,

Acceptance of Necessity (AoN) was accorded for three capital acquisition proposals, amounting to Rs 4,276 crore. All the three proposals - two of the Indian Army and one of the Indian Navy - are under the Buy (Indian-IDDMM) category.

'Buy (Indian-IDDMM)' refers to the procurement of products from an Indian vendor that have been indigenously designed, developed and manufactured with a minimum of 50% Indigenous Content (IC) on cost basis of the total contract value.

Approvals for procurement

Amid the ongoing military standoff with China at the Line of Actual Control in eastern Ladakh, India is planning to procure the **Very Short Range Air Defence System** or VSHORAD (IR Homing) missile system, which is being designed and developed by the Defence Research and Development Organisation (DRDO).

The DAC also approved procurement of the **HELINA Anti-Tank Guided Missiles**, launchers

Associated support equipment for the indigenous **Advanced Light Helicopters (ALH)** with the Army and

The Brahmos Launcher and Fire Control System (FCS) for the Shivalik class of ships

Next Generation Missile Vessels (NGMVs) for the Navy.

About Defence Acquisition Council

The Defence Acquisition Council (DAC) was formed after recommendations made by the Group of Ministers on 'Reforming the National Security System' in 2001, post-Kargil war.

DAC is the highest decision-making body in the Defence Ministry for deciding on new policies and capital acquisitions for the three services – Army, Navy and Air Force, and the Indian Coast Guard.

The Defence Acquisition Council is headed by the Defence Minister. The decision of Raksha Mantri on DAC deliberations flows down from implementation to Defence Procurement Board, Defence Production Board and Defence R&D Board.

DAC Composition

The composition of the DAC is as follows.

Defence Minister: Chairperson

Minister of State for Defence: Member

Chief of Army Staff: Member

Chief of Air Staff: Member

Chief of Naval Staff: Member

Defence Secretary: Member

Secretary Defence Production: Member

Secretary Defence R&D: Member

Chief of Integrated Defence: Staff Member Secretary

Director General Acquisition: Member

Chief of Integrated Staff Committees HQ IDS: Member

DAC Functions

Accord approval for AoN (Acceptance of Necessity) for Capital Acquisition Proposals.

Categorising the acquisition proposals into 'Buy, Buy & Make , & Make'.

'Buy' Projects (outright purchase)

'Buy and Make' projects (purchase followed by licensed production/indigenous development)

'Make' Projects (indigenous production and

R&D)

In-principle approval of 15 Year Long-Term Integrated Perspective Plan (LTPP) for Defence Forces.

Monitor the progress of major projects on feedback from the Defence Procurement Board.

LEOPARD 2 TANK

The Leopard 2 is one of the world's leading battle tanks, used by the German Army for decades and by the militaries of more than a dozen other European nations, as well as by the armies of countries as far apart as Canada and Indonesia.

It has seen service in conflicts in Afghanistan, Kosovo and Syria.

The tank, which is powered by a diesel engine, features night-vision equipment and a laser range finder that can measure distance to an object, enabling it to better aim at a moving target while traveling over rough terrain.

There are multiple iterations of the Leopard 2 with different features and designs.

Until now, both Ukraine and Russia have used Soviet-era tanks in battle, and the Leopards would

offer a big step forward in capability.

Ukraine's government has been calling for tanks on top of earlier packages of military aid from allies in the United States and Europe that included aircraft, air defense systems to protect against Russian missile and drone attacks and longer-range artillery.

Supplies of the Leopard 2 would help offset Russia's superiority in artillery firepower, which aided Moscow in seizing two cities in eastern Ukraine's Luhansk province over the summer.

They could be of particular value as the war approaches its second year and Ukraine looks to reclaim lost territory and expects a Russian spring offensive.

COMBATING THE MENACE OF NARCOTICS CONSUMPTION

Context

The UN's World Drug Report 2022 (WDR) stated that in 2020, one in every 18 people an astounding 284 million people had used a drug in the past 12 months.

The report also revealed that cocaine manufacturing reached a record high in 2020, so did its trafficking.

In the last fiscal DRI seized 3,463 kg of heroin (including the 2,988 kg seized at Mundra port), 833 kg of gold and 321 kg of cocaine, among other contraband. Apart from seizures in the border, narcotics and psychotropic substances were seized inside the country as well.

Per latest data published by National Crime Records Bureau, 1,052 kg of heroin was seized in 2021, a staggering increase from 343 kg and 137 kg in 2020 and 2019 respectively. The bulk of the seizure was from Kerala, Punjab and Rajasthan.

What are the Drugs used predominantly?

Drugs such as Acetic Anhydride, ATS, cocaine, CBCS, ephedrine, ganja, hashish, LSD, MDMA, mephedrone were also seized. Abuse of tobacco, alcohol, and illicit drugs costs the nation \$740 billion annually in crime, lost work productivity and

health. Out of this, \$11 billion goes in healthcare and \$192 billion gets drained due to the illicit use of drugs.

Vulnerable borders

India's 15,106.7 km land border and 7516.6 km coastline makes it vulnerable to narcotics smuggling. The North-East States that share borders with Bangladesh, Nepal, Myanmar, China, and Bhutan are the hot-spots for drug smuggling.

The location of India with the 'golden crescent' on one side and the 'golden triangle' on the other makes it all the more vulnerable to drug smuggling. Additional challenges are "porous" borders, insufficient enforcement apparatus, and a perceived lack of coordination among different agencies although a Narco Coordination Centre (NCORD) has been in operation since 2016 to have effective coordination among various Ministries, Departments, Central and States law enforcement agencies.

Apart from the role of enforcement agencies, it is necessary to tackle the menace of narcotics on the social and societal front. Given the addictive nature, youth are particularly susceptible to fall prey to drugs and concerted effort is needed tackle the issue not only at the borders but also internally.

Way Ahead

Firstly, there is an urgent need to counter this internal demand. Given the huge success of campaigns like Swachh Bharat, Beti Padhao, Beti Bachao etc, a campaign that leverages behavioural economics to nudge and inform people of the menace of drugs should be initiated in the form of a Jan Andolan.

Secondly, drug and alcohol addiction centres should be supported and non-stigmatised, leveraging the support of CSR initiatives of corporates

Thirdly, there should be greater coordination between Customs and other enforcement

Fourthly, even RWAs of housing societies should be mandated to incorporate suitable bye-laws

Fifthly, a need for capacity enhancement in the border areas is imperative for effectively balancing the role of Customs in intercepting narcotics and facilitating genuine trade. Sixthly, dedicated further capacity building of canine squads in Customs along with leveraging technology to improve detection can be considered. In the fight against illegal drugs, it may be time to instill a strong sense of fear, in both the smugglers/peddlers and the users of drugs.

DEEP FAKES

Context

The lack of proper regulations and oversight may lead to misuse of Artificial Intelligence (AI) by individuals, firms and even non-state actors. The legal ambiguity, coupled with a lack of accountability and no regulation can be disastrous at times and calls for regulation of Artificial Intelligence (AI) in India, specifically 'Deepfakes' which is an application of AI.

What are Deep Fakes ?

Deep Fakes are digital media - video, audio, and images edited and manipulated using Artificial Intelligence to create hyper-realistic digital falsification. Deepfake techniques can be used to synthesize faces, replace facial expressions, synthesize voices, and generate news. Although the technology itself has very wide usage, in recent times its misuse has increased severely.

e.g. Deepfakes can be used to damage reputation, fabricate evidence, defraud the public, and undermine trust in democratic institutions.

Uses of Deep Fakes

Benefits in certain areas, such as accessibility, education, film production, criminal forensics, and artistic expression.

Voice-cloning deepfakes

can restore people's voices when they lose them to disease.

Deepfake videos can enliven galleries and museums.

How does Deepfake technology work?

Deepfake techniques rely on a deep learning technique called autoencoder, which is a type of Artificial Neural Network (ANN) which contains an encoder and a decoder.

The input data is first decomposed into an encoded representation then these encoded representations are reconstructed into new images which are close to input images.

Deepfake software works by combining several

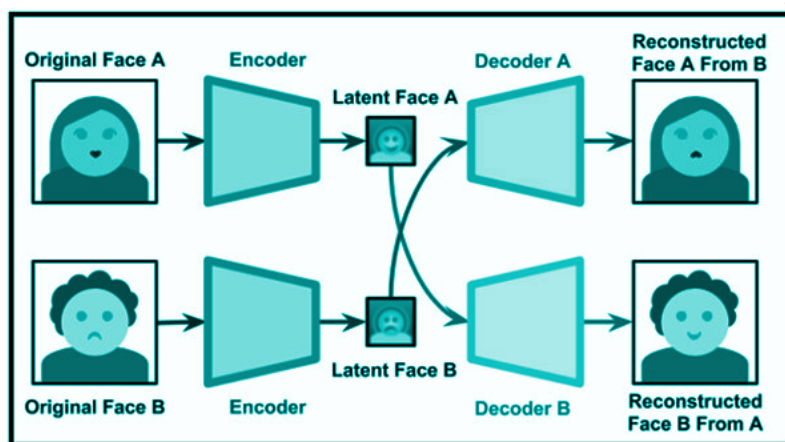
deepfake videos can be used to spread misinformation and propaganda. They seriously compromise the public's ability to distinguish between fact and fiction.

Defamation using elicited contents

Deepfakes Can depict someone in a compromising and embarrassing situation. For instance, deepfake pornographic material of celebrities not only amounts to an invasion of privacy, but also to harassment.

Financial fraud

Deepfakes have been used for financial fraud, intimidation or blackmailing people in recent times. Scammers recently



autoencoders, one for the original face and one for the new face.

Issues with deep fakes

Spread misinformation and propaganda

Since they are compelling,

used AI-powered software to deceive the CEO of a U.K. energy company into thinking he was speaking with the CEO of the German parent company over the phone. As a result, the CEO transferred a large sum of money (€2,20,000) to what he

thought was a supplier.

Threats to National Security of nations

Deepfakes can be used to influence elections at a large scale

Recently, Taiwan's cabinet approved amendments to election laws to punish the sharing of deepfake videos or images.

Taiwan is becoming increasingly concerned that China is spreading false information to influence public opinion and manipulate election outcomes, and this concern has led to these amendments.

This could also happen in India's elections too.

Use in Espionage

Deepfakes can also be used to carry out espionage activities.

Doctored videos can be used to blackmail government and defense officials into divulging state secrets.

For instance, in March 2022, Ukrainian President Volodymyr Zelensky revealed that a video posted on social media in which he appeared to be instructing Ukrainian soldiers to surrender to Russian forces was actually a deepfake.

Production of hateful and inflammatory material

In India, deepfakes could be used to produce inflammatory material, such as videos purporting to show the armed forces or the police

committing 'crimes' in areas with conflict.

These deepfakes could be used to radicalize populations, recruit terrorists, or incite violence.

Misuse by nonstate actors

Deepfakes can be used by non-state actors, such as insurgent groups and terrorist organizations, to show their adversaries as making inflammatory speeches or engaging in provocative actions to stir anti-state sentiments among people.

Leading to the 'Liar's Dividend'

Another concern from deepfakes is the liar's dividend; an undesirable truth is dismissed as deepfake or fake news. The mere existence of deepfakes gives more credibility to denials. Leaders may weaponize deepfakes and use fake news and alternative-facts narrative to dismiss an actual piece of media and truth.

Existing Legal safeguards

Currently, very few provisions under the Indian Penal Code (defamation) and the Information Technology Act, 2000 (punish sexually explicit material) can be potentially invoked to deal with the malicious use of deepfakes.

Section 500 of the IPC provides punishment for defamation. Sections 67 and 67A of the Information Technology Act punish sexually explicit material in explicit

form.

The Representation of the People Act, 1951, includes provisions prohibiting the creation or distribution of false or misleading information about candidates or political parties during an election period.

The Election Commission of India has set rules that require registered political parties and candidates to get pre-approval for all political advertisements on electronic media, including TV and social media sites, to help ensure their accuracy and fairness.

All of the aforementioned are insufficient to adequately address the various issues that have arisen due to AI algorithms, like the potential threats posed by deepfake content.

Possible Solutions to counter menace of deep fakes

Media literacy efforts must be enhanced to cultivate a discerning public. Media literacy for consumers is the most effective tool to combat disinformation and deepfakes.

We also need meaningful regulations with a collaborative discussion with the technology industry, civil society, and policymakers to develop legislative solutions to disincentivizing the creation and distribution of malicious deepfakes.

Social media platforms are taking cognizance of the

deepfake issue, and almost all of them have some policy or acceptable terms of use for deepfakes. We also need easy-to-use and accessible technology solutions to detect deepfakes, authenticate media, and amplify authoritative sources.

Way ahead

Enact a separate legislation for AI

The Union government

should introduce separate legislation regulating the nefarious use of deepfakes and the broader subject of AI.

Legislation should not hamper innovation in AI, but it should recognize that deepfake technology may be used in the commission of criminal acts and should provide provisions to address the use of deepfakes in these cases.

The proposed Digital India Bill can also address this issue.

Conclusion

To counter the menace of deepfakes, we all must take the responsibility to be critical consumers of media on the Internet, think and pause before we share on social media, and be part of the solution to this 'infodemic'.



HISTORY



ART & CULTURE



What's Inside?

1. UNESCO LAUNCHES LIST DOCUMENTING 50 ICONIC INDIAN HERITAGE TEXTILES
2. 100 YEARS OF SAKA PANJA SAHIB
3. MAHAKALESHWAR TEMPLE
4. HATTI COMMUNITY
5. NATIONAL MARITIME HERITAGE COMPLEX AT LOTHAL
6. MIYA MUSEUM

SAGOL KANGJEI

Why in news?

Union Home minister, Amit Shah inaugurated a 122-foot-tall statue of a polo player astride a Manipur Pony in Imphal

About

Sagol Kangjei

Polo can be traced to origins in Manipur state c. 3100 BC, when it was played as Sagol Kangjei.

The game of polo is said to have originated in ancient Persia around 5th century BC and passed on to other parts of Asia including the Indian subcontinent over the years. However, the beginnings of Polo in the modern age and its origins in India can be traced back to the north eastern state of Manipur.

It's steeped so deep into the culture and folklore of Manipur that sequences in festivals are dedicated to the game – one of the most prominent examples would be the Lai Haraoba Festival in which there is a sequence dealing with the search of bride (Lai Nupi Thiba) on the part of Maibi (Priestess) with the Polo stick in hand.

Manipuri Pony

The Manipuri Pony is a traditional **Indian breed of small horse** or pony from Assam and

Manipur in north-eastern India.

It appears both in the history and the mythology of Manipur, and was used for warfare and polo. It is believed to have been the polo pony in use in Assam in the mid-nineteenth century when British tea planters first saw polo being played, and the height limits set for polo ponies were based on ponies of this breed.

Polo was introduced into the area of Manipur state as early as the seventh century, and Manipuri ponies were one of the first breeds used in the game. The British learned of polo during the nineteenth century while watching it played on Manipuri ponies in India.

The 17th Quinquennial Livestock Census 2003 had recorded 1,898 Manipur Ponies; the number fell to 1,101 in the 19th Quinquennial Livestock Census in 2012.

Manipuri ponies are often also used to play sagol kangjei

The Manipur Pony is one of five recognised equine breeds of India, and has a powerful cultural significance for Manipuri society. The Marjing Polo Complex has been developed as a way to conserve the Manipur Pony.

SANSAD KHEL MAHAKUMBH 2022-23

Why in the News?

The Prime Minister of India inaugurated the second phase of Saansad Khel Mahakumbh 2022-23.

About

The Khel Mahakumbh is a novel initiative that provides an opportunity and a platform for the youth of District Basti and neighbouring areas to showcase their sporting talent and motivates them to take sport as a career option.

Saansad Khel Mahakumbh has been organised in Basti district by Shri Harish Dwivedi, Member

of Parliament from Basti since 2021.

The Khel Mahakumbh organises various competitions in both indoor and outdoor sports like wrestling, kabaddi, kho kho, basketball, football, hockey, volleyball, handball, chess, carrom, badminton, table tennis etc.

Apart from these, competitions in essay writing, painting, rangoli making etc are also organised during the Khel Mahakumbh.

Significance

Such events will give India's longstanding sporting supremacy a new lease on life. It also

endeavours to inculcate the spirit of discipline, teamwork, healthy competition, self-confidence, and nationalism among the youth of the region.

Over 200 Members of Parliament have set up similar Khel Mahakumbhs in their districts. The Khel Mahakumbh is a creative idea that offers a

chance and a stage for the sporting ability to be showcased and inspires people to pursue sport as a vocation.

The Sports Authority of India is selecting talented athletes from these competitions for additional training.

PILGRIMAGE REJUVENATION AND SPIRITUAL HERITAGE AUGMENTATION DRIVE (PRASHAD)

Why in the News?

The citizens' committee to save Chamundi Hills and its environment has resolved to press for clearance from the heritage committee before the implementation of development works at the hilltop under Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASHAD).

About PRASHAD

The 'National Mission on Pilgrimage Rejuvenation and Spiritual Augmentation Drive' (PRASAD) was launched by the Ministry of Tourism in the year 2014-15 with the objective of holistic development of identified pilgrimage destinations.

The name of the scheme was changed from PRASAD to "National Mission on Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASHAD)" in October 2017.

After the discontinuation of the HRIDAY scheme of the Ministry of Housing and Urban Development, the development of Heritage destinations was included in the PRASAD Scheme, changing it to PRASHAD.

Under the PRASHAD Scheme, several religious cities/sites in have been identified for development such as Amaravati and Srisailem (Andhra Pradesh), Kamakhya (Assam), Parasuram Kund (Lohit District, Arunachal Pradesh), Patna and Gaya (Bihar),

Implementation Agency:

The projects identified under this scheme shall be implemented through the identified agencies by the respective State/ Union Territory Government.

Funding Mechanism:

The Central Government provides 100% funding for the project components undertaken for public funding.

This scheme seeks to leverage the voluntary funding available for Corporate Social Responsibility (CSR) and the Public-Private Partnership (PPP) for improved sustainability of the projects under this scheme.

About Chamundi Hills:

It is located in the city of Mysore, Karnataka.

The average elevation is 1,060 meters.

The famous Sri Chamundeshwari Temple dedicated to the Hindu goddess Chamundeshwari is situated on top of Chamundi hills.

In the earlier days, the Hill was identified as 'Mahabaladri' in honour of God Shiva who resides in the 'Mahabaleswara Temple'. This is the oldest temple on the hills.

These hills have been mentioned in the ancient Hindu scriptures such as 'Skanda Purana'.

Sri Chamundeshwari Temple

It is dedicated to the Goddess Chamundeshwari (Chamundi), deity of the Mysore Royal Family.

This temple is about 1000 steps from the foot of the Chamundi hills.

It is built in the Dravidian style of temple architecture.

The temple has a **quadrangular structure**.

It has an impressive seven-tier tower called 'gopuram' or 'gopura' and an equally imposing

entrance which is known as 'dwara'.

MUGHAL GARDEN-AMRIT UDYAN

The Mughal Gardens at Rashtrapati Bhavan were renamed 'Amrit Udyan' in keeping with the theme of Azadi ka Amrit Mahotsav.

Spread over 15 acres, the Mughal Gardens (now erstwhile) draw inspiration from the Mughal Gardens of Jammu & Kashmir, the gardens around the Taj Mahal and miniature paintings of India and Persia, as per the Rashtrapati Bhavan website.

Edwin Lutyens had finalised the designs of the Mughal Gardens in 1917, but it was only during the year 1928-1929 that plantings were done.

His collaborator for the gardens was Director of Horticulture, William Mustoe. Like the building of Rashtrapati Bhavan has two different styles of architecture, Indian and western, similarly, Lutyens brought together two different horticulture traditions together for the gardens — the Mughal style and the English flower garden.

Mughal canals, terraces and flowering shrubs are beautifully blended with European flowerbeds, lawns and private hedges.

There are three gardens in the Rashtrapati Bhavan inspired by Mughal and Persian gardens.

The one inspired from the garden in Srinagar is known as Mughal Garden. But the gardens were never officially named Mughal Gardens, they came to be known so owing to the style of architecture.

The style was influenced by the Persian

gardens, particularly the charbagh structure, which is intended to create a representation of harmony with the elements of nature.

Typical features include pools, fountains and canals inside the gardens. Afghanistan, Bangladesh, India, and Pakistan have a number of Mughal gardens. In fact, Babur had described his favourite type of garden as a charbagh.

Other gardens in Rashtrapati Bhavan

The Rashtrapati Bhavan houses a variety of gardens. Originally, they included East Lawn, Central Lawn, Long Garden and Circular Garden. However, during the term of former Presidents APJ Abdul Kalam and Ram Nath Kovind, more gardens were developed – such as Herbal-I, Herbal-II, Tactile Garden, Bonsai Garden and Arogya Vanam.

Over time, Presidents have contributed to the gardens in their own ways for social or developmental works. C Rajagopalachari, the first Indian resident of Rashtrapati Bhavan, used a portion to cultivate wheat, President APJ Abdul Kalam contributed to the making of Herbal Gardens, Tactile Gardens for the visually handicapped, and others.

The herbal garden, bonsai garden, central lawn, long garden and circular garden are now collectively called Amrit Udyan.

GANGASAGAR MELA

India is blessed with diverse cultures and each region has its own traditions and festivals they celebrate with pride and joy.

Gangasagar mela is one such festival of India celebrated from 14th – 15th January every year attracts thousands of pilgrimage from all around the world.

The globally acclaimed spiritual and cultural event of the nation known as Gangasagar Mela 2023

or Ganga Sagar Yatra or Ganga Snan is gearing up to welcome you in January 2023.

The hosting state of West Bengal receives this fair with great pride and with devout. Held during the winter time of the year, it finds thousands of devotees coming over to seek righteousness at Sagar Island's southern tip in West Bengal.

Gangasagar mela 2023 is an annual gathering of Hindu pilgrims who look forward to this day.

Ganga Sagar mela happens every year during Makar Sankranti, This year 2023 too it is on a day before Makar Sankranti day which is from 14th January 2023 to 15th January 2023.

The preparations begin on 14th January and end on 15th January 2023. The pilgrimage takes a dip in the holy water of Ganga in the morning while worshipping Lord Surya.

The carnival is held at Segar's Island which is situated on the tip of the Ganges delta at the

top of the Bay of Bengal.

The Gangasagar Fair 2023

The Mela is celebrated with solemnity. Here on this day, there are thousands of pilgrims across India coming and getting one with the mela.

Foreigners too find it fascinating to witness a fair such as this. There is thereby a different population also who seek to find solace here.

WHITE TUFTED ROYAL BUTTERFLY

A team of butterfly observers and researchers have found White Tufted Royal Butterfly, a rare butterfly species at Kalliyad in Kannur.

According to researcher and butterfly observer V.C. Balakrishnan, the butterfly is protected under Schedule 2 of the Wildlife Protection Act. The species had been spotted in Agasthyakoodam in 2017 and the Shendurney Wildlife Sanctuary in 2018.

The finding of the butterfly indicated the rich fauna and flora of Kalliyad the place.

Mr. Balakrishnan leads a group named 'Walk with VC', which has over 100 members.

The team observes various species to make a checklist, document, and study biodiversity.

He said White Tufted Royal Butterfly was a rare species, and it was photographed by A.V. Unnikrishnan, a retired teacher.

However, the species was identified by another member, P.K. Girish Mohan, who collected the egg and reared the butterfly.

The wingspan of the butterfly is just 32-40 mm. Its larvae feed on *Scurrula parasitica*, a plant belonging to the *Loranthaceae* family.

Mr. Mohan said there were eight species of the butterfly. While two are common, the others are rare.

"Since we were able to get the egg, the life cycle of the butterfly could be documented.

It was only photographed in other parts of Kerala, and there had not been much research on its life cycle.

There were many unregulated laterite and granite quarries operating in Kalliyad. The survival of such rare species is under severe threat, and steps should be taken to protect the hills.

GANGA CRUISE

Prime Minister launched Ganga cruise from Varanasi .

The 51-day cruise, being pitched as the world's longest river cruise, is expected to reach its final destination — Dibrugarh in Assam — on March 1

The route Set to sail from Varanasi, the cruise ship, MV Ganga Vilas, will cover 3,200 km over 51 days, crossing 27 river systems and several states before ending its journey at Dibrugarh.

The voyage is packed with visits to 50 tourist spots, including World Heritage spots, national parks, river ghats, and major cities like Patna in Bihar, Sahibganj in Jharkhand, Kolkata in West Bengal, Dhaka in Bangladesh and Guwahati in Assam.

It will make pit-stops to cover the famous Ganga Arti in Varanasi, the Buddhist site of Sarnath; and even Majuli, the largest river island in Assam. The travellers will also visit the Bihar

School Of Yoga and Vikramshila University.

The cruise will traverse through the Sunderbans in the Bay of Bengal delta, as well as the Kaziranga National Park.

The Ministry of Ports, Shipping and Waterways is the coordinator of this ship tourism project. While speaking on the safety of the tourists travelling through the international borders of India and Bangladesh.

Even as the tourists boarded the cruise on January 10, they have spent the first two days in local sightseeing.

The cruise liner

The vessel has three decks, 18 suites on board with a capacity of 36 tourists, with all the luxury amenities.

The maiden voyage has 32 tourists from Switzerland signing up for the entire length of the journey. It will cost approximately Rs 25,000 per person per day.

While it will be managed by private operators, the Inland Waterways Authority of India (IWAI), under the Ministry of Shipping, Ports and Waterways (MoPSW), has supported the project.

SKILL-DEVELOPMENT TRAINING TO THARU PEOPLE

Forest officials of the Katarniaghat division work for the financial inclusion of the Tharu groups that live near the Katarniaghat Wildlife Sanctuary (KWS) and are much affected by human-wildlife conflicts.

About Tharu people

They are an ethnic group indigenous to the Terai region of the Himalayan foothills, located in southern Nepal and in the state of Uttar Pradesh in India.

Tharu in Nepal officially numbered about 1.5 million and those in India about 170,000.

They speak various dialects of Tharu, a language of the Indo-Aryan subgroup of the Indo-Iranian group of the Indo-European family, and they are largely Indian in culture.

Most Tharu people practice agriculture, raise cattle, hunt, fish and collect forest products.

Although they are Hindu, the Tharu use their own traditional ritual specialists in addition to the Hindu Brahman priests.

Each Tharu village is governed by a council and a headman.

Katarniaghat Wildlife Sanctuary (KWS)

It is situated in the Upper Gangetic plain falling in the Terai of Bahraich district of Uttar Pradesh.

It is part of Dudhwa Tiger Reserve Lakhimpur kheri.

The Katarniya Ghat Forest provides strategic connectivity between the tiger habitats of India and Nepal.

Flora: The sanctuary has a mosaic of Sal and Teak forests, lush grasslands, numerous swamps and wetlands.

Fauna: It is home to a number of endangered species including gharial, tiger, rhino, Gangetic dolphin, Swamp deer, Hispid hare, Bengal florican, the White-backed and Long-billed vultures.

DUDHWA TIGER RESERVE AND SURROUNDING FORESTS



Note: Map is for visualisation, Not to scale

**WE ARE EITHER GOING TO HAVE A FUTURE WHERE WOMEN
LEAD THE WAY TO MAKE PEACE OR WE ARE NOT GOING TO
HAVE A HUMAN FUTURE AT ALL**



**“
We are either going to have
a future where women lead
the way to make peace with
the Earth or we are not
going to have a human
future at all.
”**

- Vandana Shiva

When the power of
love overcomes the
love of power
The world will know
the peace -
JIMI HENDRIX

In the life and culture of an elephant, females are central and dominate their society. Older female elephants, sisters, their adult daughters, and all their children live together in herds led by a matriarch elephant which serves as their chief protector. The matriarch elephants have a great sense of empathy, calmness, togetherness, determination, and of course a great memory. During times of drought, matriarch elephant can lead their herd hundreds of miles to drink water which shows the most beautiful maternal bonds in the animal kingdom.

In this fashion, women can lead and direct well because of their kind heart, caring nature the intellectual mindset and she acts as a weighing scale between personal and professional life. Hence, women are considered to be the captain of the ship to reach the dock for a safe and peaceful landing.

However human race is dominated by patriarchy and masculinity which paves way for violence and struggle. The conditions of women in society are diagonally different. Women are considered as those who have the sole responsibility of household chores, giving birth to new lives, and following the instructions of the male members of society. The rise of old romantic paternalism has confined women to cages, increasing crime rates, etc.

So, women have gradually lost all their power and are considered as second-class citizens. A feminist writer SIMONE DE BEAUVOIR in her book, "second sex" says, women have always been considered as the second sex.

In the context of India, patriarchy is deeply rooted in the minds of society. the efforts had been started in the pre-independence era by various social reformers like Raja Ram Mohan Roy, Ishvar Chandra

Vidhyasagar, Jyotiba Phule, and Periyar who attacked social evils like child marriage, female infanticide, female illiteracy, economic emancipation, and dowry harassment. Legitimizing their reforms, enactment of numerous acts and policies has brought women's empowerment and improved their quality of life via Dowry Act 1962, Equal Remuneration Act 1976, Right to Education Act, and such laws for women's empowerment. However, the irony is that even women's issues are decided by men.

Are laws a prerequisite for women's empowerment?

Definitely not, reservation of 33% of seats was provided to women in parliament so that women-related issues can be solved in the policy-making process. Political rights are key to ensuring their socio-economic rights. Unfortunately, this is not clearly visible in Indian society which slipped down India into 140th rank out of 156 countries in the Global Gender index which depicts a very gloomy picture on gender parity.

This patriarchal notion designates male as the breadwinner of society who migrates out for better jobs and as a result low skilled

low paid jobs are now being filled by Women leading to greater Female Labour Force participation which lacks quality and livelihood security. The low economic contribution in rural India witnesses the feminization of agriculture and the feminization of poverty. Thus, India is in the picture of both economic and physical subjugation.

EMPOWERING WOMEN IS KEY TO BUILDING A FUTURE WE WANT

-AMARTYA SEN

To empower women, governments are taking efforts to address the problem of gender-based discrimination faced by women in different spheres. The consciousness that has come into society shows the success rates. The success of "Beti Bachao, Beti Padhao" campaign increases the female population and the health of women has also improved considerably. For the first time, savings accounts have been opened for the brighter future of crores of daughters under the Sukanya Samriddhi Yojana. The Swachh Bharat Abhiyan has increased the dignity of women and provided them with a safer environment. To encourage women entrepreneurs Self Help Groups and Mudra

Yojana are functioning in the country. The government has also ensured that women are not restricted to participate in any field of work.

Through this, women have started proving their caliber in all fields, they are considered as highly ambitious. Women like Saalumara Thimmakka, an Indian Environmentalist, Mithali Raj a former captain of India's Women's National Cricket Team, Kiran Mazumdar Shaw, one of India's richest entrepreneurs and Draupadi Murmu the first female president of India have shown their capabilities to empower the nation.

The idea of empowered women is not merely pertinent in national governance but

also brings a colorful picture of humanity's future. Global cooperation needs to be forged for the upliftment of women and to include them in decision-making roles. Recently, United Nations women have launched four-year projects in Sri Lanka and gave resolutions for women's peacebuilding and developmental efforts.

These efforts ensure their security, employment opportunities, and entrepreneurship skills and enable 730 women to build resilient livelihoods. These peace-making projects were laid down to strengthen the governance frameworks but also promote peace. To Shine like stars, light is needed which can emanate from the cooperation and coordination

of men and women which empowers women to excel in their roles.

The World can be likened to a compass. Here, women need to be kept at the center point and men should act as a needle. For example; Women as legislators and men as executives. Both are needed to direct the democratic world in a better way. The direction of the World is therefore guided by the compass hands which should work in Unison. One is neither insignificant nor better than the other. Anything that can overturn the efforts to achieve true Gender Equality can have disastrous consequences for the World.

By,

V.Suganya

THE HOW OF HAPPINESS

This book provides an overview of what we know about how to increase happiness through our thoughts, feelings, and behavior. It covers topics such as mindfulness meditation, gratitude exercises, self-compassion practices, and more.

Excerpts from the book;

We All Want Happiness... But We're Looking in the Wrong Places:

Trying to become happier by changing external circumstances—even if they were not terrible to begin with—is unlikely to deliver great results.

Three Happiness Myths;

Myth No. 1: Happiness must be found. Happiness isn't something you find; it's something you create for yourself.

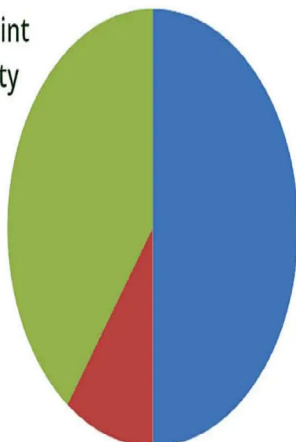
Myth No. 2: Happiness lies in changing our circumstances. Changing your circumstances doesn't matter, as far as happiness is concerned. If you want to feel happier, work on what you do and how you think.

Myth No. 3: You either have it or you don't. Genes make a difference, but there's still plenty you can do to overcome your genetic programming.

The Pie-Chart Theory of Happiness

Your level of happiness is determined by your genetic set-point (accounting for 50% of the variance in happiness), external circumstances (10%), and intentional activity (40%).

50% = Happiness Set Point
40% = Intentional Activity
10% = Circumstances



The
Happiness
Pie Chart

THE HOW OF HAPPINESS

A SCIENTIFIC APPROACH
TO GETTING THE LIFE YOU WANT



*This much
happiness—up
to 40%—is
within your
power to change*

SONJA LYUBOMIRSKY

Happiness Takes Effort

So, if you're serious about becoming happier, pull up your sleeves, spit in your hands, and get ready to put in the work.

Break the Habits of Overthinking and Rumination

Engage in Healthy Distractions and Maintain a note/log

Three Easy Ways To Boost Your Daily Happiness:

Mindfulness, Savoring, And Flow.

1. Best strategy to break the deadlock of overthinking is mindfulness—the ability

to step back from your thoughts/feelings and watch them from a safe distance in a nonjudgmental and accepting way.

2. Savoring is trying to feel and admire, enjoy, and extend our present positive experiences to the fullest.
3. Flow is a state of deep absorption in an activity, with such intense focus that we lose the sense of time.

Following A Faith Or Religion Can Actually Make Us Happier;

The key here is to follow not just be a member

Expressing Gratitude For Things That You Receive Raises Your Joy.

Those who are routinely grateful are more energetic and optimistic, have better mental and physical health, have better relationships, and are high on happiness.

Lyubomirsky lays down the following twelve interventions to do to increase our happiness:

1. Savoring life's joys
2. Learning to forgive
3. Expressing gratitude

4. Cultivating optimism
5. Nurturing relationships
6. Taking care of your body
7. Committing to your goals
8. Practicing acts of kindness
9. Developing strategies for coping
10. Practicing religion and spirituality
11. Doing more activities that truly engage you
12. Avoiding overthinking and social comparisons

"Happiness is not out there to be found. It is within us."

Can we assess our happiness. is there any measure of happiness? Though it is difficult Sonja also has come with a 4 question assessment to understand your subjective levels of happiness. See the image and test yourself in the link.

*Happy Reading,
Mohan.P*

Subjective Happiness Scale (SHS)

♥ Measures subjective happiness based on self-assessment of four questions. +

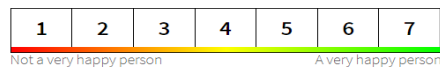
Purpose ▾

Scoring ▾

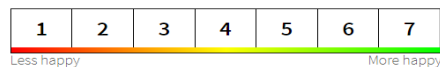
Contents ▾

Instruction: For each of the following statements and/or questions, please select the point on the scale that you feel is most appropriate in describing you.

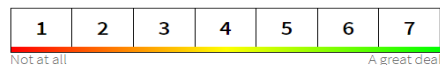
1 In general, I consider myself:



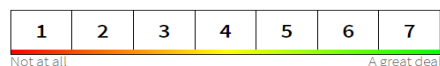
2 Compared with most of my peers, I consider myself:



3 Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?



4 Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?



Subjective Happiness Scale (SHS) Calculator (mdapp.co)

PRACTICE QUESTIONS

1. Headquarters of National Archives of India is located in
 - a) Kolkatta
 - b) Chennai
 - c) New Delhi
 - d) Mumbai
2. Kalasa and Banduri are tributaries of which of the following river?
 - a) Malaprabha
 - b) Mahadayi
 - c) Mandovi
 - d) None of the above
3. Sammakka Saralamma Jatara is a festival celebrated in
 - a) Karnataka
 - b) Telangana
 - c) Odisha
 - d) Jharkhand
4. Vishaka guidelines recently seen in news is related to which of the following?
 - a) Cyber security
 - b) Women safety
 - c) Waste management
 - d) Temple regulation
5. Which one of the following is not the most likely measure the Government / RBI takes to stop the slide of Indian rupee?
 - a) Curbing imports of non-essential goods and promoting exports
 - b) Encouraging Indian borrowers to issue rupee denominated Masala
 - c) Easing conditions relating to external commercial borrowing
 - d) Following an expansionary monetary policy
6. Consider the following statements:
 - 1) Nigeria is the largest producer of millets in the world.
 - 2) India is the largest producer of millets in Asia.Which of the statements given above is/are correct?
 - a) 1 only
 - b) 2 only
 - c) Both 1 and 2
 - d) Neither 1 nor 2

7. SAIME initiative recently seen in news is related to?

- a) Mangrove conservation
- b) Space asteroid exploration
- c) Marine conservation
- d) Emission control guidelines

8. With reference to National hydrology project consider the following statements

- 1) National Hydrology Project (NHP), a Central Sector Scheme, is being implemented by National Ganga council
- 2) Under this project, Central and state agencies responsible for surface water and/or ground water planning and management, including river basin Organisations

Select the correct answer

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

9. National Ganga river basin authority was constituted under which of the following act

- a) Interstate disputes act 1956
- b) River board act 1956

c) Ganga river act 1986

d) Environment protection act 1986

10. Recently in which of the following state NTPC starts India's first green hydrogen blending operation in PNG network

- a) Gujarat
- b) Andhra Pradesh
- c) Rajasthan
- d) Karnataka

11. With reference to Asia pacific postal union consider the following statements

- 1) Asian Pacific Postal Union (APPU) is an intergovernmental organization of 32-member countries of the Asian-Pacific region.
- 2) Asian Pacific Postal Union (APPU) having its Headquarters in Bangkok, Thailand

Select the correct answer

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

12. Consider the following statements:

- 1) Recently the 108th Indian Science Congress was held with the theme of “Science & Technology for Sustainable Development & Women Empowerment”.
- 2) India was placed in the 40th position in the Global Innovation Index 2022 published by WEF.

Which of the above are correct statements?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

13. ‘Comprehensive Migration and Mobility Partnership Agreement’ was signed recently between India and

- a) Canada
- b) Austria
- c) UAE
- d) Australia

14. The term ‘Virovore’ is sometimes mentioned in news related to

- a) Organism that eats viruses.
- b) Carcinogenic pesticide banned by UN FPO.
- c) Neurogenic disorder that affects Russian and Ukrainian soldiers.

d) None of the above

15. ‘SAIME Initiative’ was seen in the news recently. It is related to

- a) Encouraging young scientists towards innovation
- b) Spreading awareness regarding green hydrogen
- c) Shrimp cultivation
- d) Promoting organic farming

16. SIGHT programme is recently seen in news. It is related to

- a) Eye vision
- b) Infrared satellites
- c) Green hydrogen
- d) None of the above

17. Clinkerisation is a process associated with

- a) Iron production
- b) Cement Production
- c) Uranium mining
- d) Oil refineries

18. Consider the following statements regarding Prasar Bharathi

- 1) It is a statutory autonomous body set up by an Act of Parliament

- 2) The Act grants autonomy to All India Radio and to Doordarshan, both of which were previously under government control

Which of the above statements are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

19. Consider the following statements about National Geospatial policy, 2022:

- 1) It aims to set up high resolution topographical survey and mapping by 2050.
- 2) IMD under Ministry of Earth Sciences is the nodal agency for implementation.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

20. Irani cup, Duleep trophy, Ranji trophy are associated with which of the following sports?

- a) Hockey

- b) Kabbadi
- c) Cricket
- d) Volley ball

21. Consider the following statements:

The effect of devaluation of a currency is that it necessarily

- 1) improves the competitiveness of the domestic exports in the foreign markets
- 2) increases the foreign value of domestic currency
- 3) improves the trade balance

Which of the above statements is/are correct?

- a) 1 only
- b) 1 and 2
- c) 3 only
- d) 2 and 3

22. 'Abyei', recently seen in news is a

- a) Bordering country of the Mediterranean Sea
- b) Region between Sudan and South Sudan
- c) Island located in the eastern coasts of Australia
- d) None of the above

23. Sagol Kangjei, an ancient traditional form of modern polo, was played in the State of

- a) Manipur
- b) Meghalaya
- c) Mizoram
- d) Nagaland

24. Though coffee and tea both are cultivated on hill slopes, there is some difference between them regarding their cultivation; In this context, consider the following statements:

- 1) Coffee plant requires the hot and humid climate of tropical areas whereas tea can be cultivated in both tropical and subtropical areas.
- 2) Coffee is propagated by seeds but tea is propagated by stem cuttings only.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

25. It is the second deadliest parasitic disease in the world. It is also known as Black Fever or Dumdum Fever. It is a parasitic disease caused by the pro-

tozoa and mainly affects the people living in Africa, Asia and Latin America. Identify the disease.

- a) Nyktalopita
- b) Kala Azar
- c) Yellow Fever
- d) Dengue

26. Consider the following statements about Non Resident Indians (NRIs):

- 1) They are persons who stayed away from India for more than 182 days in a calendar year.
- 2) Central or state government representatives who are living overseas are not considered as NRIs.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

27. Kilauea Volcano recently seen in news is in which ocean?

- a) Atlantic ocean
- b) Mediterranean sea
- c) Pacific ocean
- d) Indian ocean

28. "Climate Action Tracker" which monitors the emission reduction Pledges of different countries is a:

- a) Database created by coalition of research organisations
- b) Wing of 'International Panel of Climate Change'
- c) Committee under "United Nations Framework Convention on Climate Change"
- d) Agency promoted and financed by United Nations Environment Programme and World Bank

29. Which of the following state become the first state in India to enable digital banking in all eligible accounts

- a) Kerala
- b) Tamil Nadu
- c) Karnataka
- d) Maharashtra

30. With reference to blackbuck consider the following statements

- 1) Blackbuck is found throughout the Indian subcontinent
- 2) Black buck is protected under schedule 1 of wildlife protection act 1972

Select the correct answer

- a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

31. With reference to National disaster management authority consider the following statements

- 1) National disaster management authority is headed by Cabinet secretary
- 2) State disaster management authority is headed by chief Secretary of State
- 3) National executive Committee is headed by union Home Secretary

Select the correct answer

a) 1 and 2 only

b) 2 and 3 only

c) 3 only

d) 2 ,1 and 3

32. The criteria for definition of any community as scheduled tribe was laid down by

- a) Rohini committee
- b) Bordoloi committee
- c) Lokur committee
- d) Kelkar committee

33. Consider the following statements re-

garding VSHORADS missile system

- 1) It is designed and developed indigenously by DRDO's Research Centre Imarat
- 2) It is meant to kill low altitude aerial threats at short ranges

Which of the above statement/s is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

34. Which of the following are the causes of cold wave in India

- 1) Lack of cloud cover
- 2) La Nina
- 3) Non monsoonal rainfall

Select the correct answer from the given code

- a) 1 and 2 only
- b) 1 and 3 only
- c) 2 and 3 only
- d) 1, 2 and 3

35. With reference to state finances a state of budgets 2023-2022 consider the following statements

- 1) According to FRBM review committee states debt is recommend-

ed 25 percent of GDP

- 2) The gross fiscal deficit of state is budgeted narrow to 3.4 percent in 2022-23

Select the correct answer

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

36. Varuna 21st edition bilateral naval exercise conducted between India and which of the following country

- a) Germany
- b) France
- c) UK
- d) Australia

37. Consider the following statements regarding Purana Qila

- 1) It was built by Mughal Emperor Humayun
- 2) It was a part of Dinapanah city
- 3) Ain-i-Akbari of Abul Fazal mention that fort was built at site of Indraprastha

Which of the above statements are correct?

- a) 1 and 2 only
- b) 1 and 3 only

- c) 2 and 3 only
- d) 1, 2 and 3

38. Greater Scaup is a

- a) Bird
- b) Reptile
- c) Mammal
- d) Fish

39. Which of the following reports is/are published by World Economic Forum?

- 1) Global Gender Gap Report
- 2) Global Risk Report
- 3) Global Travel and Tourism Report

Select the correct answer using the code given below:

- a) 1 only
- b) 2 only
- c) 1 and 2 only
- d) 1, 2 and 3

40. Consider the following statements about Indian star tortoise:

- 1) They are endemic to the eastern coast of India.
- 2) They are categorized as critically endangered under IUCN Red list.

Which of the statements given above

is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

41. Consider the following statements about Banjaras:

- 1) They are nomadic tribes with trade being their primary occupation.
- 2) They have their roots in Rajasthan, but now spread across many states.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

42. Consider the following statements about River Mahajanga:

- 1) It is close to the trijunction of India, Nepal and Tibet.
- 2) It is a tributary of River Teesta.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only

- c) Both 1 and 2
- d) Neither 1 nor 2

43. Mitra shakti, SLINEX are bilateral military exercises of India with which of the following nations?

- a) Bhutan
- b) Nepal
- c) Srilanka
- d) Malaysia

44. Consider the following statements with respect to Chargesheet and FIR.

- 1) First Information Report (FIR) is defined under Section 173 of the CrPC but 'Chargesheet' has not been defined in either the Indian Penal Code (IPC) or the CrPC.
- 2) Chargesheet is the final report filed towards the end of an investigation whereas an FIR is filed at the 'first' instance' that the police are informed.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

45. With reference to National board for wildlife consider the following statements

- 1) It is statutory body under wildlife protection act 1972
- 2) It replaced the Indian board for wildlife 1952
- 3) Prime minister is the chairman of national board of wildlife

Select the correct answer

- a) 1 only
- b) 3 only
- c) 2 and 3 only
- d) 1, 2 and 3

46. Which of the following sanctuary supports the largest population of Gangetic Gharials in India, and it is also the last known surviving habitat of Gangetic River Dolphin.

- a) Ken
- b) Chambal
- c) Sunderban
- d) Manjira

47. Which of the following is called "Winter Vomiting disease"

- a) Nipah virus
- b) Noro virus

- c) Monkey pox virus
- d) Polio

48. Recently, Charaideo Moidams (pyramids) will be India's nomination for UNESCO's world heritage site status in the cultural category for 2023-24 situated in which of the following state

- a) Assam
- b) Meghalaya
- c) Sikkim
- d) West Bengal

49. Consider the following statements

- 1) Every year, 26th January is celebrated as National law day and 26th November is celebrated as constitutional day
- 2) Constituent assembly was formed under the Cabinet mission plan, 1946.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

50. Consider the following statements

- 1) India has no geothermal power plant set up in the country so far.
- 2) Puga valley in Ladakh is a promising site of geothermal energy.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answers:

1.	C	2.	B	3.	B	4.	B	5.		D	6.	B	7.	A	8.	B	9.	D	10.	A	
11.	C	12.	A	13.	B	14.	A	15.		C	16.	C	17.	B	18.	C	19.	D	20.	C	
21.	A	22.	B	23.	A	24.	A	25.		B	26.	A	27.	C	28.	A	29.	A	30.	C	
31.	C	32.	C	33.	C	34.	D	35.		B	36.	B	37.	D	38.	A	39.	D	40.	D	
41.	C	42.	A	43.	C	44.	B	45.		D	46.	B	47.	B	48.	A	49.	B	50.	C	

FACT SHEET

GENERAL STUDIES – II

POLITY

- ◆ 17th Lok Sabha has 78 women MPs, the highest number in the history of Lok Sabha, but still accounts only for 14% of all Lok Sabha MPs.
- ◆ In 1987, the Law Commission suggested that there should be 50 judges to a million citizens instead of the 10 judges available then. Presently, the Indian Judiciary caters to 1.4 billion people and the ratio is roughly 21 judges to a million.

SOCIAL ISSUES

- ◆ The UN World Happiness Report 2022, by UN Sustainable Development Solutions Network compares citizens' own perceptions of their well-being in 146 countries. India ranks 136 out of 146. Finland has been ranked as the happiest country in the world.

INEQUALITY

- ◆ As per the latest Oxfam Report titled 'Survival of the Richest',
- ◆ Globally, the richest 1% bag nearly twice as much wealth as the rest of the world put together over the past two years.
- ◆ In India, the richest 1% of India now own more than 40% of the country's total wealth, while the bottom half of the population together share just 3% of wealth between 2012 and 2021.
- ◆ Female workers earned only 63% of male workers' earnings.
- ◆ Since the Pandemic, billionaires' wealth has surged more than 100%.
- ◆ World Inequality Report 2022: Findings
- ◆ Men in India capture 82% of labour income, while women earn just 18%.
- ◆ In a country with perfect equality between women and men, the female labour income share would be equal to 50%. But in India it is 18.3% (lower than the average for Asia, which was at 27% in 2019).

HEALTH

- ◆ Around 43% of the world's rivers are contaminated with Active Pharmaceutical Ingredients (API) in concentrations that adversely impact health and biodiversity.
- ◆ According to a recently released report by the American Cancer Society, deaths due to cancer have declined by 33% in the United States since 1991. This has translated into 3.8 million fewer deaths and attributed the success to early detection, lower rates of smoking, and improvements in cancer treatment.

- ✦ By 2040, there will be a 47% increase in cancer cases globally, compared to 2020 levels.
- ✦ According to the 2020 data, Cancer is the 2nd leading cause of death in India. Breast cancer is the most frequently diagnosed cancer. Lung cancer (18%) is the leading cause of death (ICMR Data). 1/9 Indians will develop cancer in their lifetime. Cancer in women is more common.
- ✦ As per a report by UNICEF and Pure Earth (a US-based NGO), half the children in India report high blood lead levels. Lead toxicity results in 4.6 million Disability- Adjusted Life Years and 165,000 deaths annually.
- ✦ In the Global Hunger Index 2022, India ranked 107 out of 121 countries, much behind its South Asia neighbours, with the child wasting rate at 19.3% the highest in the world.

CHILD MORTALITY

Global Scenario:

- ✦ UN Inter-agency Group for Child Mortality Estimation (UN IGME) recently released reports on Child Mortality and Stillbirths.
- ✦ In 2021, approximately 2.3 million children died during the first month of life or about 6,400 babies every day.
- ✦ These deaths constituted nearly 47% of the 5 million under-five deaths in 2021.
- ✦ An estimated 2.1 million children, adolescents and youth aged 5–24 years died in 2021.
- ✦ Globally, the under-five mortality rate was 38 deaths per 1,000 live births in 2021.

In India:

- ✦ As per the UN report, India's share in these child mortalities was estimated at more than 7 lakh under-five deaths; 5.8 lakh infant deaths (death before first birthday); and 4.4 lakh neonatal deaths.
- ✦ The Sample Registration System (SRS), released in September 2022, showed wide inter-state variations in child mortality in India. For every 1,000 live births, the infant mortality rate in Madhya Pradesh was six-fold the rate in Kerala.
- ✦ Children in rural areas in any age subgroup have much higher mortality rates than their urban areas.

POPULATION

- ✦ By 2035, the estimated urban population in India will be 67.5 crores, the second highest in the World behind China, according to the United Nations Habitat's World Cities Report 2022.
- ✦ By 2035, the percentage of the Urban population in India will be 43%.
- ✦ According to the recently released National Family and Health Survey (NFHS) -5 for 2019-20, India has reached a total fertility rate (TFR) of 2.0 as compared to 2.2 in the NFHS-4.

EDUCATION

- ✦ According to the latest All India Survey on Higher Education report by the Ministry of Education (AISHE) for 2019-20, the gross enrolment ratio in higher education for the female population is 27.3%, compared to 26.9% for males. The National Education Policy has set the target of raising this to 50% by 2035.
- ✦ According to the World University Rankings 2023, the Indian Institute of Science has out-ranked all the IITs to rank 155 in the world. There are just nine Indian universities under the Top 500 in the QS World University Rankings.

DIGITAL DIVIDE

- ✦ 'Oxfam India' released "India Inequality Report 2022: Digital Divide"
- ✦ Despite registering a significant (digital) growth rate of 13% in a year, only 31% of the rural population uses the Internet compared to 67% of their urban counterparts.
- ✦ Indian women are 15% less likely to own a mobile phone and 33% less likely to use mobile internet services than men.
- ✦ Women constitute only one-third of internet users in India.
- ✦ In rural India, formal financial services are lowest for ST, followed by SC households and OBC households.
- ✦ In Asia-Pacific, India fares the worst with the widest gender gap of 40%.
- ✦ The digital push driven by the pandemic resulted in India experiencing the largest number of real-time digital transactions in 2021 at 48 billion. However, the likelihood of a digital payment by the richest 60% is four times more than the poorest 40% in India.
- ✦ UN's e-participation index (2022) India ranks 105 out of 193 nations.

GENERAL STUDIES – III

AGRICULTURE

- ✦ According to the Indian Council of Agricultural Research (ICAR), the area under nutri-cereals has drastically reduced from 41 million hectares in the mid-1980s to around 24 million hectares in 2017-18.
- ✦ India is the world's leading vegetable oil buyer which is dependent on imports of sunflower oil (which constitutes 16% of the total edible oil imports).
- ✦ Before the RussiaUkraine crisis, 70% of the sunflower oil imported by India used to come from Ukraine, while 20% came from Russia. After the Ukraine crisis, Russia and Argentina have emerged as major suppliers of sunflower oil to India.

- ◆ India imports palm oil mainly from Indonesia and Malaysia, and a small quantity of crude soft oil, including soyabean oil from Argentina.

ECONOMY

- ◆ Today, the gig economy has the potential to transact over \$250 billion in the volume of work and contribute 1.25% to India's GDP over the long term.
- ◆ As per the latest Economic Survey 2021-22, India has become 3rd largest start-up ecosystem in the world after US and China.
- ◆ The Telecom industry in India is the second largest in the world with a subscriber base of 1.1 billion and 3rd largest sector in terms of FDI inflows.
- ◆ India's gross tax revenues surged 34% in 2021-22, lifting the tax-to-GDP ratio to an at least 23-year high of 11.7% (from 10.3% of previous year).
- ◆ The average annual tobacco tax revenue of India is only ₹537 billion. Whereas, the economic burden and healthcare expenses due to tobacco use and second-hand smoke exposure amounted to approximately ₹2340 billion (or 1.4% of GDP) in the year 2017. The increasing affordability of tobacco poses a threat to the vision of a \$5 trillion economy. Tobacco use causes around 3500 deaths daily in India thereby impacting human capital and GDP growth in a negative way.

ENVIRONMENT

- ◆ According to the biennial India State of Forest Report (ISFR) 2021, India's total forest and tree cover now constitutes 24.6% of the geographical area of the country.
- ◆ India has set a target (including the latest draft NFP 2018) of bringing 33% of its geographical area under forest and tree cover.
- ◆ According to the International Energy Agency, India is the world's 4th largest energy-consuming country (behind China, the U.S. and European Union).
- ◆ Based on a commitment to address the global climate crisis, India has promised to source nearly half its energy from non-fossil fuel sources by 2030.
- ◆ With 500 GW of installed capacity to generate electricity from non-fossil fuel sources by 2030, cleaner fuel will comprise 50% of the installed capacity mix.
- ◆ According to the Composite Water Management Index (CWMI) 2.0 by NITI Aayog, by 2030, the country's water demand is projected to be twice the available supply, which will lead to a 6% loss in India's GDP.

1. *As part of India's efforts to facilitate the mobility of students, academics, and researchers, and to promote migration for professional and economic reasons, it set to sign a Comprehensive Migration and Mobility Partnership Agreement (MMPA) with Austria. This follows similar agreements signed with other European countries such as France, the United Kingdom, Germany, and Finland. It mainly aims to provide for the equal treatment of nationals of both Parties in similar situations. It will also help to curb illegal migration between the both.*
2. *A Constitutional Bench of the Supreme Court in a 4:1 majority verdict has upheld the government's demonetisation process and has held that the decision-making process was not flawed. The majority verdict rejected the two main contentions of the petitioners that (i) The expression "any" in Section 26(2) of the Reserve Bank of India Act of 1934 (RBI Act), cannot be interpreted to mean "all" to empower the government to demonetise currency notes of all series of any denomination. (ii) The proposal for demonetisation should be initiated by the RBI Central Board and not the Union government.*
3. *A recent study has found that termites decompose wood at a much higher rate in warmer conditions. For every 10 degrees Celsius increase in temperature, their decomposition activity goes up by almost seven times. These wood-eating termites were able to survive in warm and dry conditions, unlike microbes that need water to grow. Therefore, with tropicalization (i.e., warming shifts to tropical climates), termite wood decay will likely increase as termites access more of Earth's surface. Termites release carbon from dead wood in the form of carbon dioxide and methane, two of the most important greenhouse gases. So, an increase in termite population and their faster decomposing activity can cause more greenhouse emissions, resulting in a hotter planet.*
4. *An agriculturist-turned-craftsman, Mr C.V. Raju was honoured with the Padma Shri award for his contribution to the Etikoppaka toy craft or Etikoppaka Bommalu. They are wooden toys made in the Etikoppaka region of Andhra Pradesh and have a history of over 400 years. The wood is derived from the "Ankudi Karra" tree (Wrightia Tinctoria). Etikoppaka wooden toys have been accorded the Geographical Indication (GI) tag in 2017.*
5. *The Japanese government's move to discharge treated wastewater from the Fukushima facility into the ocean has attracted concerns over its impact on the water, marine life and livelihoods of fishing communities and other countries in the area.*
6. *The recently released 'Smuggling in India Report, 2021-22' shows the innovative ways in which a range of items was smuggled in and out of India. Smuggling not only devoids the Government of revenue but also promotes illegal activities and hampers the environment.*
7. *The Union government has decided to nominate Assam's Charaideo Maidams for the UNESCO World Heritage Site tag. They are famously known as the 'Pyramids of Assam' and are preserved by the Archaeological Survey of India (ASI).*
8. *The Ministry of Electronics and Information Technology (MeitY) has recently proposed new*

provision of 'Fact Check' by the Press Information Bureau (PIB) under the IT (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021. As per that the social media platforms would be mandated to take down content that has been "fact-checked" by the PIB fact-check unit and has been flagged as false. Experts and several opposition parties have opposed as it could lead to arbitrary censorship of free speech by the government and reinforces the power imbalance between the State and citizens in a democracy.

9. *The Municipal Corporation of Tirupati (MCT) will be establishing India's largest liquid waste treatment plant at a cost of ₹11 crores under Smart City funds. The plant will adopt the phytorid technology for its operation. This technology has been developed by CSIR's NEERI. Phytorid technology involves the treatment of wastewater under a sedimentation process to eliminate solid matter after which, the water is made to flow in a serpentine motion into a sub-surface chamber containing multiple barricades. Further, saplings are planted atop a porous medium containing gravel and stones which helps to eliminate the organic matter. Later, the water is made to flow through activated carbon filters to reduce the Biochemical Oxygen Demand to 5mg (national standard is 10mg). The Phytorid technology is cost-effective, simple operational process, leaves a smaller footprint and does not emanate foul odour.*
10. *The Wall of Peace, a great work of modern mural art on the 700-foot-long compound wall of the Government Vocational Higher Secondary School at Cherpulassery, Kerala was inaugurated. The mural, in dimmed golden shade done with cement and sand on the 10-ft-high wall, has already won many an accolade, including the Eurasia World Record for the largest public art project. The word 'peace' has been embossed on the Wall of Peace in 250 world languages.*
11. *Recently, the Orissa High Court became the first in the country to publish an annual report that gives insights into the performance of the state's judiciary.*
12. *The Prime Minister of India flagged off the MV Ganga Vilas River cruise from Varanasi which is the world's longest river cruise. It is the first ever indigenously made cruise vessel in India. The cruise will cover various well-known tourist destinations including World Heritage Sites and National Parks such as Kashi, Patna Sahib, Bodh Gaya, Vikramshila, Dhaka and the Sundarbans. Further, it will connect National Waterway 1 (NW1) and National Waterway 2 (NW2) and cross about 27 river systems.*
13. *Invasive ornamental shrub lantana is altering traits, fast spreading across India's forests. As per the India State of Forest Report 2021, more than 9,793 sq. km (an area larger than Sikkim) is under lantana. Lantana threatens about 44% of Indian forests. In many places it has taken over the biodiversity, choking out the native flora. Lantana has occupied more than 47% of the reserves around the Western Ghats. Currently, the "cut root-stalk" method to chop down the main stem 2-3 cm below the ground is used (not very successful). If its invasion and expansion go unchecked, the country could lose \$5.5 billion per year.*

14. *The USA is mulling over introducing a Genetically engineered (GE) variety of chestnuts called 'Darling 58' in the wild. It has a wheat gene to protect against the blight disease that had effectively wiped out the native trees. If successful, it will be the first GE forest tree species planted to spread freely through forests.*
15. *Ministry of Rural Development launched the 'Prajjwala Challenge' under Deendayal Antyodaya Yojana – NRLM inviting ideas, solutions and actions to transform the rural economy. The Mission so far has mobilised more than 87 million women into Self-Help Groups and their federations. The Prajjwala Challenge will also be shared in the Manthan portal by the office of the Principal Scientific Advisor (Under DST). This platform promotes collaboration between industry and scientific research to help meet India's national targets and SDGs.*
16. *Sudhir Kumar Sundriyal from Uttarakhand established 'Feel Good Charitable Trust' in 2015, through which he distributes saplings and plants and helps farmers borrow small equipment through a machinery bank. He helps the people in the Pauri district earn livelihoods in villages so that they do not have to migrate to big cities. They have also undertaken other initiatives like building reservoirs, conducting water conservation campaigns and raising funds for 60 children's education.*
17. *Mission Parivartan is a joint venture of the Delhi government and automaker Ashok Leyland to induct women drivers into Delhi Transport Cooperation and cluster buses for promoting women's safety in public transport. Under this programme, the women drivers underwent a comprehensive training programme where they were also taught how to repair a bus in case it breaks down.*
18. *European Space Agency (ESA) will announce the 1st astronaut or astronauts with a physical disability soon, under ESA's "parastronaut project". People with physical disabilities have previously been excluded from being an astronaut, due to strict selection requirements. After carrying out a feasibility study, the ESA said that the potential candidates could include people who have deficiencies in their lower limbs, whether from amputation or congenital defects.*
19. *In Singapore, a group of volunteers are encouraging people to turn plastic bottles into mini floating gardens, known as 'chinampas.' It was used as an ancient farming technique by the Aztecs (Mexico), who built artificial floating islands in lakes and found a way to grow plants and food on them. This can be used as an innovative example to recycle and reuse plastic bottles.*
20. *An NGO called Social Education Development Society (SEDS) is working for the development of Sugalis, a dominant tribe inhabited in Anantapur District in Andhra Pradesh. The tribe was known for selling Illicitly Distilled (ID) liquor for the past few decades. Under the constant awareness of the NGO, these people have now returned to mainstream livelihood.*

TERMS IN NEWS

1. **Patent evergreening** => It means extending their monopoly rights over the medicines even before the generic producers enter the market thus keeping the price high. The companies file for an extension of a patent with a minor process or product modifications just before the original patent expires at the end of 20 years.
2. **Mobile Governance or m-governance** => It is an E-governance delivered through mobile devices, particularly smartphones. It has emerged as an effective way to reach out to every doorstep, thereby bridging the gap between the government and citizens. The core objective of m-governance is to provide personalized and localized service/information anywhere and anytime through various types of wireless and mobile technologies. India can successfully implement m-governance due to the phenomenal growth of the nationwide mobile ecosystem.
3. **Period poverty** => It refers to a lack of access to menstrual products, sanitation facilities, and adequate education. As per the report by the NGO Dasra (2019), 23 million girls drop out of school annually due to a lack of proper menstrual hygiene management facilities, which include the availability of sanitary pads and information about menstruation. There is a direct link between school dropout rates and 'period poverty'. Scotland (UK) has made history in the global efforts to end period poverty by offering tampons and other period products free to anyone in need of them.
4. **Hate Speech** => According to the Law Commission of India, "Hate speech generally is an incitement to hatred primarily against a group of persons defined in terms of race, ethnicity, gender, sexual orientation, religious belief and the like. This, hate speech is any word written or spoken, signs, visible representations within the hearing or sight of a person with the intention to cause fear or alarm, or incitement to violence."
5. **Cobweb Phenomenon** => Price fluctuations lead to fluctuations in supply, causing a cycle of rising and falling prices. For example, by seeing the higher prices, farmers sow that particular crops to benefit from higher prices. This leads to surplus production, more than demand, resulting in a price crash. Because of low prices, farmers switch to different crops or produce less of the same crop, leading to lower-than-usual production for that particular crop. This increases the prices of crops, completing the cyclical variations in price and production.

RELEVANT QUOTES

1. "Mankind must put an end to war, or war will put an end to mankind" - John F. Kennedy.
2. "When disaster strikes, it tears the curtain away from the festering problems that we have beneath them" - Barack Obama.
3. "Technology is a useful servant but a dangerous master" - Christian Lous Lange.
4. "Overcoming poverty is not a gesture of charity, it is an act of justice" - Nelson Mandela.
5. "Transparency is for those who carry out public duties and exercise public power. Privacy is for everyone else" - Glenn Greenwald.