DEEP FAKES

**This image itself has been created by AI*

NOVEMBER 2023

The CATALYST

Sivarajavel IAS Academy

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.

Inside The Catalyst Magazine

I.   Special Coverage

II. Within the Sub themes first few topics will be Prelims oriented followed by indepth coverage of Mains Topics.

III. Book Summary Relevant for UPSC Exam.

IV. 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.

From the Editor's Desk

Dear Readers,

Artificial intelligence (AI) is transforming the world in unprecedented ways. From healthcare to education, from business to entertainment, AI is enabling new possibilities and efficiencies across various domains. However, with great power comes great responsibility.

As humans become more dependent on AI, we also face new challenges and risks. We have covered an article about Deep Fakes under the security topic.

There are some questions to ponder over;

1. How can we ensure that AI is ethical, trustworthy, and aligned with our values?
2. How can we balance the benefits and costs of AI for society and the environment?
3. How can we foster human-AI collaboration and coexistence?

These are some of the questions that need to be addressed as we witness the dependence and rise of AI. It is disruptive and innovative but opens up several ethical debates. This area is propable area for Prelims, Mains or Interview.

Do read and note imortant developments in the space of AI.

I would like to congratulate all who have cleared UPSC 2023 Mains and I wish you all the best for your personaity test.

In this November Issue (From Nov 1 to Nov 30, 2023, Current Affairs), we have covered **a range of topics with special emphasis on All India Judicial Services, Ben Gurion Canal Project, FCRA 2023, India UK FTA, UNSC Reforms, PM JANMAN etc.** This month's Book summary is on "PRISONERS OF GEOGRAPHY "by Tim Marshall

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

Sincerely,
P.Mohan

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POLITY & GOVERNANCE

What's Inside?

सत्यमेव जयते

ROLE OF SPECIAL INQUIRY COMMITTEES OF PARLIAMENT

Context

The ethics committee of the Lok Sabha is believed to have recommended the expulsion of Trinamool Congress Member of Parliament (MP) Mahua Moitra from the Lok Sabha for her "unethical conduct" and "breach of privileges".

This follows the ethics committee examining the complaints which accused her of asking questions to target a leading business house at the behest of a businessman in exchange for cash. She was also accused of sharing her log-in credentials with the businessman.

Role of ethics committee

The ethics committee was constituted in 2000, to oversee the moral and ethical conduct of members and examine cases of 'unethical conduct' referred to it.

The Committee examines complaints filed against members of the House by other members; outsiders through a member; or referred by the Speaker.

The Committee makes a prima facie inquiry before deciding to examine a complaint and presents its report to the Speaker, who places it before the House for consideration. **It must be noted that the term 'unethical' is not defined**.

It is left to the Committee to decide whether any act is unethical or not. In 2007, an MP accompanying his close female companion, impersonating her as his wife was considered 'unethical' by the Committee. It recommended suspension of the MP from 30 sittings of the House.

What are privileges committees?

The Parliamentary privileges evolved in medieval Britain (14th-16th Century) in order to protect the interest of the House of Commons and its members from the excesses of the King. It includes the power of the House to punish its members and outsiders for breach of privileges.

The privileges committee or special inquiry committee examines the more serious accusations against a member. In 1951, a special committee found a member guilty of promoting a business interest by putting questions in return for financial benefits.

It was again a special committee that inquired into the 'cash for query' scam of 2005 where 10 MPs of Lok Sabha were recommended for expulsion.

Is an expulsion constitutional?

The Constitution under Article 101 lists down the grounds for vacation of a seat by an MP. It includes voluntary resignation, disqualification and continuous absence from the House for 60 sittings. **Expulsion is not mentioned explicitly in the Constitution**. However, the Supreme Court has provided conflicting judgments in this regard.

In *Raja Ram Pal versus Hon'ble Speaker (2007)*, which looked at the 'cash for query' scam of 2005, it upheld the power of Parliament to expel its members for breach of privilege by interpreting Article 101 to include expulsion as a ground.

But in Amarinder Singh versus Special committee, Punjab Vidhan Sabha (2010), the Supreme Court held expulsion by the State Assembly as unconstitutional. It held that such scenarios would frustrate the objectives of Parliamentary democracy.

BIHAR'S ASSEMBLY RAISES RESERVATION QUOTAS

Context

The Bihar Assembly unanimously passed a Bill to increase reservation for Backward Classes, Extremely Backward Classes, Scheduled Castes, and Scheduled Tribes from the existing 50% to 65%.

Together with the 10% Economically Backward Class (EWS) quota, the **Bill will push reservation in Bihar to 75%**, well past the 50% ceiling set by the Supreme Court.

According to the legislation, named the Bihar Reservation Amendment Bill, quota for Extremely Backward Class (EBC) will be raised from the existing 18% to 25%; for Backward Class (BC) from 12% to 18%; for Scheduled Caste (SC) from 16% to 20%; and for Scheduled Tribe (ST), the quota will be doubled, from 1% to 2%. **The existing 3% reservation for BC women has been scrapped.**

Bills providing for the same increase in reservation in educational institutions and government jobs, which were drafted based on the caste survey conducted by the State government recently, too were passed unanimously through voice vote in the Assembly.

What is the 50% rule?

The Supreme Court has historically maintained that reservations, whether in jobs or education, should not exceed 50% of the total seats/posts. In 1963, a seven-judge bench in M.R. Balaji explained that reservations were in the nature of an "exception" or "special provision" under our constitutional scheme.

Therefore, they cannot be provided for more than 50% of the posts or seats. Though this understanding of reservations changed in 1976,

with it being recognised that reservations are a facet of equality rather than an exception to it, the 50% limit has remained unaltered.

A nine-judge bench in the **Mandal commission case in 1990 reaffirmed the 50% limit** and held that it is a binding rule, and not merely a matter of prudence. However, it is not a rule without exceptions.

A State can exceed the limit in exceptional circumstances, that is, to provide reservations to communities which hail from far flung areas of the country and have been kept out of the mainstream of the society. This is not a geographical test but a social one.

Besides, last year, the Supreme Court upheld the 103rd Constitutional Amendment which provides for 10% additional reservations to the EWS. This means, for the time being, that the 50% limit applies only to non-EWS reservations, and States are permitted to reserve a total of 60% of the seats/posts including EWS reservations.

Bihar is not the first to cross the line. Other States that have already surpassed the 50% limit, even excluding the EWS quota, **are Chhattisgarh (72%), Tamil Nadu (69%,** under a 1994 Act protected under the ninth Schedule of the Constitution), and several north-eastern States including **Arunachal Pradesh, Meghalaya, Mizoram and Nagaland (80% each). Lakshadweep** has a whopping 100% reservations for Scheduled Tribes. Previous attempts by Maharashtra and Rajasthan have been struck down by the courts.

ROLE OF THE GOVERNOR IN THE STATE LEGISLATIVE ASSEMBLY (SLA)

Context

Tamil Nadu Governor R. N. Ravi has 'withheld' assent for certain Bills passed by the Tamil Nadu Legislative Assembly. This follows the Supreme Court expressing 'serious concern' over inaction by the Governor on Bills presented for his assent.

The court expressed displeasure on similar delays by Governors of Telangana, Punjab and Kerala.

What does the Constitution say?

Article 200 of the Constitution lays down that when a Bill, passed by a State Legislature, is presented to the Governor for their assent, they have four alternatives —

1. May give assent to the Bill;

2. May withhold assent to the Bill, that is, reject the Bill in which case the Bill fails to become law;

3. May return the Bill (if it is not a Money Bill) for reconsideration of the State Legislature; or

4. May reserve the Bill for the consideration of the President.

Supreme Court on the Governor's role and powers

In the Shamsher Singh case (1974), SC held that the Governor does not exercise their discretionary powers while withholding assent or returning a Bill to the State Legislature. The return of any Bill to State Legislature for reconsideration is also to be done based on ministerial advice.

In the State of Punjab v. Principal Secretary to the Governor of Punjab Case, 2023 clarified that the Governor cannot indefinitely sit on Bills. Further SC held that, In case of withholding assent, the Governor should return the Bill 'as soon as possible' to the House with a message assigning reasons for his lack of consent.

The judgment held that the Governor cannot withhold consent in case the House repassed the Bill with or without amendments and he/she shall assent to such a Bill if it is passed again by the State Legislature.

Recommendations of various committees on the Governor's legislative power

The Sarkaria Commission (1987) has recommended that,

• It is only the reservation of Bills for consideration of the President, that too under 'rare cases of unconstitutionality', which can be implied as a discretionary power of the Governor.

• Other than those exceptional cases, the Governor must discharge his functions under Article 200 as per the advice of ministers.

It further recommended that the President should dispose of such Bills within a 'maximum period of six months'. In the event of the President 'withholding assent', the reasons should be communicated to the State Government wherever possible.

The Punchhi Commission (2010), had recommended that the Governor should take a decision with respect to a Bill presented for their assent **within a period of six months.** However, these recommendations have not been implemented till date

Way Ahead

As the Supreme Court observed, it is necessary for the Governors and Chief Ministers **to do 'a little bit of soul-searching'.** The Constitution may be amended to provide that the Chief

Ministers shall be consulted before appointment of the Governors. The recommendation of the Punchhi Commission that Governors may be removed through an impeachment by the State Legislature can also be considered. This would arm the State legislatures with the power to remove an uncooperative Governor. These amendments would have a salutary effect on the Central and State Governments resulting in responsible cooperation in the matters of appointment and functioning of the Governors.

ENEMY PROPERTY

Context

Lucknow's once-grand three-storeyed Butler Palace in a mix of Rajasthani and Indo-Mughal styles is set to turn into a tourist haven.

What is meant by enemy property?

Enemy property is the property left behind in India by people who took Pakistani and Chinese citizenship. The Enemy Property Act was enacted in 1968 after the 1965 war with Pakistan to regulate such properties.

The Enemy Property Act, 1968

The Enemy Property Act of 1968 is an Act of the Parliament of India, which enables and regulates the appropriation of property in India owned by Pakistani nationals. The act was passed following the Indo-Pakistani War of 1965.

Ownership is passed to the Custodian of Enemy Property for India, a government department. There are also movable properties categorized as enemy properties.

The 2017 amendment to the Act (Enemy Property (Amendment and Validation) Act, 2017) stated that the successors of those who migrated to Pakistan and China ceased to have a claim over the properties left behind in India.

The maximum number of enemy properties is in Uttar Pradesh

ELECTORAL BONDS

CONTEXT:

The Supreme Court is deciding whether the current electoral bonds scheme facilitates anonymous corporate funding to political parties and whether it was wrongly certified as a Finance Act.

On 31 October 2023, a five-judge Constitution Bench led by CJI Chandrachud, heard arguments. Petitioners argued that the electoral bonds scheme increased corporate funding, black money circulation, and corruption.

On Nov 2, the court reserved the judgement.

ELECTORAL BONDS:

- Electoral bonds are interest-free bearer bonds or money instruments that can be purchased by companies and individuals in India from authorized branches of the State Bank of India.

- These bonds are sold in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore.

- The Electoral Bond scheme was introduced in The Finance Act, 2017 and was implemented in 2018.

- These bonds are considered anonymous as the name and other information of the donor are not entered on the instruments.

There is no upper limit on the number of electoral bonds that a person or company can purchase.

Eligibility criteria for obtaining funds through electoral bonds:

Only the political parties registered under Section 29A of the Representation of the People Act, 1951 who have secured not less than 1% of the votes polled in the last general election to the House of the People or the Legislative Assembly, are eligible to receive electoral bonds.,

What are the Challenges of the Electoral Bond Scheme?

This scheme violates the citizen's fundamental right to information under Article 19 (1)(a) of the Constitution of India, 1950 (COI).

Anonymity may be compromised by government's access to donor data.

Risk of crony capitalism and infusion of black money.

Loopholes regarding transparency for corporate entities and donation limits.

This scheme may lead to favouritism towards Rich Corporates.

SUB-CATEGORISATION OF CASTES

Story So Far:

On November 11, in an election rally in Telangana organised by the Madiga Reservation Porata Samithi (MRPS), Prime Minister Narendra Modi promised to look into the sub-categorisation of Scheduled Castes (SCs) to identify and aid the most marginalised among them.

The Madigas are the most populous of all SC communities in Telangana but have claimed that their share of representation was being taken up by another SC community, the Malas.

Constitutional Provisions:

Article 15(4): "Nothing in this article or in clause (2) of Article 29 shall prevent the State from making any special provision for the advancement of any socially and educationally backward classes of citizens"

Article 16(4): "Allows the state to make "any provision for the reservation of appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State".

Article 366 (24): "Scheduled Castes is defined as; Such castes, races or tribes or part of or groups within such castes, races or tribes as are deemed under Article 341 to be Scheduled Castes for the purpose of this Indian constitution.

Who are the Scheduled castes (SC)?

The Scheduled Castes and Scheduled Tribes are officially designated groups of people and

among the most disadvantaged socio-economic groups in India.

In modern literature, the Scheduled Castes are sometimes referred to as Dalit, meaning "broken" or "dispersed" for the untouchables.

The Scheduled Castes and Scheduled Tribes comprise about 16.6% and 8.6%, respectively, of India's population.

Central Provisions For Sc's:

Reservation shall be given at the rate of 15 per cent for the Scheduled Castes and 7.5 per cent for the Scheduled Tribes.

Pros And Cons Of Subcategorisation:

PROS	CONS
Better targeting of beneficiaries	Caste-based conflicts
Rationale utilisation of government resources	Fragmentation and division within the people
Better delivery of services can be provided	Further marginalisation of some sub castes in the society

Challenges:

Absence of population data of various communities for a comparison with their representation in jobs and admissions.

No appropriate budgetary provision for an all-India survey of the caste-wise population of OBCs.

RESERVATION IN PRIVATE SECTOR JOBS

Context

Haryana government to move Supreme Court against High Court verdict quashing 75% quota in private jobs.

What was this law?

The Bill passed by the Haryana Assembly in November 2020 reserved 75% of jobs in the private sector that offered a monthly salary of less than Rs 30,000 (originally Rs 50,000) for residents of Haryana.

Earlier, in November 2019, the Andhra Pradesh Assembly had also passed a similar bill which reserved three-fourths of jobs for local candidates.

State government arguments

The State government argued that it had the power to create such reservations under Article 16(4) of the Constitution, which says that the right to equality in public employment does not prevent the State from "making any provision for the reservation of appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State".

Challenges

Industries Association moved HC contending that Haryana wanted to create reservations in the private sector by introducing a policy of "sons of the soil", which was an infringement of the constitutional rights of employers.

Private sector jobs are purely based on skills and an analytical bent of mind, and employees have a fundamental right to work in any part of India.

Forcing the employers to employ local candidates in private sector is the violation of the rights of the Constitution of India, whereby the government cannot act contrary to public interest and cannot benefit one class".

It might strengthen and reinforce the caste-based and regional politics threatening the Unity and Integrity of India as promised by the Preamble.

What did the High Court rule?

It held that implementation of this act would amount to "Inspector Raj", and that private employers will be put under the State's anvil on whom to employ.

The restrictions violated "a person's right to carry on occupation, trade, or business" under Article 19(1)(g) of the Constitution.

Also, the court said, the state "cannot as such discriminate against the individuals on account of the fact that they do not belong to a certain State".

DIGITAL ADVERTISEMENT POLICY, 2023

Context

The Ministry of Information and Broadcasting has approved a path breaking "Digital Advertisement Policy, 2023 to **enable and empower the Central Bureau of Communication (CBC)** which is the advertising wing of the Government of India to undertake campaigns in the Digital Media Space.

In recent years, the way audiences consume media has witnessed a significant shift towards the digital space. The Government of India's Digital India program has led to a huge growth in the number of people in the country who are now connected to the internet, social and digital media platforms.

As per TRAI's Indian Telecom Services Performance Indicators January–March 2023, the internet penetration in India as of March 2023, is over 880 million, and the number of telecom subscribers as of March 2023 is over 1172 million.

Central Bureau of Communication (CBC)

The Central Bureau of Communication (CBC) operates under the Ministry of Information

and Broadcasting and is **responsible for creating awareness and disseminating information about various government programs**, schemes, and policies in India.

CBC is committed to adapting to the changing media landscape and embracing new technologies to reach a wider audience.

It was set up on 8th December 2017 by the integration of the erstwhile Directorate of Advertising and Visual Publicity (DAVP), Directorate of Field Publicity (DFP), and Song & Drama Division (S&DD).

While one of the key functions of CBC is to act as an advisory body to the Government on media strategy, its chief mandate is to advance the Government's image as the prime facilitator of people's empowerment by positioning messages through Print Media, Audio-Visual, Outdoor and Digital Media.

About the policy

This policy marks a pivotal moment in CBC's mission to disseminate information and create awareness regarding various schemes, programs, and policies of the Government of India in response to the evolving media landscape and the increased digitalization of media consumption.

The Policy will enable CBC to empanel agencies and organisations in the OTT and Video on Demand Space. CBC will also be able to leverage the growing number of listeners to Podcasts and Digital Audio platforms through empanelment of Digital Audio platforms.

Apart from rationalising its process of empanelling Internet Websites, CBC now for the first time will be able to channelize its public service campaign messages through Mobile Applications too.

With Social Media Platforms becoming one of the popular channels of public conversations, the policy further streamlines the process through which CBC can place advertisements for government clients on these platforms. The Policy also recognizes the dynamic nature of the digital landscape and empowers CBC to on board New and Innovative Communication Platforms in the Digital Space with the approval of a duly constituted committee.

The CBC's Digital Advertisement Policy, 2023, introduces competitive bidding for rate discovery, ensuring transparency and efficiency. Rates discovered through this process will remain valid for three years and will be applicable to all eligible agencies.

GOVERNOR'S VETO POWERS

Context:

The Supreme Court took note of Tamil Nadu government's argument that the Constitution does not provide Governor RN Ravi "discretion" to withhold 10 Bills "re-passed" by the State Legislative Assembly.

Bills need to be sent back to Legislature 'as soon as possible'; in case the State Assembly reiterates the Bill 'with or without amendments', the Governor has no choice or discretion, and has to give his assent to it, rules Supreme Court.

Ordinary Bills:

Article 200 of the Indian Constitution includes the process for a state bill to be presented to the Governor for assent.

He may:

i. give his assent to the bill, the bill then becomes an act.

ii. withhold his assent to the bill, the bill then ends and does not become an act.

iii. return the bill for reconsideration of the House or Houses.

iv. reserve the bill for the consideration of the President.

If the bill is passed by the House or Houses again with or without amendments and presented to the governor for his assent, the governor must give his assent to the bill. Thus, the Governor enjoys only a 'suspensive veto'. He may reserve the bill for the consideration of the President.

When can the Governor reserve the Bill for President assent?

The Governor shall not assent to, but shall reserve for the consideration of the President, any Bill which in the opinion of the Governor would, if it became law, so derogate from the powers of the High Court.

Every money bill, after it is passed by the state legislature (unicameral or bicameral), is presented to the governor for his assent.

He has three alternatives:

i. He may give his assent to the bill, the bill then becomes an act.

ii. He may withhold his assent to the bill, the bill then ends and does not become an act.

iii. He may reserve the bill for the consideration of the president.

Thus, the Governor cannot return a money bill for the reconsideration of the state legislature. Normally, the Governor gives his assent to a money bill as it is introduced in the state legislature with his previous permission.

When the Governor reserves a money bill for the consideration of the President, he will not have any further role in the enactment of the bill. If the President gives his assent to the bill, it becomes an Act.

This means that the assent of the Governor is no longer required.

CERT-IN – EXEMPTED FROM RTI

Context

The Central government has added the Computer Emergency Response Team (CERT-In) among a list of organisations that are exempted from the ambit of the Right to Information Act (RTI), 2005.

CERT-In

The CERT-In is the national nodal agency for responding to computer security incidents as and when they occur. One of its primary objectives is enhancing "security awareness among common citizens". It functions under the Ministry of Electronics and Information Technology.

The CERT-In has been probing major cyber attacks in the recent past; it was the first responder to the ransomware attack on November 23, 2022 at All India Institute of Medical Sciences which had crippled the "Hospital Information System (HIS) and e-Hospital" system for several days.

How CERT-In was exempted?

The Centre has used its powers given under sub-section (2) of Section 24 of the RTI Act to exempt CERT-In from the purview of the transparency law. Using those powers, the Centre has included CERT-In at serial number 27 in the Second Schedule of the RTI Act.

With inclusion in the Second Schedule of the RTI Act, the CERT-In now joins the list of 26 other intelligence and security organisations, which are already exempted from the purview of the Act.

These 26 intelligence and security organisations are: Intelligence Bureau; Research and Analysis Wing including its technical wing namely, the Aviation Research Centre of the Cabinet Secretariat; Directorate of Revenue Intelligence; Central Economic Intelligence Bureau; Directorate of Enforcement; Narcotics Control Bureau; Special Frontier Force; Border Security Force; Central Reserve Police Force; Indo-Tibetan Border Police; Central Industrial Security Force; National Security Guards; Assam Rifles; Sashtra Seema Bal; Directorate General of Income-tax (Investigation); National Technical Research Organisation; Financial Intelligence Unit, India; Special Protection Group; Defence Research and Development Organisation; Border Road Development Board; National Security Council Secretariat; Central Bureau of Investigation; National investigation Agency; National Intelligence Grid; and Strategic Forces Command.

ALL INDIA JUDICIAL SERVICE

Context

President Droupadi Murmu Recommends All India Judicial Service Examination

About All-India Judicial Service:

Under an All-India Judicial Service, district judges can be recruited centrally through an all-India examination and allocated to each State along the lines of the All-India Services such as IAS and IPS.

This was conceptualized to ensure a transparent and efficient method of recruitment to attract the best talent in India's legal profession. Currently, district judges are appointed by the state governor on the advice of the chief justice of the high court of the concerned state.

Previous Proposals:

The AIJS was first proposed by the 14th report of the Law Commission in 1958. A statutory or constitutional body such as the UPSC to conduct a standard, centralised exam to recruit and train judges was discussed.

The idea was proposed again in the Law Commission Report of 1978, which discussed delays and arrears of cases in the lower courts.

In 2006, the Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice in its 15th Report backed the idea of a pan-Indian judicial service, and also prepared a draft Bill.

Supreme Court's Stand:

In 1992, the Supreme Court (SC) in All India Judges' Association v. The Union of India directed the Centre to set up an AIJS.In a 1993 review of the judgment, however, the court left the Centre at liberty to take the initiative on the issue.

In 2017, the SC took suo motu cognizance of the issue of appointment of district judges, and mooted a Central Selection Mechanism.

Senior advocate Arvind Datar, who was appointed amicus curiae (friend of the court) by the court, circulated a concept note to all states in which he recommended conducting a common examination instead of separate state exams.

Based on the merit list, High Courts would then hold interviews and appoint judges. Datar submitted that this would not change the constitutional framework or take away the powers of the states or High Courts.

Procedure to set-up an All-India Service:

The 42ndConstitutional Amendment in 1976 had amended Article 312(1) to empower the Parliament to make laws for the creation of one or more All-India Services.

Accordingly, under Article 312(1) of the Constitution, the Rajya Sabha is required to pass a resolution supported by not less than two-thirds of its members present and voting.

Thereafter, Parliament can by simple majority amend Article 233 and Article 234, to create an AIJS .

The recruitment and conditions which are put forward for persons appointed to All India services can be regulated by the Parliament as it enacted the All India Service Act, 1951.It does not require an amendment of the Constitution, under Article 368.

Arguments in favour of All-India Judicial Service:

Efficient Judiciary: It will ensure an efficient subordinate judiciary, to address structural issues such as varying pay and remuneration across states, to fill vacancies faster, and to ensure standard training across states.

Ease of Doing Business: The government has targeted the reform of lower judiciary in its effort to improve India's Ease of Doing Business ranking, as efficient dispute resolution is one of the key indices in determining the rank.

Addressing Judges To Population Ratio: A Law Commission report (1987) recommended that India should have 50 judges per million population as against 10.50

judges (then). Now, the figure has crossed 20 judges in terms of the sanctioned strength, but it's nothing compared to the US or the UK — 107 and 51 judges per million people, respectively.

Higher Representation of Marginalised Sections of Society: According to the Government, the AIJS to be an ideal solution for equal representation of the marginalised and deprived sections of society.

Attracting Talent Pool: The government believes that if such a service comes up, it would help create a pool of talented people who could later become a part of the higher judiciary

Bottoms-Up Approach: The bottoms-up approach in the recruitment would also address issues like corruption and nepotism in the lower judiciary.

Arguments against setting up an All-India Judicial Service:

In 2019, a report titled 'A Primer on the All India Judicial Service' by Vidhi Centre for Legal Policy had highlighted important aspects as to why an AIJS is not an ideal solution for the challenges the Indian Judicial System is facing.

Judicial Independence of District Judges:

Currently, the independence of District Judges from the State Governments, is guaranteed by the fact that the High Court plays a significant role in the appointment,

transfer and removal of District Judges.

The 116th report of the Law Commission recommended that appointments, postings and promotions to the AIJS be made by a proposed National Judicial Service Commission consisting of retired and sitting judges of the Supreme Courts, members of the bar and legal academics.

The creation of such a body will result in the immense concentration of power in few hands.

Representation of marginalized communities in the District and Subordinate Judiciary:

The report has highlighted that many of the communities who currently benefit from the State quotas, may oppose the creation of AIJS.

This is because the communities recognised as Other Backward Classes (OBC) by State governments may or may not be classified as OBCs by the Central government.

While AIJS has been proposed as a solution to lack of representation for the marginalised on the Bench, the report said many States are already reserving posts for marginalised communities and women.

Language Barrier:

○ An argument made against the creation of an AIJS is that judges recruited through this process will not know the local languages of the States in

which they are posted.

This becomes important considering that the proceedings of civil and criminal courts are to be conducted in a language prescribed by the respective State governments.

Way Forward

Facilitate dialogues and consultations with states, high courts, and legal experts to address concerns and garner support for AIJS. Consider implementing AIJS on a pilot basis in select states to assess its impact and address concerns gradually.

Design AIJS with flexible mechanisms allowing adaptation to local laws, languages, and customs, ensuring effective functioning without disregarding regional nuances. Propose a well-defined transition period during which existing judicial officers can seamlessly adapt to the new system, minimizing disruptions.

Establish a periodic review mechanism to assess the impact of AIJS on federal structure, autonomy, and the effective functioning of the judiciary, making necessary adjustments as needed.

Develop an incentive structure within AIJS that motivates and recognizes the contributions of existing judicial officers, addressing concerns about career advancement.

SPECIAL CATEGORY STATUS

Context

The Bihar Cabinet has recently passed a resolution seeking the grant of special category status (SCS).

What is a special category status?

It is a classification granted by the Centre to assist the development of States that face geographical or socio-economic disadvantages. The SCS was introduced in 1969 on the recommendation of the fifth Finance Commission (FC).

Criteria for special category status:

Five factors such as

a. Hilly and difficult terrain

b. Low population density or a sizeable share of the tribal population

c. Strategic location along borders with neighbouring countries

d. Economic and infrastructural backwardness

e. Non-viable nature of state finances

States with SCS status

In 1969, three States — Jammu & Kashmir, Assam and Nagaland — were granted the SCS. Subsequently, eight more States including Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Sikkim, Tripura, Himachal Pradesh, and Uttarakhand were given the SCS by the erstwhile National Development Council.

What are the benefits attached?

- The central government bears 90 percent of the state expenditure on all centrally-sponsored schemes and external aid while rest 10 percent is given as loan to state at zero percent rate of interest.

- Preferential treatment in getting central funds.

- Concession on excise duty to attract industries to the state.

- 30 percent of the Centre's gross budget also goes to special category states. (Gadgil-Mukherjee formula)

- These states can avail the benefit of debt-swapping and debt relief schemes.

- States with special category status are exempted from customs duty, corporate tax, income tax and other taxes to attract investment.

- Special category states have the facility that if they have unspent money in a financial year; it does not lapse and gets carry forward for the next financial year.

Raghuram Rajan Committee set up by the Centre suggested a new methodology based on a 'multi-dimensional index' for devolving funds instead of a SCS, which can be revisited to address the State's socio-economic backwardness.

INTERNATIONAL RELATIONS

What's Inside?

November 2023

INTERNATIONAL SOLAR ALLIANCE ASSEMBLY

Context:

Recently, the Sixth Assembly of the International Solar Alliance (ISA) was convened at Bharat Mandapam in New Delhi.

About

The International Solar Alliance is steadfast in its commitment to Member Countries to make solar as the energy source of choice.

Around 80 percent of the global population, totaling a staggering 6 billion people, reside in countries that depend on fossil fuel imports. Renewable energy sources have the potential to supply 65 percent of the world's total electricity by 2030 and decarbonise 90 percent of the power sector by 2050.

The Assembly discussed the ISA's broader strategy, emphasizing the need to focus on energy access before transitioning to renewable sources, echoing the organization's philosophy of "**access first and then transition.**"

The assembly announced an increase in Viability Gap Funding (VGF) for projects, raising it from 10% to a range of **10% to 35%** to foster greater investments, particularly in African countries.

Four projects supported by the ISA were inaugurated during the assembly. These initiatives spanned across different countries:

1. Solarization of the Malawi Parliament

2. Solarization of rural healthcare centers in Fiji

3. Installation of a solar-powered cold storage in Seychelles

4. Solarization of a school in Kiribati

ISA will also be releasing three flagship reports providing updates on Solar Technology, Solar Market and Solar Investments.

1. **World Solar Technology Report 2023** focuses on solar photovoltaics (solar PV), highlighting the remarkable advancements in crystalline silicon technology. Solar PV has experienced exceptional growth, expected to capture 56.4% of total renewable energy share by 2050. Crystalline silicon technology dominates the market with a 98% share; in particular, monocrystalline and emerging technologies like organic PV and perovskite PV hold promise for the future.

2. **World Solar Market Report 2023** offers a comprehensive analysis of the evolution of the solar market, from its European origins to its current leadership in the Asia-Pacific region, registering a remarkable 37% compound annual growth rate, significant market expansion in 2022 and changing regional dynamics in solar adoption.

3. **World Solar Investment Report 2023** highlights the surge in global solar investments in 2022, exceeding $300 billion (a 36% increase from 2021). Asia Pacific, Europe and North America led the way, with China, Germany, and the USA as top investment destinations. To ensure a robust solar future, the report argues that we must invest in grid infrastructure and storage, diversify supply chains, and prioritize emerging markets for inclusive energy transition.

About ISA Assembly

- The ISA Assembly is the **apex decision-making body of ISA,** in which each Member Country is represented. This body makes decisions concerning the implementation of the ISA's Framework Agreement and coordinated actions to be taken to achieve its objectives.

- The Assembly meets **annually** at the ministerial level at the ISA's seat. It assesses the aggregate effect of the programmes and other activities in terms of deployment of solar energy, performance, reliability,

cost and scale of finance.

- 109 countries are signatories to the ISA Framework Agreement, of which 90 countries have submitted the necessary instruments of ratification to become full members of the ISA.

- The Republic of India holds the office of the **President of the ISA Assembly,** with the Government of the French Republic as the co-president.

About International Solar Alliance

The International Solar Alliance is an international organisation with 109 member countries.

It is the **first international intergovernmental organisation to be headquartered in India.**

It works with governments to improve energy access and security worldwide and promote solar power as a sustainable way to transition to a carbon-neutral future.

The ISA is guided by its **'Towards 1000' strategy** which aims to mobilise USD 1,000 billion(1 Trillion USD) of investments in solar energy solutions by 2030, while delivering energy access to 1,000 million people using clean energy solutions and resulting in installation of 1,000 GW

UPSC Civil Services Examination, Previous Year Questions

Q. Consider the following statements: (2016)

1. The International Solar Alliance was launched at the United Nations Climate Change Conference in 2015.

2. The Alliance includes all the member countries of the United Nations.

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

Ans: (a)

Explanation:

- India and France launched the International Solar Alliance (ISA) to boost solar energy in developing countries.

- It was launched at the United Nations Climate Change Conference in Paris in November 2015 by the Indian Prime Minister and French President. Its secretariat is located in Gurugram, India. **Hence, statement 1 is correct.**

- At the initial stage ISA was opened to membership of countries lying fully or partly between the Tropics of Cancer and Capricorn (torrid zone).

- In 2018, the membership of ISA was opened for all the UN members. However, all the member countries of the UN are not its members. **Hence, statement 2 is not correct.**

- Currently, 80 countries have signed and ratified the ISA Framework Agreement while 98 countries have signed the ISA Framework Agreement.

- **Therefore, option (a) is the correct answer.**

of solar energy capacity. This would help mitigate global solar emissions to the tune of 1,000 million tonnes of CO_2 every year.

It promotes the use of solar energy in the Agriculture, Health, Transport and Power Generation sectors.

ISA member countries are driving change by enacting policies and regulations, sharing best practices, agreeing on common standards, and mobilising investments.

ISA was formed at the 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015.

GLOBAL SYMPOSIUM ON FARMERS' RIGHTS

Context

The technical sessions of 'First Global Symposium on Farmers' Rights (GSFR)' held at the ICAR Convention Centre, National Agricultural Science Centre, New Delhi was successfully concluded in November.

About

This Global Symposium was requested by the Ninth Session of Governing Body of the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture, held in New Delhi during September to share experiences and to discuss possible future work on Farmers' Rights.

The International Treaty on Plant Genetic Resources for Food and Agriculture recognizes that past, present and future contributions of farmers of all regions of the world, particularly those in the centres of origin and crop diversity, in conserving, improving and making available these resources, as the basis of Farmers' Rights.

Outcome of this Symposium

The deliberations and suggestions emanating from the GSFR have been crystalized in a **'Delhi Framework on Farmers' Rights',** as a proposal from India to the Treaty:

1. To Establish an institutional mechanism that is responsible for creation of awareness about the Farmers' Rights, capacity building of custodian farmers and farmers' seed systems, and facilitating equitable benefit sharing, and request Treaty Secretariat to coordinate such initiatives.

2. Advocate creation of functional synergy across different UN instruments (ITPGRFA, CBD, UNDROP, UNDRIP, etc.) to facilitate the realization of farmers' rights.

3. Strengthen the Benefit Sharing Fund for supporting farmers and farmers' seed systems to ensure conservation and sustainable use of PGRFA.

4. A special package be packaged as part of climate change adaptation and mitigation funds to directly support on-farm conservation and custodian farmers, who are the most affected by extreme climatic events.

5. Join hands to systematically document traditional knowledge associated with PGRFA, adhering **to prior informed consent and respecting the sensibilities of communities.**

6. Create legal and formal provisions in their existing system that recognize and protect farmers' rights as envisaged in the Plant Treaty.

EASTERN MARITIME CORRIDOR AND NORTHERN SEA ROUTE

Context

Union Minister of Ports, Shipping and Waterways and the Minister of the Russian Federation for the Development of the Far East and the Arctic in Vladivostok to discuss the possibility of usage of new transport corridors like the Northern Sea Route (NSR) as well as the Eastern Maritime Corridor (EMC) between Vladivostok and Chennai.

Both the nations also agreed on training for seafarers in polar and Arctic waters at Russian Maritime Training Institute in Vladivostok.

Eastern Maritime Corridor (EMC)

This is a proposed sea route between Chennai and Vladivostok located on the Golden Horn Bay north of North Korea and a short distance from Russia's border with China. Vladivostok is the largest port on Russia's Western Pacific coast.

The Chennai-Vladivostok sea route will cover a distance of about 5,600 nautical miles, according to a report by the Economic Times. The corridor will allow India to have a presence in the South China Sea through a trade route that is primarily aimed at the speedy transportation of coking coal.

Northern Sea Route

The Northern Sea Route runs along Russia's northern coastline and is the shortest shipping route between East Asia and Europe. It stretches across 13,000 km, compared to the 21,000 km covered by the Suez Canal route," stated a 2021 report by The Oxford Institute for Energy Studies.

There is an opportunity to transport commodities such as coking coal, oil, liquefied natural gas (LNG), and fertilisers. Recent reports show the melting of Arctic ice has revealed new shipping avenues along Russia's northern coast.

2+2 DIALOGUE

Context

U.S. Secretary of State Antony Blinken and U.S. Defence Secretary Lloyd Austin are scheduled to travel for the '2+2' meeting with External Affairs Minister S. Jaishankar and Defence Minister Rajnath Singh.

What is 2+2 Dialogue?

A 'two plus two dialogue' is a term — adopted in foreign parleys — used for the installation of a dialogue mechanism between two countries' defence and external affairs ministries.

The goal is to establish a diplomatic, yet fruitful, conversation between the two countries' respective heads of defence and external affairs.

It enables the partners to understand better and appreciate each other's strategic concerns and sensitivities taking into account political factors on both sides, in order to build a stronger, more integrated strategic relationship in a rapidly changing global environment.

2+2 talks between India and other countries

India has 2+2 dialogues with four key strategic partners: the US, Australia, Japan, and Russia. Besides Russia, the other three countries are also India's partners in the Quad.

Dialogue with the US

The US is India's oldest and most important 2+2 talks partner and the first 2+2 dialogue between the two countries was held during the Trump Administration.

It was seen as a "reflection of the shared commitment" by India and the US to provide "a positive, forward-looking vision for the India-US strategic partnership and to promote synergy in their diplomatic and security efforts".

Defence and strategic agreements

It has produced tangible and far-reaching results for India,

India and the US have signed a troika of "foundational pacts" for deep military cooperation, beginning with the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016, followed by the Communications Compatibility and Security Agreement (COMCASA) after the first 2+2 dialogue in 2018, and then the Basic Exchange and Cooperation Agreement (BECA) in 2020.

This 2+2 mechanism is gaining significance in the context of an increasingly aggressive China, which threatens a large number of countries in its neighbourhood and beyond, and which has been challenging several established norms and aspects of international relations.

BEN GURION CANAL PROJECT

Context

The current Israel-Palestine crisis in the Middle East has refocused attention on the ambitious Ben Gurion Canal Project.

Ben Gurion Canal Project

Originating in the 1960s, the Ben Gurion Canal Project was conceptualized as a transformative infrastructure initiative.

It was named after Israel's founding father, David Ben-Gurion (1886-1973), reflecting its historical significance.

It has been speculated that one of the reasons behind Israel's desire to eliminate Hamas from the Gaza Strip and completely control the Palestinian enclave is to give itself the chance to better explore a dramatic economic opportunity that has been talked about for several decades, but for which peace and political stability in the region is an essential prerequisite.

The idea is to cut a canal through the **Israeli-controlled Negev Desert from the tip**

of the Gulf of Aqaba — the eastern arm of the Red Sea that juts into Israel's southern tip and south-western Jordan — to the Eastern Mediterranean coast, thus creating an alternative to the Egyptian-controlled Suez Canal that starts from the western arm of the Red Sea and passes to the southeastern Mediterranean through the northern Sinai peninsula.

The Gulf of Aqaba has a coastline shared by four countries: Egypt, Israel, Jordan, and Saudi Arabia.

This so-called Ben Gurion Canal Project, which was first envisioned in the 1960s would, if it were to be actually completed, transform global maritime dynamics by taking away Egypt's monopoly over the shortest route between Europe and Asia.l

However, any attempt to construct the canal would have to overcome gigantic logistical, political, and funding challenges which, in the current situation, makes it seem largely fantastical. We take a look at what has been proposed, and its implications, theoretically, on global trade and geopolitics.

Economic Implications

Speculations suggest that Israel's desire to control Gaza and eliminate Hamas is linked to unlocking economic opportunities tied to the canal.

If completed, the Ben Gurion Canal Project would have a significant impact on global trade and geopolitics. It would create a new shipping route between Europe and Asia, bypassing the Suez Canal and reducing Egypt's control over global shipping.

What is the Suez Canal?

It is an artificial sea-level waterway in Egypt (completed in 1869), connecting the Mediterranean Sea to the Red Sea through the Isthmus of Suez and dividing Africa and Asia. The 193 km long canal is a key trade route between Europe and Asia.

The 150-year-old canal was controlled by British and French interests in its initial years, but was nationalised in 1956 by Egypt.

The Suez Canal now is controlled by Egypt, which collects toll revenues from the vessels that use it. In 2021, the canal generated a record of USD 9.4 billion for Egypt, accounting for nearly 2% of its GDP.

The Suez Canal is a vital trade route that accounts for approximately 12% of global trade passes through the Suez Canal, representing 30% of all global container traffic, and over USD 1 trillion worth of goods per annum.

The canal enables India to access the markets of Europe, Africa, and the Middle East more easily and economically. India imports most of its oil and gas from the Gulf countries, and the canal facilitates the smooth flow of energy supplies to India.

NEW ROUTES OF REGIONAL CONNECTIVITY BETWEEN INDIA AND BHUTAN

Context

India and Bhutan agreed to discuss new routes of regional connectivity, and upgrade border and immigration posts to support trade and connectivity, during Bhutan King's India visit.

About the Discussion

Discussions has been held on the entire gamut of bilateral cooperation and regional and global issues of mutual interest.

The new routes of regional connectivity include the development of a cross-border rail link between Gelephu in Bhutan and Kokrajhar in Assam, spanning 58 km.

The two sides agreed to explore a second rail link for about 18 km between Samtse in Bhutan and Banarhat in West Bengal tea gardens area. India also agreed to allowing Bhutanese trade items to be carried further on from Haldibari in West Bengal to Chilahati in Bangladesh.

The rail connectivity could in the future assist air connectivity for Indians in the northeast as well, as Bhutan plans to build an international airport at Gelephu as part of the larger Sarpang district Special Economic Zone, new initiative expected to be announced by the Bhutanese King soon.

The two sides agreed to strengthen trade infrastructure with the upgradation of an existing land customs station at Dadgiri (Assam) to a modernised "Integrated Check Post" (ICP) along with "development of facilities on the Bhutanese side at Gelephu", indicating India's support to the Bhutanese SEZ project.

India has committed to continue its support for Bhutan's socio-economic development, with a particular focus on the 13th Five-Year Plan. This underscores the enduring commitment to their strong bilateral ties.

For the 12th Five Year Plan, India's contribution of Rs 4,500 crore constituted 73% of Bhutan's total external grant component.

Significance of Bhutan for India

- Bhutan shares its borders with India and China, and its strategic location makes it an important buffer state for India's security interests.

- India has provided Bhutan with assistance in areas such as **defense, infrastructure, and communication,** which has helped to maintain Bhutan's sovereignty and territorial integrity.

- In 2017, during the **Doklam standoff between India and China,** Bhutan played a crucial role in allowing Indian troops to enter its territory to resist Chinese incursions.

- **India is Bhutan's largest trading partner,** and **Bhutan's major export destination.**

- Bhutan's hydropower potential is a significant source of revenue for the country, and India has been instrumental in assisting Bhutan in developing its hydropower projects.

- **Bhutan is one of the few countries** in the world that **has pledged to remain carbon-neutral,** and India has been a key partner in helping Bhutan achieve this goal.

- India has provided assistance to Bhutan in areas such as Renewable energy, forest conservation, and sustainable tourism.

INDO-PACIFIC ECONOMIC FRAMEWORK FOR PROSPERITY (IPEF)

Context:

The third Indo-Pacific Economic Framework for Prosperity (IPEF) Ministerial Meeting was held in San Francisco, California on 14 November 2023 hosted by the US. Union Minister for Commerce and Industry, Consumer Affairs, Food and Public Distribution, and Textiles, Shri Piyush Goyal participated in the Ministerial meeting.

The framework is structured around four pillars relating to ".

1. Supply-chain resilience
2. Clean energy, decarbonisation & infrastructure
3. Taxation & anti-corruption
4. Fair & resilient trade.

India had joined Pillars II to IV of IPEF, it has an observer status in Pillar-I.

IPEF:

It is a US-led initiative that aims to strengthen economic partnership among participating countries to enhance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness in the Indo-Pacific region.

The IPEF was launched in 2021 with a dozen initial partners who together represent 40% of the world GDP.

India is one of the members of IPEF framework.

The IPEF is not a Free Trade Agreement (FTA) but allows members to negotiate the parts they want to.

India's position in relation to IPEF:

• India did not declare a definitive position for some time because it will be watching what benefits member countries will derive and whether any conditionalities on aspects like environment may discriminate against developing countries.

• India is in the process of firming up its own digital framework and laws, particularly regarding privacy and data, and it would wait for more information.

INDIA-UK FREE TRADE AGREEMENT

Context:

External Affairs Minister recent discussions with British PM have put the India-UK Free Trade Agreement (FTA) at the forefront of bilateral negotiations.

Why does this FTA matter?

The FTA, when finalized, is expected to not only enhance economic ties between India and the UK but also serve as a blueprint for similar agreements with India's second-largest trading partner, the European Union (EU).

What is Free Trade Agreement (FTA)?

A Free Trade Agreement (FTA) is a legally binding trade pact between two or more countries or regions that aims to reduce or eliminate barriers to trade and promote economic cooperation.

FTAs are designed to facilitate the exchange of goods and services across borders by reducing or eliminating tariffs (import taxes), quotas, and various non-tariff barriers, such as regulations and licensing requirements.

These agreements are negotiated to create a more open and competitive trade environment, fostering economic growth and prosperity among the participating nations.

India's considerations and UK

- Economic Integration: India is reorienting its trade strategy, moving away from previous trade deals that widened deficits with East Asian countries. Instead, it's focusing on strengthening economic integration with Western and African nations.

Reducing Dependence on China: The disruption of global supply chains during the pandemic exposed the risks of overreliance on China. Western countries, including Australia and the UK, are now seeking a 'China-plus one' approach in trade.

RCEP Exit: India's exit from the China-dominated Regional Comprehensive Economic Partnership (RCEP) further underscores its desire to bolster trade ties with the UK, EU, Australia, and others as a counterbalance to China's influence.

Brexit Influence and UK's Perspective

Crucial for UK: A trade deal with India holds significant importance for the UK, especially as it faces a challenging election in early 2025. Concerns that fueled the Brexit vote have made the UK cautious about offering work permits to Indian service sector workers under the FTA.

Market Compensation: Despite Brexit uncertainties, the vast Indian market provides London with an opportunity to offset the loss of access to the European Single Market.

Benefits for India and the UK

India's Gains: Indian labour-intensive sectors like apparel and gems & jewellery have struggled with declining market share. A trade deal could potentially level the playing field with competitors like Bangladesh. However, it may have repercussions on Least Developed Countries.

UK's Advantages: Past trade deals have shown that eliminating duties doesn't guarantee export growth. Reduction of tariffs on British exports like cars, whisky, and wines could provide deeper access to Indian markets.

Tariff Disparity: The average tariff on Indian imports to the UK is 4.2%, while the average tariff in India on goods from the UK is 14.6%, highlighting the potential for tariff alignment.

Addressing Non-Tariff Barriers (NTBs)

Modern FTA Scope: FTA negotiations could focus on eliminating non-tariff barriers (NTBs), which have historically hindered exports. NTBs often involve regulations, standards, testing, certification, or reshipment inspections,

especially in agriculture and manufacturing.

Conformity Assessments: Indian agricultural exporters often face strict limits on contaminants, and Indian products face rejections due to conformity assessments and technical requirements.

Carbon Tax and Impact

The UK, akin to the EU, is considering a carbon border adjustment mechanism (CBAM) that imposes a carbon tax on certain imports based on emissions.

This move may affect India's exports, even with reduced tariffs, particularly in sectors like cement, chemicals, steel, and power generation.

Conclusion

The India-UK Free Trade Agreement represents a strategic shift in India's trade policy, emphasizing Western and African integration while mitigating dependence on China.

For the UK, it offers a chance to compensate for Brexit-related losses and strengthen ties with a significant economic partner.

Addressing tariff disparities, NTBs, and carbon taxes will be pivotal in shaping the FTA's impact on both nations' economies.

UNITED NATIONS SECURITY COUNCIL

Context:

The two challenging conflicts, Israel-Hamas conflict and Russia-Ukraine War have in recent times led to questions about the effectiveness of the UNSC in bringing about peace.

About United Nations Security Council:

The Security Council was established by the UN Charter in 1945. It is one of the six principal organs of the United Nations. The other 5 organs of the United Nations are—the General Assembly (UNGA), the Trusteeship Council, the Economic and Social Council, the International Court of Justice, and the Secretariat.

Its primary responsibility is to work to maintain international peace and security. The council is headquartered at NewYork.

Members:

The council has 15 members: the five permanent members and ten non-permanent members elected for two-year terms. The five permanent members are the United States, the Russian Federation, France, China and the United Kingdom.

India, for the eighth time, has entered the UNSC as a non-permanent member last year (2021) and will stay on the council for two years i.e 2021-22.

Each year, the General Assembly elects five non-permanent members (out of ten in total) for a two-year term. The ten non-permanent seats are distributed on a regional basis. The council's presidency is a capacity that rotates every month among its 15 members.

Voting Powers:

Each member of the Security Council has one vote. Decisions of the Security Council on matters are made by an affirmative vote of nine members including the concurring votes of the permanent members. A "No" vote from one of the five permanent members blocks the passage of the resolution.

Any member of the United Nations which is not a member of the Security Council may participate, without vote, in the discussion of any question brought before the Security Council whenever the latter considers that the interests of that member are specially affected.

Issues with UNSC:

● Veto Power: The five permanent members of the UNSC—China, France, Russia, the United Kingdom, and the United States—possess veto power. This means that any substantive resolution can be blocked if one or more of these members vote against it. The use of the veto can lead to paralysis and hinder the Council from taking decisive action in certain critical situations.

Geopolitical Divisions: The UNSC often reflects the geopolitical rivalries and interests of its member states. Divisions among major powers, particularly between Western countries and Russia or China, can hinder consensus and prevent the Council from responding effectively to conflicts.

Inequitable Representation: The composition of the UNSC does not fully represent the current geopolitical landscape. Developing regions, such as Africa, Latin America, and Asia, are underrepresented. There are calls for reform to make the Council more reflective of the diverse and dynamic nature of the international community.

Limited Enforcement Mechanisms: The UNSC has limited means to enforce its decisions. While it can authorize the use of force, the effectiveness of military interventions can vary, and the implementation of sanctions is not always successful in achieving the desired outcomes.

Complex Conflicts: The nature of contemporary conflicts is often complex, involving non-state actors, transnational threats, and protracted crises. The UNSC's traditional tools and approaches may not be fully equipped to address these evolving challenges.

Humanitarian Concerns: The UNSC faces challenges in effectively addressing humanitarian crises, especially when the interests of member states diverge. The Council's responses to situations involving mass atrocities, refugee flows, and humanitarian emergencies may be hindered by political considerations.

Lack of Preventive Measures: The UNSC often responds reactively to conflicts rather than proactively preventing them. Early warning mechanisms and preventive diplomacy are areas where the Council could enhance its capabilities.

Resource Constraints: The financial and logistical constraints of UN peacekeeping operations can impact their effectiveness. Timely and adequate deployment of peacekeeping forces is crucial for their success, but resource limitations can hinder these efforts.

Cybersecurity and Emerging Threats: The UNSC faces challenges in adapting to emerging threats in the digital age, including cyber threats and the misuse of technology for malicious purposes. The Council's frameworks may need to evolve to effectively address these new challenges.

Threat to State's Sovereignty: The responsibility of the UNSC to maintain peace and manage conflicts, with binding decisions on member countries. Concerns about encroachment on state sovereignty through actions like imposing sanctions.

In Spite of the issues, Why is UNSC needed?

The United Nations Security Council (UNSC) serves a multifaceted role in global governance, primarily focused on preventing and resolving conflicts. It employs diplomatic means to provide a forum for dialogue, aiming to peacefully resolve disputes and prevent the escalation of tensions into armed conflicts.

The UNSC holds the authority to take collective action, including the use of force, to maintain or restore international peace and security. This encompasses peacekeeping operations, sanctions, and military interventions.

Beyond conflict resolution, the UNSC plays a crucial role in addressing humanitarian concerns arising from armed conflicts. It can authorize interventions and peacekeeping missions to protect civilians, provide humanitarian aid, and contribute to conflict resolution. The Council facilitates multilateral decision-making, fostering dialogue among member states with diverse perspectives to develop resolutions addressing global challenges.

The UNSC's existence acts as a deterrent against aggressive state behavior, with the international community's collective response discouraging actions that might lead to conflict. Additionally, the Council serves as a key enforcer of international law through binding resolutions, sanctions, and other measures to maintain a rules-based international order.

The UNSC extends its influence to peacekeeping operations, overseeing missions in conflict-affected regions to monitor ceasefires, implement peace agreements,

and contribute to post-conflict reconstruction and stability. Furthermore, the Council provides a diplomatic forum for member states to address global challenges through initiatives, resolutions, and negotiations.

The UNSC's broad mandate includes addressing global threats beyond traditional conflicts, such as terrorism, proliferation of weapons of mass destruction, and cyber threats. It responds to emerging challenges that threaten international peace and security.

Recognizing the intrinsic link between peace and sustainable development, the UNSC endeavors to address root causes of conflicts and support post-conflict reconstruction. Through these efforts, the Council contributes to creating conditions for long-term stability and development.

Role Of United Nations In Ending War

The United Nations (UN) has played a significant role in addressing conflicts and promoting peace since its establishment in 1945. While it has had successes in some instances, it is essential to recognize that the UN's ability to end wars is often influenced by various factors, including the willingness of conflicting parties to engage in peaceful resolutions, the complexity of the conflicts, and the effectiveness of UN interventions.

Some examples of the UN's success in ending or mitigating conflicts include:

1. Korean War (1950-1953): The UN played a crucial role in responding to the North Korean invasion of South Korea. The conflict ended with an armistice in 1953, and the Korean Demilitarized Zone (DMZ) was established. While the war did not lead to a reunification of Korea, the UN's intervention helped prevent further aggression.

2. East Timor (1999): The UN played a significant role in overseeing the transition to independence for East Timor (Timor-Leste) after a referendum in 1999. The UN Transitional Administration in East Timor (UNTAET) helped maintain peace during the transition period.

3. Sierra Leone Civil War (1991-2002): The UN contributed to the peace process in Sierra Leone through the deployment of peacekeeping forces. The conflict eventually ended with the Lomé Peace Accord in 1999, and the UN Mission in Sierra Leone (UNAMSIL) helped stabilize the country.

4. Gulf War (1990-1991): In response to Iraq's invasion of Kuwait, the UNSC passed a series of resolutions, including Resolution 678, authorizing the use of force to liberate Kuwait. A multinational coalition, led by the United States, intervened, and Iraq was expelled from Kuwait. The conflict demonstrated the effectiveness of UNSC authorization for collective action.

However, there have been instances where the UN's efforts faced challenges or limitations:

1. Bosnian War (1992-1995): The UN faced criticism for its role in the Bosnian War, particularly during the Srebrenica massacre in 1995. The UN Protection Force (UNPROFOR) was unable to prevent the massacre, leading to questions about the effectiveness of UN peacekeeping.

2. Israeli-Palestinian Conflict: The Israeli-Palestinian conflict has been a longstanding and complex issue. The UNSC has faced challenges in adopting resolutions that lead to a comprehensive and lasting resolution. The use of the veto by certain permanent members has been a recurring obstacle to achieving consensus on actions that might address the root causes of the conflict.

3. Libyan Civil War (2011): While the UNSC authorized military intervention in Libya to protect civilians during the uprising against Muammar Gaddafi, the subsequent NATO-led intervention faced criticism for exceeding the authorized mandate. The aftermath of the intervention left Libya in a state of instability and ongoing conflict

4. North Korean Nuclear Program: The UNSC has grappled with addressing North Korea's nuclear weapons program. Despite numerous resolutions and sanctions, North Korea has continued to

UN Security Council (UNSC)

The UN Charter vests the primary responsibility for maintaining international peace and security to the UNSC

About
One of the **6 principal organs** of UN; established in **1945** by **UN Charter**

Headquarters
New York City

First Session
17 January 1946 at Church House, Westminster, **London**

Membership
- 15 members - 5 Permanent Members (P5), 10 **Non-Permanent Members** elected for **two-year terms** (5 elected each year)
- P5 - the US, the UK, Russia, France and China

Presidency
- **Rotates every month** among the 15 members
- **India's** Presidency for year **2022 - December**

Voting Powers
- 1 member = 1 vote
- P5 have **veto power**
- Members of UN sans membership of UNSC **participate without vote**

UNSC Committees/Resolutions

Terrorism
- **Resolution 1373** (Counter Terrorism Committee)
- **Resolution 1267** (Da'esh and Al Qaeda Committee)

Non-Proliferation Committee
- **Resolution 1540** (against nuclear, chemical and biological weapons)

India and UNSC
- Served **7 times** as non-permanent member; elected for the **8th time** for 2021-22; **advocates for a permanent seat**
- Arguments for a permanent seat:
  - **43 peacekeeping missions**
  - Active participation in formulating Human Rights Declaration (UDHR)
  - India's **population, territorial size, GDP, economic potential, cultural diversity, political system** etc.

G4
Group of 4 countries (Brazil, Germany, India and Japan) which advocate each other's bids for permanent seats in the UNSC

Uniting for Consensus (UfC) Movement
- Informally known as the **Coffee Club**
- Countries **oppose the expansion Permanent Seats** of UNSC
- **Prime movers of the club** - Italy, Spain, Australia, Canada, South Korea, Argentina and Pakistan
- Italy and Spain are opposed to Germany's bid; Pakistan - India's bid; Argentina – Brazil's bid and Australia - Japan's bid

Major Challenges in UNSC
- Usual UN rules don't apply to UNSC deliberations; **no records of meetings kept**
- Powerplay in UNSC; **anachronistic veto powers** of P5
- **Deep polarisation** among P5; frequent divisions end up blocking key decisions
- **Inadequate representation** of many regions among of the world

advance its nuclear capabilities. The geopolitical complexities and the involvement of major powers in the region have limited the effectiveness of UNSC measures in curbing North Korea's nuclear ambitions.

5. Cyprus Conflict (1963-present): The division of Cyprus between the Greek Cypriot south and the Turkish Cypriot north has persisted for decades. Despite multiple UN-led peacekeeping and peacebuilding efforts, a comprehensive and lasting resolution has not been achieved. The situation remains a source of tension in the region.

6. Ongoing Russia-Ukraine Conflict

What should be the way forward?

Democratization of UNSC: The power imbalance between the P5 and other countries in the UNSC needs to be addressed urgently to make the council more democratic and increase its legitimacy in governing international peace, security and order.

Expansion of UNSC: The changing needs of global governance for peace and security require significant reforms in the UNSC, including expanding its permanent and non-permanent seats to better address the complex and evolving challenges to international peace and security.

Equitable Representation: Equitable representation of all the regions in the UNSC is critical to decentralizing its governing power and authority over nations. The decentralization of the UNSC's decision-making processes will enable its transformation to a more representative, participatory body.

India's Role: In September 2022, India made a push for UNSC reform, hosting a meeting of two separate groupings – G-4 and L-69 – in New York on the sidelines of the UN General Assembly. As India leads Global South, it needs to revitalise its engagement with its traditional partners in the "global south" by articulating their peace and security concerns in the UNSC

SOCIETY & SOCIAL JUSTICE

What's Inside?

PM-PVTG DEVELOPMENT MISSION

Context

Prime Minister Narendra Modi will launch 'PM-PVTG Development Mission' in Khunti district on 'Tribal Pride Day' (Birth anniversary of Lord Birsa Munda) on November 15.

About PM-PVTG Development Mission

For implementing targeted schemes for socially and economically backward Scheduled tribes, the Government in Budget 2023-24 has made an announcement of Pradhan Mantri PVTG Development Mission.

The mission is aimed to improve **socio-economic conditions** of the particularly vulnerable tribal groups (PVTGs) by saturating PVTG families and habitations with basic facilities such as safe housing, clean drinking water and sanitation, improved access to education, health and nutrition, road and telecom connectivity, and sustainable livelihood opportunities.

The mission envisages availability of Rs.15,000 crore from the Development **Action Plan for the Scheduled Tribes,** for activities to be undertaken in the next three years under the Mission.

The Ministry of Tribal Affairs is **the Nodal Ministry** for overall policy planning and coordination of programs for development of STs. Besides, 42 Central Ministries / Departments have been mandated by NITI Aayog for earmarking a certain percentage of their total Scheme allocation every year for tribal development including education, health and economic empowerment.

Ministry of Tribal Affairs is also implementing following schemes/programmes for socio-economic development and participation of Scheduled Tribes (STs) from across the country:

1. Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY)
2. Grants under Article 275(1) of the Constitution
3. Development of PVTGs
4. Grant-in-Aid to Voluntary Organizations Working for Welfare of STs
5. Pre-Matric Scholarship
6. Post Matric Scholarship
7. National Fellowship and Scholarship for Higher Education of ST Students
8. National Overseas Scholarship (NOS) to the ST Students for Studies Abroad
9. Pradhan Mantri Janajatiya Vikas Mission (PMJVM)
10. Eklavya Model Residential School (EMRS)
11. Venture Capital Funds for STs
12. Support to Tribal Research Institutes

About Particularly Vulnerable Tribal Groups (PVTGs)

PVTGs, earlier known as **primitive** tribal groups, are a sub-classification of the Scheduled Tribes (STs) or a section of STs who are considered **more vulnerable than regular STs.** They usually have distinctive culture, live in geographical isolation, and are shy of contact with other communities.

The PVTG list was created by the government with the aim to improve on priority the living standards of endangered tribal groups. In this context, in 1975, the Government of India declared 52 tribal groups as PVTGs on the recommendation of the Dhebar **commission.**

The Ministry of Home Affairs has classified 75 tribal groups in 18 states of the country and the Union Territory of Andaman and Nicobar Islands as Particularly Vulnerable Tribal Groups (PVTGs). Currently, there are **75 PVTGs out of 705 Scheduled Tribes.** Odisha has the highest number (more than 2.5 lakh) of PVTGs.

PVTGs have some basic characteristics -they are mostly homogenous, with a small population, relatively physically isolated, social institutes cast

in a simple mould, absence of written language, relatively simple technology and a slower rate of change etc.

The criteria for identifying Particularly Vulnerable Tribal Groups are: -

1. Pre-agricultural level of technology,

2. Low level of literacy,

3. Economic backwardness,

4. A declining or stagnant population.

About Birsa Munda

Birsa Munda was a young freedom fighter and a tribal leader, whose spirit of activism in the late nineteenth century, is remembered to be a strong mark of protest against British rule in India.

Born and raised in the tribal belt around **Bihar and Jharkhand,** Birsa Munda's achievements are known to be even more remarkable by virtue of the fact that he came to acquire them before he was 25.

In recognition of his impact on the nationals movement, **the state of Jharkhand was created on his birth anniversary in 2000.**

Born on November 15, 1875, Birsa spent much of his childhood moving from one village to another with his parents. He belonged to the **Munda tribe in the Chhotanagpur Plateau area.** He received his early education at Salga under the guidance of his teacher **Jaipal Nag.** On the recommendation of Jaipal Nag, Birsa converted to **Christianity** in order to join the German Mission school. He, however, opted out of the school after a few years.

The impact of Christianity was felt in the way he came to relate to religion later. Having gained awareness of the British colonial ruler and the efforts of the missionaries to convert tribals to Christianity, Birsa started the faith of **'Birsait'.** Soon members of the Munda and Oraon community started joining the Birsait sect and it turned into a challenge to British conversion activities.

During the period, 1886 to 1890, Birsa Munda spent a large amount of time in **Chaibasa** which was close to the centre of the Sardars agitation. The activities of the Sardars had a strong impact on the mind of the young Birsa, who soon became a part of the anti-missionary and anti-government program. By the time he left Chaibasa in 1890, Birsa was strongly entrenched in the movement against the British oppression of the tribal communities.

On March 3, 1900, Birsa Munda was arrested by the British police while he was sleeping with his tribal guerilla army at Jamkopai forest in Chakradharpur. He died in **Ranchi jail on June 9, 1900 at a young age of 25.**

Though he lived a short span of life and the fact that the movement died out soon after his death, Birsa Munda is known **to have mobilised the tribal community against the British** and had also **forced the colonial officials to introduce laws protecting the land rights of the tribals.**

Birsa's achievements as a young tribal revolutionary has continued to be celebrated over decades now and he has successfully carved out a space for himself in popular and folk literature, academia, and mass media.

PRADHAN MANTRI SCHOOLS FOR RISING INDIA (PM SHRI) SCHEME

Context

Union education minister Dharmendra Pradhan has launched the Pradhan Mantri Schools for Rising India (PM SHRI) scheme, intended to develop thousands of schools across the country.

About Pradhan Mantri Schools for Rising India (PM-SHRI) Scheme:

The PM SHRI School is a centrally sponsored scheme initiated by the Government of India. Its objective is to establish over 14,500 PM SHRI

Schools, overseen by the Central Government, State/UT Governments, local bodies, as well as Kendriya Vidyalaya Sangathan (KVS) and Navodaya Vidyalaya Samiti (NVS).

These schools aim to create an inclusive and welcoming atmosphere for every student, ensuring their well-being and providing a secure and enriching learning environment. The goal is to offer a diverse range of learning experiences and ensure access to good physical infrastructure and appropriate resources for all students.

The PM SHRI Schools will be developed as Green Schools, incorporating environment-friendly aspects.

The duration of the scheme is from 2022-23 to 2026-27, after which it shall be the responsibility of the States/UTs to continue to maintain the benchmarks achieved by these schools.

The overarching purpose of PM SHRI School is to nurture students in a manner that transforms them into engaged, productive, and contributing citizens. This aligns with the vision of the National Education Policy 2020, striving to build a society characterized by equity, inclusivity, and pluralism.

These schools will not only focus on enhancing cognitive development but also creating holistic and well-rounded individuals equipped with key 21st-century skills.

The pedagogy adopted in these schools will be more experiential, holistic, integrated, play/toy-based (particularly in the foundational years), inquiry-driven, discovery-oriented, learner-centred, discussion-based, flexible, and enjoyable.

The focus will be on the learning outcomes of every child in every grade. A School Quality Assessment Framework (SQAF) is being developed, specifying the key performance indicators to measure outcomes. Assessment at all levels will be based on conceptual understanding and application of knowledge to real-life situations and will be competency-based.

AYUSHMAN AROGYA MANDIR

Context

The Union Health Ministry has decided to rename the Ayushman Bharat-Health and Wellness Centres to "Ayushman Arogya Mandir".

About

Ayushman Arogya Mandir is an attempt to move from a selective approach to health care to deliver comprehensive range of services spanning preventive, promotive, curative, rehabilitative and palliative care.

It has two components which are complementary to each other.

Key Components

1. Under its first component, 1,50,000 Ayushman Arogya Mandir will be created to deliver Comprehensive Primary Health Care, that is universal and free to users, with a focus on wellness and the delivery of an expanded range of services closer to the community.

2. The second component is the Pradhan Mantri Jan Arogya Yojana (PM-JAY)

which provides health insurance cover of Rs. 5 lakhs per year to over 10 crore poor and vulnerable families for seeking secondary and tertiary care.

Expanded range of services

As a first step, Screening, Prevention, Control and Management of Non-communicable Diseases and Chronic Communicable diseases like Tuberculosis and Leprosy has been introduced at Ayushman Arogya Mandir.

The expansion of services has been planned in incremental manner which includes,

1. Care in pregnancy and childbirth.

2. Neonatal and infant health care services

3. Childhood and adolescent health care services.

4. Family planning, Contraceptive services and Other Reproductive Health Care services

5. Management of Communicable diseases: National Health Programs

6. Management of Common Communicable Diseases and General Out-patient care for acute simple illnesses and minor ailments

7. Screening, Prevention, Control and Management of Non-Communicable diseases and chronic communicable diseases like TB and Leprosy

8. Basic Oral health care

9. Care for Common Ophthalmic and ENT problems

10. Elderly and Palliative health care services

11. Emergency Medical Services

12. Screening and Basic management of Mental health ailment

TRIBAL YOUTH EXCHANGE PROGRAMME

Context:

Recently, a youth delegation from Madhya Pradesh and Chhattisgarh who are attending the Tribal Youth Exchange Programme (TYEP) called on the President of India.

About TYEP:

- The Ministry of Home Affairs has been running the Tribal Youth Exchange Programme (TYEP) for the last 15 years.

- The programme is **being run through Nehru Yuva Kendra Sangathan** (NYKS) under the Ministry of Youth Affairs and Sports.

- Under this programme, young men and women of the **tribal community from the interior areas most affected by Left Wing Extremism are taken on a tour to major cities and metros** across the country.

Objectives:

- To provide tribal youth from 30 selected districts in 7 states the opportunity to travel to **10 different parts of the country** to learn about the cultural ethos, language, and lifestyles of the people, thereby illustrating the socioeconomic and cultural development process of **unity in the diversity aspect** of our national life.

- To **expose tribal youth** to the **technological and industrial advancements** that have taken place in different states of the country with a focus on various developmental activities, skill development, educational & employment opportunities available there.

- To **sensitise the tribal youth** about their **rich traditional & cultural heritage** and

enable them to preserve it for future generations.

- To help the tribal youth **develop emotional linkages** with their peer groups in other parts of the country and enhance their self-esteem.

- To provide opportunities to the **participants for interactions with the Hon'ble President of India, PM & CM, Governor** & other VIPs, the local communities, Panchayati Raj Institutions and the youths affiliated with the NYKS Youth Clubs so as to understand development issues, seek guidance for their involvement in the process of development.

- To develop personality of the tribal youth by enhancing their understanding of Ten Core Life Skills, identify their skill development oriented training needs and fulfilment of their legitimate career aspirations through Employable Skills, Scheme of Government of India and State Govt and provide them necessary guidance and career counselling.

- To provide exposure to industry and Skill Development programme which can facilitate the provision of employment to tribal youth.

- To provide literature on developmental schemes of the Centre & State pertaining to tribals.

PRADHAN MANTRI JANJATI ADIVASI NYAYA MAHA ABHIYAN (PM JANMAN)

Context:

On the Occasion of Janjatiya Gaurav Diwas (15th November) the Prime Minister (PM) has launched three key Initiatives to ensure last-mile welfare scheme delivery and protection for Particularly Vulnerable Tribal Groups (PVTGs).

The PM launched 'Viksit Bharat Sankalp Yatra', Pradhan Mantri Particularly Vulnerable Tribal Groups (PM PVTG) Development Mission and Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan.

India has ST population of 10.45 crore as per 2011 census, out of which 75 communities located in 18 States and the Union Territory of Andaman and Nicobar Islands have been categorized as Particularly Vulnerable Tribal Groups (PVTGs).

PM Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN):

About:

- PM JANMAN aims to protect and nurture tribal groups, especially those on the verge of extinction, by providing them with necessary support, development, and connectivity to mainstream services and opportunities.

Coverage:

- The initiative covers 75 Particularly Vulnerable Tribal Groups (PVTGs) residing in 18 states and union territories, spread across 22,544 villages in 220 districts.

- Approximately 28 lakh people belong to these identified tribal groups.

Significance:

- PM JANMAN underscores the government's commitment to uplifting and safeguarding tribal communities, preserving their cultural heritage, and integrating them into the mainstream development process.

- It emphasizes the need to bridge the gap between tribal populations and essential services while ensuring their socio-economic empowerment.

REPORTING ANIMAL CRUELTY MAKES CHILDREN SAFER

Context:

The issue of child abuse in India is a serious and widespread concern that has gained attention through a significant empirical study conducted by the Union Ministry of Women and Child Development in 2007.

The findings of the study revealed alarming rates of child abuse in India and despite the gravity of these statistics, the study pointed out a significant gap in addressing the underlying factors contributing to child abuse.

Key Findings of Study Conducted by Ministry of Women and Child Development:

This comprehensive study was aimed to assess the prevalence of various forms of child abuse, including physical abuse, sexual abuse, emotional abuse, and neglect of girl children across the country.

The study reported that two out of every three children had experienced physical abuse, indicating a pervasive problem within the society.

Additionally, over half of the children surveyed reported having faced one or more forms of sexual abuse, highlighting the disturbingly high incidence of such incidents.

Equally concerning was the fact that every second child reported experiencing emotional abuse, which reflects the multifaceted nature of the problem.

Factors Contributing to Child Abuse

Family Structure and Size:

The dynamics within Indian families may play a role in child abuse. Large families or certain family structures might create conditions that make children more vulnerable to abuse.

Ineffective Implementation of Laws:

Despite existing laws for child protection, their implementation is not effective.

o   This reflects a systemic issue within the legal and judicial systems, where the mechanisms for enforcing these laws may be inadequate or inefficient.

Poverty:

Poverty may be identified as a socio-economic factor contributing to child abuse.

Families facing economic hardships may struggle to provide a safe and nurturing environment for their children, potentially leading to instances of abuse.

Illiteracy:

Illiterate individuals may be unaware of child rights or lack the means to advocate for their children effectively.

Cultural Factors:

Cultural factors can significantly influence societal norms and behaviours. Certain cultural elements may contribute to the prevalence of child abuse.

This could include attitudes towards discipline, gender roles, or the acceptance of certain behaviours within families.

Introduction of a Fresh Perspective: Link Between Child Abuse and Animal Cruelty

There is another crucial element that has been missing from the discourse on child protection in India; less-explored aspect of the connection between child abuse victims and animal cruelty.

The connection between child abuse victims and animal cruelty has not been adequately explored or discussed in the discourse on child protection.

There are shared characteristics or patterns of behaviour between individuals who perpetrate child abuse and those who engage in animal cruelty.

Understanding this connection could have implications for identifying and addressing the root causes

of abuse.

Therefore, rather than addressing child abuse in isolation, exploring links with other forms of violence, such as animal cruelty, could provide a more comprehensive understanding of the underlying issues.

Evidence Based Studies Highlighting the Link between Child Abuse and Animal Cruelty

Study Conducted in England

A 1980 pilot study conducted in England found evidence that suggested that children are at risk of abuse or neglect in households that abuse their family pet.

According to the study, out of the 23 families that had a history of animal abuse, 83% had been identified by human social service agencies as having children at risk of abuse or neglect.

1983 Study in the US:

A different study of 53 families in which child abuse had occurred, carried out in New Jersey (U.S.) found that animal abuse and child abuse co-occurred in 88% of the cases.

2019 US Study on Homes with Interpersonal Violence

It was found that in 3% of the cases, threats and violence towards animals are used to coerce children into compliance so that they do not report the abuser.

As per the study, since animals are threatened to result in compliance of the child, some of this violence is done without the knowledge of other caregivers.

Significance of Linking Animal Cruelty to Child Abuse in the Indian Context

Can Serve as Circumstantial Evidence

In many cases, animal abuse is easier to detect than child abuse and is also usually easier for victims of domestic violence (including children) to report.

Early identifications of homes with animal abuse may save other human victims encountering abuse.

This can also serve as circumstantial evidence in custody and child abuse hearings as it is difficult for children to provide detailed accounts of their own abuse.

Can Act as a Deterrent for Further Acts of Violence

Reporting animal abuse and consistently enforcing anti-cruelty laws can act as a deterrent for further acts of violence against not only animals but also humans.

It is therefore imperative to report, register and prosecute cases involving animal cruelty.

Way Forward

The Link Must be studied in Indian Context

There is a strong link between animal cruelty and child abuse and law enforcement

agencies in other countries have devoted resources to studying the co-occurrence of animal cruelty with other forms of violent crimes, especially crimes against children.

In India, there is no study that empirically assesses this link and therefore, there is an urgent need to investigate it further in the Indian context.

Need to Enforce Anti-Cruelty Laws Strictly

The National Crime Records Bureau does not even collect data on offences registered and prosecuted under the Prevention of Cruelty to Animals Act, 1960.

As studies in other countries have shown, the collection and aggregation of this data can prove to be a significant tool for law enforcement agencies to understand how different crimes overlap, and prevent the occurrence of these crimes.

Poor enforcement of anti-cruelty laws therefore not only harms animals, but also human victims of violence.

The link shows that both human and animal victims of crime are prone to victimisation by the same perpetrator.

There is an opportunity for stakeholders in the child protection and animal protection movements to collaborate to meet their collective objective of reducing abuse.

Economic Development & Agriculture

MAKE IN INDIA

What's Inside?

RBI TIGHTENS CAPITAL NORMS FOR UNSECURED LOANS

Context

The Reserve Bank of India (RBI), which has been red flagging about the rising unsecured loan books of certain Regulated Entities (REs), issued regulatory measures towards consumer credit (unsecured loans) and bank credit to Non Banking Financial Companies (NBFCs.) increasing risk weights by an additional 25 percentage points to 125%.

About

An Unsecured Loan is a loan that does not require one to provide any collateral to avail them. It is issued by the lender on one's creditworthiness as a borrower. And hence, having an excellent credit score is a prerequisite for the approval of an Unsecured Loan.

Risk Weighted Assets(RWA):

Risk-weighted assets are used to determine the minimum amount of capital a bank must hold in relation to the risk profile of its lending activities and other assets.

This is done in order to reduce the risk of insolvency and protect depositors. The more risk a bank has, the more capital it needs on hand.

The capital requirement is based on a risk assessment for each type of bank asset. For example, a loan that is secured by a letter of credit is considered to be riskier than a mortgage loan that is secured with collateral and thus requires more capital.

Capital Adequacy Ratio

It is also known as the capital-to-risk weighted assets ratio (CRAR) . The ratio compares capital to risk-weighted assets and is used by regulators to determine a bank's risk of failure

CAR is calculated by dividing a bank's capital by its risk-weighted assets. The minimum ratio of capital to risk-weighted assets is 8% under Basel II and 10.5% (which includes a 2.5% conservation buffer) under Basel III

How it will impact

- When Banks and NBFCs calculate 'Capital Adequacy Ratio (CAR)' then there is a 'risk weight' multiplied in the 'assets' in the denominator which increases the denominator and reduces the CAR. So Banks & NBFCs will now require more capital (equity and bond) to maintain the CAR as per BASEL III Norms

- It can cause a rise in lending rates for consumers due to these regulatory changes.

- This increase in lending rates by banks to non-banking financial institutions might also affect corporate bonds, leading to higher yields and widening credit spreads for these institutions.

- The higher capital requirements are expected to moderate the growth of unsecured loans and potentially address systemic risks associated with such lending.

INTERNATIONAL TROPICAL TIMBER COUNCIL

Context

The 59th session of the International Tropical Timber Council (ITTC), the governing body of the International Tropical Timber Organization (ITTO), recently concluded with significant decisions shaping the future of sustainable tropical forest management and the trade of sustainably produced tropical timber.

Key Outcomes of the 59th session of the ITTC

The countries agreed to endorse eight projects

related to sustainable forest management and related objectives.

The session also approved and adopted a budget of USD 7.1 million for the coming financial year 2024-25.

The council also approved a trial measure that will allow ineligible members to submit project proposals and concept notes.

Members who have fallen behind on their financial contributions and are thus ineligible will be allowed to submit one project and concept note for every two years of arrears paid.

The Council also adopted the work programme for 2024-25, which emphasizes collaboration with the members of Collaborative Partnership on Forests and other partners for effective implementation.

International Tropical Timber Organization (ITTO):

- The ITTO is an intergovernmental organization promoting the sustainable management and conservation of tropical forests and the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests.

- ITTO was established under the International Tropical Timber Agreement 1983 (ITTA 1983), negotiated under the auspices of the United Nations Conference on Trade and Development.

- It is governed by ITTC, a group that meets at least once a year to discuss a wide-ranging agenda aimed at promoting sustainable tropical forest management(SFM) and the trade of sustainably produced tropical timber

- Headquarters: Yokohama, Japan

- It has 75 countries, including India. Its members manage about 80% of the world's tropical forests and are responsible for 90% of the global tropical timber trade.

Functions:

ITTO develops internationally agreed policy guidelines and norms to encourage SFM and sustainable tropical timber industries and trade.

Assists tropical member countries to adapt such guidelines and norms to local circumstances and to implement them in the field through projects and other activities.

Collects, analyzes and disseminates data on the production and trade of tropical timber. Promotes sustainable tropical timber supply chains.

DIRECT LISTING OF INDIAN COMPANIES IN FOREIGN STOCK EXCHANGES

Context:

Indian companies can now list on foreign stock exchanges, according to a Ministry of Corporate Affairs (MCA) notification of Section 5 of the Companies Amendment Act, 2020.

Legal deck now cleared for government to issue the class of public companies and classes of securities that would be permitted for direct listing in foreign bourses.

Background:

Currently, Indian companies can access overseas equity markets only through depository receipts or by listing their debt securities on foreign markets.

The Centre had in 2020 amended the Companies Act allowing the direct listing of Indian companies on foreign stock exchanges, but the framework has not been put in place so far.

Direct Listing:

Direct listing is a process by which a company can list its shares on a foreign stock exchange without issuing new shares or raising capital from investors.

Direct listing is also different from the

ADR	GDR
American Depository Receipts	Global Depository Receipts
American Depository Receipts (ADR) is a type of negotiable security instrument that is issued by a US bank on behalf of a non-US company, which is trading on the US stock exchange.	Global Depository Receipts (GDR) are a type of negotiable instruments that are issued by a foreign depository bank for trading of shares of a company in an international market
Issued by US capital market	Issued by European capital market

depository receipt (DR) route, where a company issues its shares to a custodian bank, which then issues DRs to foreign investors.

Benefits of direct listing:

Access to a larger and more liquid market, which can increase the demand and valuation of their shares.

Exposure to the best practices and regulations of the foreign jurisdiction can improve their governance and transparency.

Avoidance of the dilution of ownership and control that comes with issuing new shares or DRs.

Startups and unicorns may benefit from this avenue of raising funds and increasing their global profile.

Savings on the costs and time involved in the IPO or DR process, such as underwriting fees, listing fees, legal fees, etc.

Challenges involved in direct foreign listing:

1. Compliance with the laws and rules of the foreign jurisdiction, which may be different from or more stringent than those in India.

2. Challenges in direct foreign listings include valuation issues, as global investors may not offer the same valuations as in India, potentially impacting the company's market perception and pricing.

3. Exposure to the currency fluctuations and market volatility of the foreign exchange can affect their share price and returns.

4. Potential conflicts or disputes with the existing shareholders, regulators, or tax authorities in India or abroad.

SMART CITIES RANKING 2023

Context:

As the deadline for the Smart Cities Mission in India approaches in June 2024, cities in states like Gujarat, Uttar Pradesh, Madhya Pradesh, Karnataka, Tamil Nadu, and Rajasthan have emerged as the top performers. These cities are leading in terms of project completion and financial progress.

Leading Cities:

Data from November 10 highlights Surat (Gujarat) as the top-performing city in terms of project completion, fund utilization, and other criteria within the Smart Cities Mission. It is followed by Agra (UP), Ahmedabad (Gujarat), Varanasi (UP), and Bhopal (MP) in the top five. Other cities in the top 10 include Tumakuru (Karnataka), Udaipur (Rajasthan), Madurai (TN), Kota (Rajasthan), and Shivamogga (Karnataka).

Challenges in Smaller Cities:

The cities ranking lower in the Smart Cities Mission progress are primarily smaller cities,

Union Territories, and those in the Northeastern region. Sources attribute this lower ranking to a lack of capacity in these smaller cities. However, officials remain optimistic that ongoing projects will meet the extended deadline of June 2024.

Background of the Smart Cities Mission:

Launched in 2015, the Smart Cities Mission selected 100 cities through a competitive process from January 2016 to June 2018. These cities were expected to complete all proposed projects within five years from their selection. In May of this year, the deadline for all cities was extended to June 2024.

INDIA TO BE THE CHAIR OF INTERNATIONAL SUGAR ORGANISATION FOR 2024

Context

India becomes Chair of International Sugar Organisation (ISO) for 2024 to lead global sugar sector.

In its 63rd council meeting, International Sugar Organisation (ISO), headquartered in London, has announced India to be the Chair of the organisation for 2024. This is a huge achievement for the country to lead the global sugar sector and reflection of growing stature of the country in this domain.

India seeks support and cooperation from all member countries and would like to focus on bringing together all member countries to adopt more sustainable practices in sugarcane cultivation, sugar and ethanol production and better utilisation of by-products.

Sugar Industry in India

India has been the largest consumer and second largest producer of sugar in the world. With about 15% share in global sugar consumption and about 20% production of sugar, Indian sugar trends affects the global markets profusely.

This leading position makes India as the most suitable nation to lead International Sugar Organisation (ISO) which is the apex international body on sugar and relating products having about 90 countries as members.

With Brazil in the Western Hemisphere, India is the market leader in Eastern Hemisphere for sugar market. Now, being the 3rd largest country in the world in ethanol production after USA and Brazil, India has shown commitment towards green

energy and its capability to twist the challenges of surplus sugar in domestic market to solution of fossil fuels imports and a tool to meet COP 26 targets for India.

It is remarkable that ethanol blending percentage in India has increased from 5% in 2019-20 to 12% in 2022-23 while the production has increased from 173 crore litres to more than 500 crore litres during the same period.

Indian sugar industry has come a long way in modernisation and expansion as well as in diversification to exploitation of potential of its by-products to generate additional revenue streams to make the whole business model both sustainable and profitable.

It has proven its robustness during Covid pandemic by operating its mills while the country was facing lockdown and rising to the occasion by producing hand sanitisers sufficient to meet the demand in the country.

India has a unique distinction of being the Payer of the Highest Cane Price to its farmers and still efficient enough to make profits and operating in self-sufficient manner without any Government financial assistance.

Synergy between Government and sugar industry has made it possible to rejuvenate Indian sugar industry and to transform into a major player in green energy in the country.

More than 98% cane dues of last season 2022-23 have already been paid and more than 99.9% cane dues of previous seasons are clear. Thus, cane dues pendency is at all time low in India.

India has set the example by not only taking care of farmers and industry but also by putting consumers first. Domestic sugar retail prices are consistent and stable. While the global prices are hiked by about 40% in one year, India has been able to contain sugar prices within 5% increase from last year without putting additional burden on the industry.

On technical side also, National Sugar Institute, Kanpur has spread its wings and is collaborating with many countries including Indonesia, Nigeria, Egypt, Fiji etc. for sharing the latest technologies in the sector and best practices.

International Sugar Organisation (ISO)

The International Sugar Organisation (ISO) is an international organization that was established in 1968 as a part of the United Nations International Sugar Agreement.

The ISO consists of member countries that are involved in sugar production, consumption, and trade.

The primary objectives of the ISO are to ensure the stabilization of the global sugar market, facilitate trade among member countries, and promote sustainable and efficient sugar production and consumption practices.

It aims to improve the global sugar economy through various means, including policy recommendations, market analysis, and research.

IMPACT OF DOLLARISATION ON AN ECONOMY

Context

Javier Milei, the self-confessed "anarcho-capitalist" pledged in his campaign to replace Argentina's currency, 'the peso', with the dollar, to eliminate the Central Bank and to slash government spending.

Argentina has been suffering under inflation levels greater than 100%, high rates of poverty and declining purchasing power.

Benefits of dollarisation

Dollarisation can act as a solution to hyperinflation by breaking the feedback link between rising prices and rising money supply. If the domestic currency is replaced by dollars, so the theory goes, money supply can no longer be controlled by vested political interests who can increase spending for political ends. The incessant rise of prices would be forced to moderate since consumers would no longer be able to access currency easily, thus slowing down consumption demand.

Dollarisation can also have positive effects on growth. Since a small economy can only access dollars through foreign trade and/or capital inflows, it would incentivise the economy to focus on export successes and easing conditions for foreign capital, who would be more willing to invest in an economy with a stable currency.

The stable value of the dollar would ensure that economic agents —both foreign and domestic — would be able to make long-term plans regarding economic activity, plans that would otherwise not be possible under a currency that rapidly lost value.

Challenges in dollarisation

There are some potential problems. The adoption of dollars as a currency implies that economies lose an important source of policy leverage, with monetary policy now unable to control money supply.

On the foreign trade front, countries would no longer be able to take recourse to depreciation to boost exports, focusing only on export promotion to stave off downturns. Some proponents of dollarisation see this as

a positive outcome, since it would ensure the government resorts to productivity boosting methods to combat recessions, instead of changing exchange rates.

The experience of Ecuador

Theory aside, the experiences of some countries hold out promise for the project of dollarisation. Three fully dollarised economies — Ecuador, Panama and El Salvador — have had successful economic outcomes following dollarisation, with Ecuador a useful case study.

The Ecuadorian economy suffered a series of debilitating crises in the late 1990s, with economic output contracting by almost 7%, inflation at roughly 67%, and the domestic currency, the Sucre, depreciating by almost 200% in 1999. President Jamil Mahuad

announced the adoption of the dollar in January 2000; widespread protests following the move forced him to resign two weeks after the announcement. Despite this political upheaval, Ecuador persisted with dollarisation.

The economy has shown considerable progress since then, on parameters measuring both economic growth and social welfare. The World Bank estimates a growth of 4.5% in real GDP between 2001 to 2014. The poverty rate fell from 36.7% in 2007 to 22.5% in 2014, with inequality, as measured by the Gini index, falling by 9 percentage points over this period.

During the 2008 recession, the economy lost only 1.3% of GDP, reaching its 20-year growth trend only two years after the onset of the recession. The inflation rate in Ecuador hit a high of 108% in September 2000. Following dollarisation, the inflation rate averaged around 4% between 2003 to 2006, a remarkable achievement for an economy experiencing double-digit inflation rates since the 1970s. The ratio of foreign debt to GDP also reduced from 55% in 2000 to 21.5% in 2006.

Way Forward

The achievement of economic prosperity is a complex affair that requires sustained engagement with policy-making.

Dollarisation, therefore, is not a silver bullet, but if used well in conjunction with nimble domestic policy, can offer a route to success.

GEOGRAPHY,

ENVIRONMENT,

BIODIVERSITY AND

DISASTER MANAGEMENT

What's Inside?

SILYARA TUNNEL COLLPASE

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DELHI AIR POLLUTION

Context:

Delhi's air quality has plummeted to hit the 'severe' category for the first time in November of this year and the Air Quality Index (AQI) in the city breached the 400 mark.

Understanding the Factors Behind Delhi's Persistent Air Quality Crisis:

Air Pollutants:

- Crop Burning
- Vehicular Emissions
- Construction Dust
- Industrial Pollution
- Firecrackers
- Landfill fires

Weather Conditions:

- Stagnant Winds
- Low Air Inversion

Geographical Reason:

Delhi is land-locked from all sides.

Presence of Himalayas, which block the escape route of the air, the dust and pollutants settle in the region.

Administrative Reasons:

Less Focus on Public Transport

Unable to focus on improving transport infrastructure by Government.

About Air Quality Index (AQI):

About:

It is a tool for effective communication of air quality status to people in terms that are easy to understand.

Factor:

Each of these categories is decided based on the ambient concentration values of air pollutants and their likely health impacts (known as health breakpoints).

Parameters of AQI:

- ✓ Good: 0 and 50
- ✓ Satisfactory: 51 and 100
- ✓ Moderate: 101 and 200
- ✓ Poor: 201 and 300
- ✓ Very Poor: 301 and 400
- ✓ Severe: 401 and 450.

What is the Graded Response Action Plan (GRAP)?

About:

The GRAP consists of emergency measures designed to prevent the deterioration of air quality after reaching specific thresholds in the Delhi-NCR region.

The Ministry of Environment, Forests & Climate Change (MotEF&CC) notified the GRAP in 2017.

Commission for Air Quality Management in NCR & Adjoining Areas (CAQM) implements the GRAP.

Implementation:

It is implemented under four stages:

GRAP is incremental in nature and thus, when the air quality dips from 'poor' to 'very poor,' measures listed under both sections have to be followed.

What is the Eight Point Action Plan as per Stage-IV of GRAP?

Prohibiting the entry of truck traffic into Delhi, except for those transporting essential goods and services, along with LNG/CNG/electric trucks.

Restricting non-Delhi-registered Light Commercial Vehicles (LCVs) to enter Delhi, unless they are EVs/CNG/BS-VI diesel, except for essential service carriers.

Banning the operation of Delhi-registered diesel Medium Goods Vehicles (MGVs) and Heavy Goods Vehicles (HGVs), except for those

The stages and restrictions

| Good 0-50 | Satisfactory 51-100 | Moderate 101-200 |
| Poor 201-300 | Very Poor 300-400 | Severe 401-500 |

STAGE I (AQI 201-300)
Agencies to strictly enforce orders by NGT, SC on keeping vehicles older than 10 years (for diesel) and 15 years (petrol) off roads.

STAGE II (AQI 301-400)
- Measures to curb air pollution at hot spots
- Diesel generators of more than 19KW cannot be used unless they run on dual fuel or have emission control devices.

STAGE III (AQI 401-450)
- BS-III petrol, BS-IV diesel private cars to be banned in NCR. Last year, the rule was optional for state governments
- Schools will likely be closed for children up to Class 5.

STAGE IV (AQI OVER 450)
- Light commercial vehicles registered outside Delhi will be restricted except those that are EVs/CNG/ BS-VI diesels. Vehicles carrying essentials or providing essential services to be allowed
- Educational institutions will likely be closed. Non-emergency commercial activities and odd-even vehicle policy may be rolled out.

Directing NCR State Governments/GNCTD to consider allowing 50% capacity in public, municipal, and private offices, with the remainder working remotely.

Empowering the Central Government to decide on work-from-home protocols for employees in Central Government offices.

Encouraging State Governments to contemplate additional emergency measures such as the closure of educational institutions, non-essential commercial activities, and implementing an odd-even vehicle registration number scheme.

Artificial Rain Project To Combat Delhi Pollution

IIT-Kanpur has conducted pilot projects during monsoon months, and the focus is now on winter conditions.

transporting essential items.

Imposing a prohibition on construction and demolition (C&D) activities in linear public projects like highways, roads, flyovers, power transmission, and pipelines.

Advising NCR State Governments and GNCTD to transition physical classes for grades VI to IX, XI to online mode.

A minimum requirement of 40% cloud and moisture is necessary for cloud seeding.

The project involves using silver iodide and other components for cloud seeding via aircraft.

The effectiveness of artificial rain in reducing pollution levels depends on factors like moisture and rainfall.

KLYUCHEVSKOY VOLCANO

Context:

Huge ash columns erupted from Eurasia's tallest active volcano; forcing authorities to close schools in two towns on Russia's sparsely populated Kamchatka Peninsula.

About Klyuchevskoy volcano:

- It is one of the most well-known volcanoes in the world.

- With a height of 4,750 meters, it is one of the world's tallest active volcanoes.

- A truncated cone with a centre crater makes up the volcano.

- Since 1700, it has erupted more than 50 times.

About the Kamchatka Peninsula:

- It is located in far eastern Russia, between the Sea of Okhotsk to the west and the Pacific and Bering Seas to the east.

- With over 30 active volcanoes, it is one of the world's most concentrated zones of geothermal activity.

- It is one of the world's largest peninsulas.

- Climate: Severe, with cold, snowy winters and rainy, cool summers.

- It is part of the huge "Ring of Fire" region of Earth that encircles the Pacific Ocean and is prone to eruptions and frequent earthquakes.

MOUNT ETNA ERUPTS

Context:

Mount Etna, Europe's most active volcano and one of the largest in the world, has been erupting frequently since February 2023, sending plumes of ash and fountains of lava into the sky.

What are the Key Facts About Mount Etna?

- Mount Etna is a stratovolcano, which means it is composed of layers of lava, ash, and rocks that have accumulated over thousands of years of eruptions.

- It is located on the east coast of Sicily, an

island in the Mediterranean Sea that belongs to Italy.

- It stands about 3,300 metres above sea level and covers an area of about 1,200 square kilometres.

- Mount Etna has four summit craters and hundreds of lateral vents that can produce different types of eruptions, such as explosive, effusive, or mixed.

- Mount Etna has been erupting almost continuously since 1500 BC, making it one of the most active volcanoes in the world.

Prelims:

Q. Consider the following statements: (2018)

1.   The Barren Island volcano is an active volcano located in the Indian territory.

2.   Barren Island lies about 140 km east of Great Nicobar.

3.   The last time the Barren Island volcano erupted was in 1991 and it has remained inactive since then.

Which of the statements given above is/are correct?

A. 1 only
B. 2 and 3
C. 3 only
D. 1 and 3

Ans: A

Mains

Q. Mention the global occurrence of volcanic eruptions in 2021 and their impact on regional environment. (2021)

PROJECT DOLPHIN

Context

The Tamil Nadu Government issued an order to implement 'Project Dolphin' to strengthen the marine ecology and overall health of the marine environment under the Integrated Development of Wildlife Habitat programme of the government of India.

About:

Project Dolphin is an Indian government initiative to conserve both riverine and oceanic dolphin species launched in 2021.

The project was announced on 15 August 2020 during the 74th Independence Day celebrations.

It is under the Wildlife Institute of India, an autonomous body of the Ministry of Environment, Forest and Climate Change.

It is modeled on Project Tiger.

October 5th has also been designated as "National Dolphin Day" by the environment ministry.

It is to strengthen the marine ecology and overall health of the marine environment.

This project includes strengthening patrolling and surveillance, improving habitat through the restoration of coastal ecosystems, removing ghost nets, and encouraging the involvement of locals with incentives.

It will be implemented at a cost of 8.13 crore rupees during 2023-2024.

Funding: While 60% of the amount will be given by the Union government, the State will bear the remaining cost.

This will be helpful in improving the population of dolphin species and protecting their habitat, while at the same time improving the livelihood of the local communities.

More than nine species of marine dolphins are found in the coastal waters of Tamil Nadu.

The major habitats of the dolphins are found in the Gulf of Mannar Biosphere Reserve.

Integrated Development of Wildlife Habitats' (IDWH)

Integrated Development of Wildlife Habitats' (IDWH) is an on-going Centrally Sponsored Scheme which has been made operational by adding more components and activities to the erstwhile Centrally Sponsored Scheme - "Assistance for the Development of National Parks and Sanctuaries" during the 11th Plan Period. Under IDWH, the financial assistance is provided to State/UT Governments for protection and conservation of wildlife and its habitats in Protected Areas (PAs) as well as outside PAs and also for the recovery programmes of the critically endangered species.

Components of the scheme

Support to Protected Areas (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)

Protection of Wildlife Outside Protected Areas

Recovery programmes for saving critically endangered species and habitats

MADIGADDA BARRAGE

Context:

The six-member expert team of the National Dam Safety Authority (NDSA) examined the sinking of piers in Block-7 of the Medigadda (Laxmi) Barrage of the Kaleshwaram irrigation project in Telangana.

About:

Medigadda Barrage, Telangana, is an integral part of the Kaleshwaram Project.. Medigadda Barrage (Lakshmi Barrage) was commissioned in 2019-20. The barrage is situated on River Godavari at 22 km downstream of the confluence of Pranahita River with Godavari Main.

Kaleshwaram Project

- Kaleshwaram Project is a multi-purpose irrigation project built on the Godavari River at Kaleshwaram village, Telangana.

- Objective: To utilize Godavari water for drinking and irrigation.

- It is currently the world's largest multi-stage lift irrigation project.

- In lift irrigation, the water is not transported by natural gravity but has to be lifted through pumps.

- It is said to have the world's largest underground pumping station (470 feet below the earth's surface).

- It envisages the construction of 3 barrages between Yellampally and Medigadda.
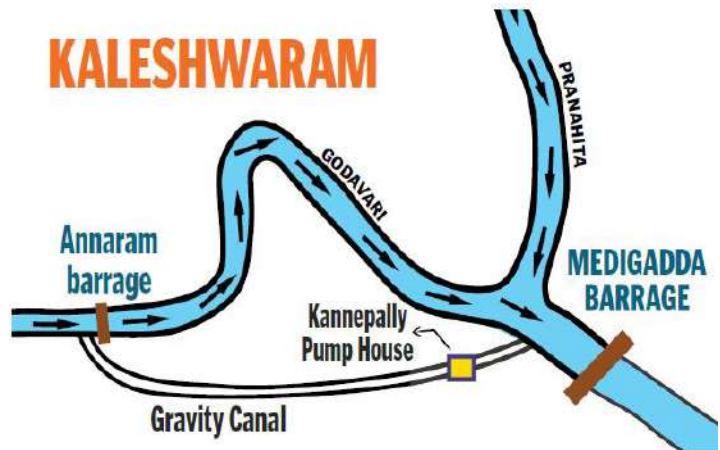
ATTENBOROUGH ECHIDNA

Context

An elusive echidna feared extinct after disappearing for six decades has been rediscovered in a remote part of Indonesia, on an expedition that also found a new kind of tree-dwelling shrimp.

About

The Zaglossus attenboroughi, a kind of long-beaked echidna named for famed British naturalist David Attenborough, had last been seen in 1961

It is one of three species from the genus Zaglossus That inhabits the island of New Guinea. It is the smallest echidna species.

It lives in the Cyclops Mountains, which are near the cities of Sentani and Jayapura in the Indonesian province of Papua.

Echidnas are nocturnal and shy, making them difficult to find at the best of times.

Recorded only once in 1961, Attenborough's long-beaked echidna is a monotreme: an evolutionarily distinct group of egg-laying mammals that includes the platypus.

This echidna species is so special because it is

one of only five remaining species of monotremes, the sole guardians of this remarkable branch of the tree of life.

In addition to the rediscovered echidna, the team found a kind of honeyeater bird not recorded since 2008, and a slew of underground species that are new to science.

Tropical rainforests are among the most important and most threatened terrestrial ecosystems.

Conservation status

IUCN Red List: Critically Endangered

CITES : Appendix II

ENVIRONMENTAL DNA (EDNA)

Context

Researchers at the Laboratory for the Conservation of Endangered Species (LaCONES), developed a new method to detect all life forms in an ecosystem.

About the method

Researchers need not go around to collect samples of all organisms in a physical setting to assess the total biodiversity of any ecosystem. Using this method, one can pick just a few litres of water, soil, or even air.

It is cheaper, faster, and highly scalable to large freshwater and marine ecosystems which can help in monitoring and conserving the rich biodiversity of our country.

LaCONES is a CSIR-Centre for Cellular and Molecular Biology (CCMB) laboratory headquartered in Hyderabad.

They followed a molecular approach to extract and read the genetic information encoded in free-floating environmental DNA (eDNA).

Environmental DNA (eDNA)

eDNA is DNA shed by all organisms into their surroundings through natural processes during their lifetime or after death.

The new non-invasive method can assess the total biodiversity of any ecosystem by sequencing the DNA fragments found in the environmental samples such as water, soil or air.

This method can detect all kinds of organisms, including viruses, bacteria, archaea, and eukaryotes such as fungi, plants, insects, birds, fish and other animals from just a few litres of water sample without any direct capture or counting of species.

Traditional methods

But the available biodiversity assessment methods cannot estimate the total species diversity accounting for all the microbes and non-microbes that inhabit an ecosystem. The traditional monitoring methods also require extensive taxonomic expertise.

They are not scalable to large ecosystems because they can be expensive, labour-intensive and time-consuming.

They tested their method in the highly biodiverse wetland ecosystem of Chilika Lagoon in Odisha, the country's largest brackish water lagoon. By comparing over 10 billion sequences of eDNA fragments from multiple seasonal samples with a large database of reference sequences from all the known species, the researchers were able to detect organisms across the tree of life.

INDIAN OCEAN TUNA COMMISSION

Context

The Department of Fisheries, Ministry of Fisheries, Animal Husbandry & Dairying has organized the 19th Working Party on Data Collection and Statistics (WPDCS19) of the Indian

Ocean Tuna Commission (IOTC).

About

The Indian Ocean Tuna Commission (IOTC) is an intergovernmental organisation established under the FAO Constitution to manage tuna and

tuna-like species in the Indian Ocean.

Objectives

It works to achieve this by promoting cooperation among its Contracting Parties (Members) and Cooperating Non-Contracting Parties to ensure the conservation and appropriate utilisation of fish stocks and encouraging the sustainable development of fisheries.

Function and responsibilities

The Commission has four key functions and responsibilities which enable it to achieve its objectives. They are drawn from the United Nations Convention on the Law of the Sea (UNCLOS), and are:

To keep under review the conditions and trends of the stocks and

To gather, analyse and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks.

To encourage, recommend, and coordinate research and development activities in respect of the stocks and fisheries covered by the IOTC

To adopt based on scientific evidence – Conservation and Management Measures (CMM) to ensure the conservation of the stocks covered by the Agreement and to promote the objective of their optimum utilisation throughout the Area;

To keep under review the economic and social aspects of the fisheries based on the stocks covered by the Agreement bearing in mind, in particular, the interests of developing coastal States.

PHREATOMAGMATIC ERUPTIONS

Context:

The recently formed island remains unnamed, with a diameter of roughly 100 meters, resulting from phreatomagmatic eruptions. These eruptions occur when magma interacts with seawater, leading to explosive releases of ash and steam. A new island has emerged near Japan's Ogasawara island chain following an underwater volcano eruption in late October 2023.

About:

Phreatomagmatic eruptions are volcanic events triggered by the interaction of magma with water, typically seawater. These interactions lead to explosive releases of ash and steam. The term "phreatomagmatic" combines "phreatic," relating to water, and "magmatic," referring to magma. These eruptions often occur underwater and are characterized by the explosive nature of the ash and steam release.

Japan's Ogasawara island chain:

The chain, also known as the Bonin Islands, consists of over 30 islands and islets created by volcanic processes, including phreatomagmatic eruptions.

Phreatomagmatic Eruptions

Less common style.
Magma interacts with water
Some can be cataclysmic
Magma chamber breaches and admits water
Water > produces stream, blows volcano apart
Examples: Santorini, Krakatau
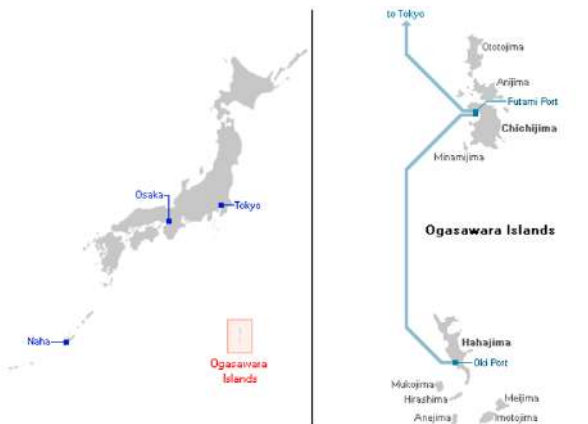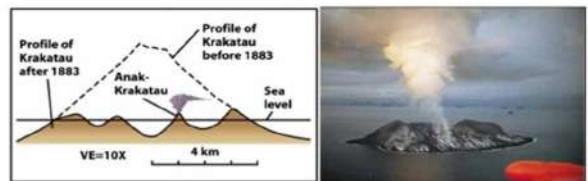
FOREST CONSERVATION AND COMMUNITY RIGHTS

Forest Conservation Amendment Act, 2023:

- The Bill broadens the scope of the Act by inserting a Preamble.

- The Act's name was changed to Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980 to reflect the potential of its provisions.

- The Bill amends the Forest (Conservation) Act, 1980.

- It also allows certain activities such as zoos and safaris to be carried out inside forests.

- Under the Act, forest land may be used for non-forest purposes upon prior approval of the central government.

- It also exempts border lands from the obligation to seek permissions to clear forests in order to construct "strategic linear projects of national importance".

Of the 31-member JPC addressing the issue, only six individuals were from the opposition. The JPC submitted its report to Parliament on July 20, within three months. Their scrutiny include,

Its impact on forest conservation and community rights:

- Bill, 2023 (FCA) will erase the rights of indigenous communities living on India's borders.

- There is little to no recognition of the rights of indigenous communities in these Acts, who are the rightful inhabitants of forest lands.

- The State government and its bureaucracy hold the view that granting community rights under the FRA could weaken the State's authority over the forest.

- To navigate this situation, the government has opted to reduce or dilute the extent of forest areas, rather than amend the FRA, thereby limiting the potential for additional Adivasi claims.

- The amendment also fails to address the growing issue of human-animal conflicts in forest areas, particularly in the Adivasi hamlets of the Western Ghats region.

- This conflict not only endangers the livelihoods of the Adivasis but also poses a threat to wildlife.

- The Forest Conservation Act amendments in 2016 and 2017, stipulated that prior consent from the tribal grama sabha was mandatory for any alterations to forests for non-forest purposes.

- However, the recent revisions to the legislation have removed the necessity for such consent.

NITROGEN-9

Context

A study recently published in 'Physical Review Letters' journal emphasized the strong evidence of unusual isotope, 'nitrogen-9', actually exists.

Isotopes

Isotopes are atoms of a given element that vary only in the number of neutrons. This difference sets apart one isotope from another. Many isotopes are also unstable, especially those whose atoms have too few neutrons for the number of protons.

For example, carbon-12 and carbon-14 are isotopes of carbon. Both have six protons, but carbon-12 has six neutrons, while carbon-14 has eight neutrons, resulting in different atomic masses. Isotopes can have distinct properties and may be stable or radioactive, undergoing decay over time.

Unstable isotopes are short-lived, and often decay by releasing some energy to achieve a more stable configuration. Isotopes in nuclear physics constitute an ongoing area of research, with many

isotopes not known to physics.

Why is nitrogen-9 special?

Atoms of the nitrogen-9 isotope are characterised by seven protons and two neutrons – which is an unusually high proton-to-neutron ratio. This disparity has a critical effect on the isotope's stability, influencing its decay processes as well as overall behaviour.

A normal Nitrogen atom has an atomic number of 7 and an atomic mass of 14 (7proton and 7 Neutron).

What are drip lines?

Physicists make sense of such stability limits using drip lines. The proton and neutron drip lines represent a boundary: add more particles beyond this boundary and the nucleus becomes unstable. They're still working out the exact values at which the instabilities arise, however.

This said, they have also extensively examined the neutron drip line for the first 10 elements. For example, that oxygen's heaviest particle-bound isotope is oxygen-24, with 16 bound neutrons. Beyond that 16, the nucleus becomes far too unstable.

But we haven't yet been able to make full sense of the drip line for protons, especially for elements heavier than germanium on the periodic table. Germanium-58 itself hosts 32 bound protons.

Nuclei with a lopsided ratio of protons to neutrons – especially those located beyond the proton and neutron drip lines – throw up a significant challenge for physicists who are trying to classify them. So, understanding them has become fundamental to nuclear physics.

What are nuclides?

The periodic table is a cornerstone in chemistry, showing all the known elements. However, it does not cater to isotopes or their characteristics.

So, scientists have developed an analogous table for atomic nuclei characterised by a unique combination of protons and neutrons, a.k.a. nuclides.

Nuclide Chart

Scientists use a nuclide chart to map isotopes based on their combinations of protons and neutrons, revealing relationships between isotones, isobars, and isodiaphers.

Isotones - Nuclides with the same number of neutrons.

Isobars - Nuclides with the same total number of protons and neutrons but different individual numbers.

Isodiaphers - Nuclides with the same differences between their numbers of neutrons and protons.

What are nuclei's limits of existence?

This result of the new study has profound implications – including offering a new perspective on subatomic structures that physicists interpret as being nuclear states.

On the nuclide chart, for example, nuclides have been found to exist only at certain locations, i.e. points denoted by specific numbers of protons and neutrons. The nitrogen-9 nuclide now adds a new point to this chart. What was previously a 'dead zone' is now alive with possibility.

The identification of such fleeting creatures outside convention challenges previous interpretations, and paves the way for potentially more isotopes at the limits of existence defined by the drip lines.

PICOCYSTIS SALINARUM – GREEN ALGAE

Context

A young researcher has discovered the secret of how one of the smallest green algae called Picocystis Salinarum survives the harshest of conditions by resorting to physiological adaptation to highly saline-alkaline/hyperosmotic conditions.

This may pave the way for a promising future candidate for biotechnological applications like microalgal bioproducts and increasing salt tolerance in plants.

Carbonates are of great interest to geoscientists, biologists, and climatologists due to their significance in the global carbon cycle. The process of biologically converting inorganic carbon into organic carbon, known as carbon fixation, is widely recognized as the paramount biogeochemical transformation on our planet.

P. salinarum (one of the smallest green algae) found in hypersaline soda lake Sambhar, Rajasthan, survive extreme environments.

Though the alga had been widely found in saline-soda lakes around the world, it was spotted for the first time in India only in the Sambhar Lake.

The cell wall is mainly composed of polymers of the monosaccharide arabinose, polyarabinose.

Key findings

The team probed the molecular mechanisms of adaptation in such polyextreme conditions.

The unique organism apparently enhances photosynthesis and ATP synthesis along with chaperone proteins as key response to high salinity-alkalinity.

Enhanced photosynthetic activity exhibited by P. salinarum in highly saline-alkaline condition is noteworthy as photosynthesis is suppressed under hyperosmotic conditions in most photosynthetic organisms.

Study shows P. salinarum as a promising candidate for biotechnological applications like microalgal bioproducts and increasing salt tolerance in plants.

It also revealed the unique characteristics of this microalga for bicarbonate-based integrated carbon capture and biomass production.

OECD REPORT ON CLIMATE FINANCE

Context

A new report, published by the Organisation for Economic Cooperation and Development (OECD), showed that economically developed countries fell short of their promise to jointly mobilise $100 billion a year, towards the climate mitigation and adaptation needs of developing countries, in 2021 – one year past the 2020 deadline.

The report said developed countries mobilised $89.6 billion in 2021 and that finance for adaptation fell by 14% in 2021 compared to 2020.

At the 15th Conference of Parties (COP15) of the UNFCCC in Copenhagen in 2009, developed countries committed to a collective goal of mobilising USD 100 billion per year by 2020 for climate action in developing countries, in the context of meaningful mitigation actions and transparency on implementation. The goal was formalised at COP16 in Cancun, and at COP21 in Paris, it was reiterated and extended to 2025.

Organisation for Economic Cooperation and Development

The OECD is an acronym for the Organisation for Economic Cooperation and Development. Essentially, the OECD is a united front for countries to share about their common eco-social problems, as well as collaborate on finding solutions. The organization was founded to boost world trade and economic progress.

The Organisation for Economic Cooperation and Development is an economic organization that was founded in 1961. It was developed from the

Organisation for European Economic Cooperation in the year 1948. The OECD founders consist of European countries of the OEEC plus the United States and Canada.

The official OECD founders are Austria, Belgium, Canada, Denmark, France, (West) Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States.

There are currently thirty-four member countries from all around the world, and they have all joined the OECD as a sign of their commitment to the market economy and personal democracy.

Key findings of the report

In 2021, total climate finance provided and mobilised by developed countries for developing countries amounted to USD 89.6 billion, showing a significant 7.6% increase over the previous year.

Public Climate Finance (bilateral and multilateral) almost doubled over the 2013-21 period, from USD 38 billion to USD 73.1 billion, accounting for the vast majority of the total USD 89.6 billion in 2021.

Mobilized private climate finance, for which comparable data are only available from 2016, amounted to USD 14.4 billion in 2021, or 16% of the total.

Adaptation finance dropped by USD 4 billion (-14%) in 2021, resulting in a decrease in its share of total climate finance from 34% to 27%.

The decrease in finance for adaptation is raising concerns about the capacity of developing nations to address both mitigation and adaptation needs.

Recommendations

There is a pressing need for international providers to significantly scale up their efforts in two essential areas: adaptation finance and the mobilisation of private finance.

There is a need to support building capacity in terms of project development, financial literacy, and operational efficiency, which can strengthen developing countries' abilities to access, absorb, and effectively utilise climate finance.

There is a need for international providers to adapt and evolve the financial products and mechanisms they offer to enhance the reach and effectiveness of climate finance.

What is additionality?

The UNFCCC states that developed countries "shall provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations under the convention".

This means developed countries can't cut

Climate finance for developing countries
Climate finance provided and mobilised by developed countries, in USD billions

Legend: Bilateral public | Multilateral public (attributed) | Export credits | Mobilised private (attributed)

Values by year: 2013: 52.4 bn; 2014: 61.8 bn; 2015: 44.6 bn; 2016: 58.5 bn; 2017: 71.7 bn; 2018: 80.0 bn; 2019: 80.4 bn; 2020: 83.3 bn; 2021: 89.6 bn

The gap in the private finance series in 2015 is due to the implementation of enhanced measurement methodologies. As a result, private flows for 2015-18 cannot be directly compared with private flows for 2013-14.
Source: OECD (2023), Climate Finance Provided and Mobilised by Developed Countries in 2013-2021.

overseas development assistance (ODA) in order to finance climate needs.

The "new and additional finance" also means developed countries can't double-count. For example, a renewable energy project could contribute to both emission reductions and overall development in a region.

As per the U.N. Convention, however, donor countries can't categorise such funding as both ODA and climate finance because it wouldn't fulfil the "new and additional" criterion.

ENVIRONMENTAL DNA (EDNA)

Context

Researchers at the Laboratory for the Conservation of Endangered Species (LaCONES), developed a new method to detect all life forms in an ecosystem.

About the method

Researchers need not go around to collect samples of all organisms in a physical setting to assess the total biodiversity of any ecosystem. Using this method, one can pick just a few litres of water, soil, or even air.

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They are not scalable to large ecosystems because they can be expensive, labour-intensive and time-consuming.

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SILKYARA TUNNEL COLLAPSE

Context

Recently, 41 labourers trapped in an under-construction tunnel at Silkyara in Uttarkashi district were successfully rescued after 17 days (about 2 and a half weeks) of hard work. With this, Operation Silkyara has become the longest rescue operation in the country to evacuate workers trapped in a tunnel or mine.

About the Silkyara tunnel

Silkyara tunnel is part of the ongoing construction, with the total length of 4.5 km, between Silkyara and Dandalgaon on the Brahmakhal-Yamunotri stretch of the National Highway under the Char Dham project.

The double-lane tunnel is pegged as one of the longest tunnels under the Char Dham all-weather road project and aims to reduce the journey from Uttarkashi to Yamunotri Dham by 26 kilometres.

From the Silkyara side, 2.3km of tunnel has been constructed, while 1.6km of tunneling work has been completed from the Barkot end. Approximately, a 400m stretch of the tunnel is yet to be constructed.

Char Dham Project

Launched in December 2016, it aims to enhance connectivity between the four pilgrimage sites of Char Dham—Kedarnath, Badrinath, Yamunotri, and Gangotri by widening 889 km of hill roads in the upper Himalayas.

This project can act as the strategic feeder roads which connect the India-China border with the Army camps in Dehradun and Meerut where missile bases and heavy machinery are located.

Critical Aspects of Tunnel Construction

Drill and Blast Method (DBM): Involves drilling holes into rock and detonating explosives to break it apart.

DBM is often used in regions like the Himalayas (Jammu & Kashmir and Uttarakhand) due to the challenging terrain.

Tunnel-Boring Machines (TBMs): It bore through rock while supporting the tunnel behind with precast concrete segments. It is a more expensive but safer method.

TBMs are ideal when the rock cover is up to 400 metres tall. Underground tunnels for the Delhi Metro were dug using a TBM at shallow depth.
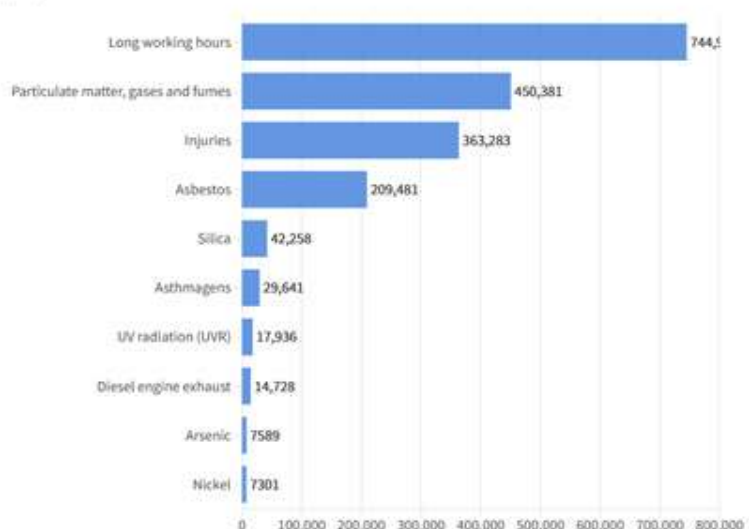
Tunnel Construction

Rock Investigation: Thoroughly examining the rock's strength and composition through seismic waves and petrographic analysis to assess its load-bearing capacity and stability.

Monitoring and Support: Continuous monitoring using stress and deformation meters, along with various support mechanisms like shotcrete, rock bolts, steel ribs, and specialized tunnel pipe umbrellas.

Top 10 occupational risk factors and total number of attributable deaths

Among the occupational risk factors considered, the one with the largest number of attributable deaths was exposure to long working hours (≥ 55 hours per week), which killed almost 7.45 lakh people

Risk factor	Deaths
Long working hours	744,9
Particulate matter, gases and fumes	450,381
Injuries	363,283
Asbestos	209,481
Silica	42,258
Asthmagens	29,641
UV radiation (UVR)	17,936
Diesel engine exhaust	14,728
Arsenic	7589
Nickel	7301

0   100,000 200,000 300,000 400,000 500,000 600,000 700,000 800,000

Geologist Assessments: Independent geologists play a crucial role in examining the tunnel, predicting potential failures, and determining the rock's stability duration.

Agencies involved in the rescue operation

The National Disaster Response Force (NDRF), the State Disaster Relief Force (SDRF) and the police are among the main figures in the multi-agency rescue operations.

National Disaster Management Authority

Having learnt key lessons from the ongoing Silkyara rescue mission, the National Disaster Management Authority (NDMA) will come up with standard operating procedures (SOP) on tunnel rescue after discussing it with other stakeholders, officials said. The apex disaster management body is headed by Prime Minister Narendra Modi. NDMA is mandated to lay down the policies, plans and guidelines for disaster management.

Setting up of NDMA and the creation of an enabling environment for institutional mechanisms at the State and District levels is mandated by the Disaster Management Act, 2005. NDMA is mandated to lay down the p olicies, plans and guidelines for Disaster Management. India envisions the development of an ethos of Prevention, Mitigation, Preparedness and Response.

International Labor Organization Conventions

So far 79 out of the 187 member countries have ratified the ILO Occupational Safety and Health Convention, while 62 countries have ratified the Promotional Framework for Occupational Safety and Health Convention, 2006.

India has not ratified both the conventions. In the wake of Uttarkashi tunnel incident , the Central Trade Unions had urged the Union government to ratify the conventions.

International Labor Organization

It is the only tripartite United Nation (UN) agency. It brings together governments, employers and workers of 187 member States (India is a member), to set labour standards, develop policies and devise programmes promoting decent work for all women and men.

SCIENCE & TECHOLOGY

What's Inside?

AYURVEDA GYAN NAIPUNYA INITIATIVE (AGNI)

Context:

Recently, the Central Council for Research in Ayurveda Sciences (CCRAS), Ministry of Ayush, launched the "Ayurveda Gyan Naipunya Initiative" (AGNI) for physicians practising in the field of Ayurveda.

Ayurveda Gyan Naipunya Initiative:

AGNI aims to document and validate Ayurvedic medical practices, enhance evidence-based practice culture, and facilitate scientific research in the field.

It provides a platform for Ayurveda practitioners to share their innovative practices, fostering an evidence-based culture.

It also supports research to validate pragmatic Ayurvedic practices through scientific methods.

Key functions:

- CCRAS will document and publish reported medical practices and therapeutic regimens for educational and academic purposes in consultation with the National Commission for Indian System of Medicine (NCISM).

- AGNI provides a platform for Ayurveda practitioners to report their innovative practices and experiences across various disease conditions.

- The initiative encourages the culture of evidence-based practice among Ayurveda practitioners, ensuring that their methods are grounded in scientific research.

- AGNI seeks to identify interested Ayurveda practitioners willing to collaborate in creating a comprehensive database through applications.

- Capacity building through research methods and good clinical practice training will also be offered.

- AGNI will undertake research to mainstream pragmatic Ayurvedic practices through scientific validation and evidence-based appraisal.

ATMOSPHERIC WAVES EXPERIMENT

Context:

Atmospheric Waves Experiment is a first-of-its-kind NASA experimental attempt aimed at studying the interactions between terrestrial and space weather

About:

- Atmospheric Waves Experiment (AWE) is NASA's innovative experiment aimed at studying the interactions between Earth's atmospheric weather and space weather. This investigation is a key part of NASA's Heliophysics Explorers Programme.

- The Atmospheric Waves Experiment mission's primary focus is to understand how waves in Earth's lower atmosphere affect the upper atmosphere and space weather. AWE will be attached to the exterior of the International Space Station (ISS), giving it a unique vantage point to observe Earth.

- It will measure the airglow at mesopause (about 85 to 87 km above the Earth's surface), where the atmospheric temperatures dip to minus 100 degrees Celsius.

- At this altitude, it is possible to capture the faint airglow in the infrared bandwidth, which appears to be the brightest, enabling easy detection.

- It will perform focused mapping of the colourful airglows in the Earth's

atmosphere.

- Onboard AWE is an Advanced Mesospheric Temperature Mapper (ATMT), an instrument that will scan or map the mesopause (a region between the mesosphere and thermosphere).

Space Weather

Space weather encompasses the conditions and disturbances in space that can impact Earth and its technological systems. Key phenomena of space weather include solar flares, coronal mass ejections (CMEs), and solar energetic particle events. These events can disrupt the Earth's magnetosphere, ionosphere, and thermosphere, affecting satellite operations, communication networks, and power grids, and posing risks to astronauts and high-altitude flights. Additionally, space weather is influenced by both emissions from the Sun and terrestrial weather conditions.

Atmospheric Gravity Waves (AGW)

Atmospheric Gravity Waves are initiated by extreme weather events or sudden disturbances that displace stable air vertically. They often arise from natural occurrences such as thunderstorms, hurricanes, and tornadoes, as well as geographical features. AGWs occur when stable air is displaced due to temperature differences, creating wave patterns. These waves can extend to space, impacting space weather. It is crucial for insights into their effects on Earth's weather and climate.

Airglow

It is a faint luminescence of Earth's upper atmosphere that is caused by air molecules' and atoms' selective absorption of solar ultraviolet and X-radiation.

Most of the airglow emanates from the region about 50 to 300 km above the surface of Earth, with the brightest area concentrated at altitudes around 97 km.

MARS SOLAR CONJUNCTION.

Context:

Recently, NASA announced that it will stop sending commands to its fleet of robotic probes on or orbiting the red planet Mars due to Mars solar conjunction.

Solar Conjunction:

- Solar conjunction is the period when Earth and Mars, in their eternal march around the Sun, are obscured from each other by the fiery orb of the Sun itself. The two planets will become temporarily invisible to each other.

- It happens once every two years.

- During this time, Sun expels hot, ionised gas from its corona.

- It could corrupt radio signals sent from Earth to Mars.
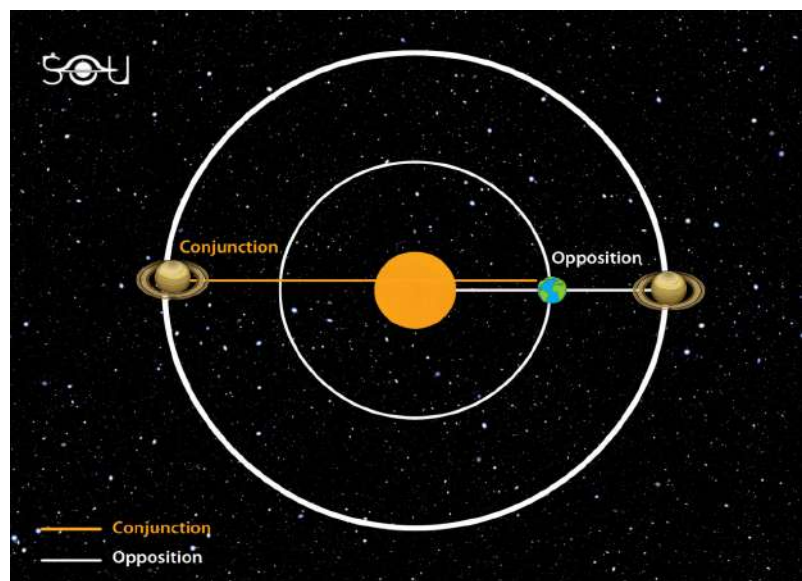
- Also, this could cause unexpected behaviour from the spacecraft on Mars.

- This year, it is occurring between November 11 and November 25.

How will it impact space missions?

- Mission controllers at NASA's Jet Propulsion Laboratory respond in a variety of ways.

- Before solar conjunction, the mission team sends up any necessary commands.

- They turn off some instruments. They collect data from others and store it.

- In some cases, they continue sending data to Earth, knowing that some data will be lost.

- No one attempts to send new instructions to Mars during solar conjunction.

EUCLID MISSION

Context

Euclid mission for investigating dark matter & dark energy shares its first images

About

The Euclid mission is part of European Space Agency (ESA)'s Cosmic Vision programme,which aims to explore the origin and components of the universe and the fundamental laws that govern it.

It was launched in July 2023, to study dark matter and dark energy and has shared its initial five science images which include pictures of expansive galaxy clusters, detailed shots of two nearby galaxies, a nebula, and a gravitationally connected group of stars known as a globular cluster.

It is named after the Greek mathematician Euclid of Alexandria, who lived around 300 BC and founded the subject of geometry.

The Euclid mission will make a 3D map of the universe (with time as the third dimension) by observing billions of galaxies out to 10 billion light-years across more than a third of the sky.

ESA's Euclid mission is a space telescope designed to explore the composition and evolution of the dark Universe. Euclid will explore how the Universe has expanded and how structure has formed over cosmic history, revealing more about the role of gravity and the nature of dark energy and dark matter.

Launch Vehicle: SpaceX Falcon 9

Destination: Sun-Earth Lagrange point 2 (Also James Webb telescope)

Lifetime: Nominal mission lifetime is six

> **Note:**
> The matter we know and that makes up all stars and galaxies only accounts for 4% of the content of the universe. The search is then still open for particles or phenomena responsible for dark matter (23%) and dark energy (73%).
> Source: CERN

years, with the possibility of extension (limited by the amount of cold gas used for propulsion).

Dark Energy:

- Dark energy is a hypothetical form of energy that is thought to permeate all of space and drive the accelerated expansion of the universe.

- It's not matter or energy in the conventional sense. It does not interact with electromagnetic forces and, therefore, cannot be observed directly.

Dark Matter:

- Dark matter, though never detected, is believed to be present in the entire universe, its existence presumed because a number of observable celestial phenomena could not be possible if the universe did not have much more matter in it than is seen.

- The material is considered to be a 'matter' since it has gravitational attraction and it is 'dark' because it does not seem to interact with light (or any part of the electromagnetic spectrum). Its gravitational force prevents stars in our

Milky Way from flying apart.

However, attempts to detect such dark matter particles using underground experiments, or accelerator experiments including the world's largest accelerator, the Large Hadron Collider (LHC), have failed so far.

Here are the first images shared by the Euclid mission sent to investigate dark matter and energy.

The Perseus cluster This image taken by Euclid shows 1,000 galaxies belonging to the Perseus Cluster. It also contains more than 100,000 galaxies that are further away in the background. Some of the fainter galaxies are so distant that their light took 10 billion light-years to reach Euclid. Scientists hope to map the distribution and shapes of these galaxies to find out more about how dark matter shapes the universe.	
The spiral galaxy IC 342 With its infrared view, the Euclid mission has helped reveal important information about the stars in IC 342, the spiral galaxy in the above image. In a lot of ways, it is a look-alike of the Milky Way.	
A globular cluster Globular clusters are nearly globe-shaped clusters of hundreds or even thousands of stars that are held together tightly by gravity. NGC 6397, pictured here, is the second closest globular cluster to Earth and is about 7,8000 light-years away.	
An irregular dwarf galaxy Most galaxies in the universe don't look like neat spirals, like IC 342 and the Milky Way. Instead, they are irregularly-shaped and small. They are the building blocks for bigger galaxies like our own, which is why it is interesting to study them. NGC 6822 is an irregular dark galaxy about 1.6 million light-years away from our planet	

The Horsehead nebula

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

GENETICALLY MODIFIED INSECTS

Context

Trouble with India's guidelines on genetically modified insects

About

India's bioeconomy contributes 2.6% to the GDP. In April 2023, the Department of Biotechnology (DBT) released its 'Bioeconomy Report 2022' report, envisioning this contribution to be closer to 5% by 2030.

Funding for biotechnology India has been stagnating for a while. Despite a slight uptick during COVID-19, when DBT led the vaccine and diagnostics efforts, funding hasn't returned to the pre-pandemic level. The current allocation is also only 0.0001% of India's GDP, and it needs to be significantly revised if biotechnology is to be of any serious consequence for the economy.

DBT Guidelines:

The Department of Biotechnology (DBT) functions under the Ministry of Science and Technology (MoST) is the nodal agency and promoter of biotechnology in India. DBT issued the 'Guidelines for Genetically Engineered Insects'.

The guidelines provide procedural roadmaps for those interested in creating GE insects. The guidelines have been harmonised to the guidance from the World Health Organisation on GE mosquitoes.

Issues

- Uncertainty of purpose - The guidelines only provide regulatory procedures for R&D on insects with some beneficial applications. The guidelines don't specify the purposes for which GE insects may be approved in India or how the DBT envisions their use.

- Uncertainty for researchers - The guidelines are applicable only to research and not to confined trials or deployment. There is no criteria to approve the deployment of GE insects

- Categorizing - The guidelines define GE insects by their risk group and not by the end product.

- Uncertainty of ambit - The guidelines offer standard operating procedures for GE mosquitoes, crop pests, and beneficial insects.

- There is a lack of clarity about the insects and the modifications to them that are deemed 'beneficial'.

- The absence of a precise stance to identify and promote research priorities hampers progress.

- Unintentional ill effects - Genetic engineering can also be used to unintentionally generate malicious products.

- The new guidelines don't sufficiently account for more dangerous possibilities.

About Genetically Modified insects

A genetically modified insect is any insect whose genetic material has been altered using genetic engineering techniques.

These techniques help achieve the desired physiological traits or the production of desired biological products.

Such insects are also called Genetically Engineered insects (GE insects).

GE organisms or cells and hazardous microorganisms and products thereof are regulated as per 'Rules 1989' under the Environment (Protection) Act of 1986.

Significance of GE insects

- Usage of GE insects uplifts the standard of living by reducing disease burden, enables food security and conserves the environment.

- Economic value - India's bioeconomy contributes 2.6% to the GDP.

- It is expected to be closer to 5% by

2030 as envisaged in the Department of Biotechnology's 'Bioeconomy Report 2022' report.

- Applications: The development and release of GE insects offers applications in various fields such as

- Vector management in human and livestock health;

- Management of major crop insect pests;

- Maintenance and improvement of human health and the environment through a reduction in the use of chemicals;

- Production of proteins for healthcare purposes;

- Genetic improvement of beneficial insects like predators, parasitoids, pollinators (e.g. honey bee) or productive insects (e.g. silkworm, lac insect).

What could be done to improve India's bioeconomy?

- Funding - The ambitious leap of $220 billion in 8 years as envisioned in 'Bioeconomy Report 2022 report' will require aggressive investment and policy support.

- Efforts are also needed to attract private funding in biotechnology research and development.

- Robust Policy - biotechnology policies also need to be aligned to the economic goals set out in the Bioeconomy report.

- Deployment - GE insects can't be recalled once deployed, so wider community engagement and monitoring of the impact of GE will be required.

- Non-consumption GE insects - GE insects for human/animal consumption require stringent checks but GE insects used for silk or lac production and other non-consumption do not require such checks.

- The guidelines can sidestep this by adapting its rules for genetically modified crops for non-consumption purposes.

- Precise Guidelines - Clear cut definition and ambit to be mentioned in guidelines to avoid any room for doubt.

TREATMENT FOR SICKLE CELL DISEASE

Context:

UK Approves Groundbreaking CRISPR-Based Gene Therapy For Sickle Cell Disease And Thalassemia

About:

In a world first, U.K. regulators approved a therapy that uses the gene-editing technique CRISPR. The approach treats two inherited blood disorders, including sickle cell disease, which afflicts mostly people of African ancestry, by modifying a patient's blood stem cells in the lab and returning them.

Casegvy (Exa-cel), developed by Vertex and CRISPR Therapeutics, relies on a precise gene-cutting technology first published in 2012. This technology won scientists Jennifer Doudna and Emmanuelle Charpentier the 2020 Nobel Prize in Chemistry. Now, a mere decade since its initial publication, this innovation has the potential to impact people's lives—albeit under certain circumstances.

A Novel Therapy for Inherited Blood Diseases

Exa-cel is the first CRISPR-based gene therapy to receive regulatory approval in the world. The product is authorized to treat eligible patients ages 12 and older with either sickle cell disease or thalassemia.

Sickle cell disease is the most common genetic blood disorder. The condition contorts the healthy shape of red blood cells into a crescent or "sickle" shape. This sticky form blocks blood flow and creates further problems, such as episodes of severe pain and organ damage.

Thalassemia is a rarer illness that is also passed down from parent to child. People with the condition do not produce enough red blood cells and hemoglobin, a crucial protein that allows red blood cells to deliver oxygen throughout the body. The resulting anemia leaves individuals fatigued, pale and weak.

Long-term treatment is usually required to manage symptoms. For example, people with thalassemia often need blood transfusions to remove the diseased blood cells and replace them with healthy ones. A bone marrow transplant from a matched donor was considered the only cure for either condition.

However, only a minority of patients with severe disease elect this option due to the significant risks involved (e.g., organ toxicity, engraftment injection). Exa-cel could change this landscape. A single course of this treatment promises to free thalassemia patients of transfusions and sickle cell disease patients of pain crises for life.

How Exa-cel Works?

The treatment begins by extracting CD34+ blood stem cells from the patient. These stem cells usually produce blood cells that worsen the patients' disease—but not for long. The cells are then edited in the lab using CRISPR-Cas9 technology to rectify this faulty production. This step may take weeks or months to complete and ship the cells back to the hospital.

Finally, patients undergo preparatory chemotherapy (busulfan) before receiving their stem cell injection. The chemotherapy wipes out any stem cells in the bone marrow and leaves space for the modified stem cells to engraft.

Researchers have adapted CRISPR-Cas9 technology, to modify genes of their choosing. Exa-cel specifically eliminates a gene called BCL11A. Removing this gene enables adults to safely produce fetal hemoglobin, a healthy form found in fetal development that typically ceases after birth. The hope is that these stem cells will continue to proliferate without issues and eliminate symptoms for life.

Issues and Concerns:

Therapy's off-target effects: Researchers are not sure whether it is possible for the therapy to accidentally cut other genes and if it happens what will be the consequences

Immunosuppression: Chemotherapy, a requirement for the therapy, weakens the immune system and leaves patients vulnerable to infections.

High Cost: Personalized medicines of this nature are resource and personnel-intensive, which increases expenses.

Limited to a minority of patients. It is not a first-line option by any means, as only individuals who cannot find a matched donor for a bone marrow transplant can qualify for the treatment.
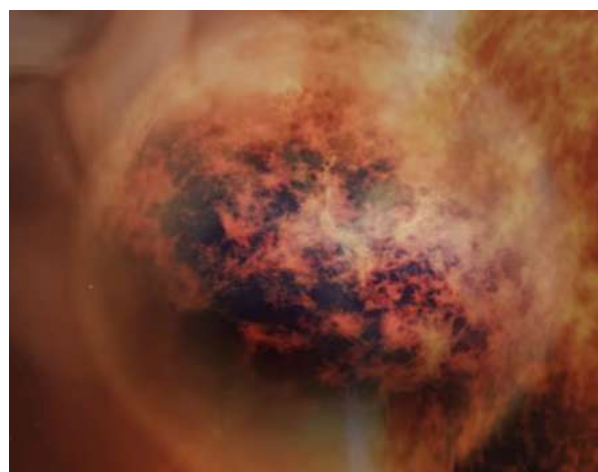
WASP- 107B

Context

James Webb Telescope Discovers Sand Clouds Enveloping 'Cotton Candy Planet' WASP-107b

About

WASP-107b is a Neptuen like exoplanet that orbits the star WASP-107 (K-type star). Its discovery was announced in 2017. Its mass is 30.5 Earths, it takes 5.7 days to complete one orbit of its star, and is 0.055 AU from its star.

The latest observations give an unprecedented glimpse of a strange and exotic world beyond our solar system that features silicate sand clouds and rain, scorching temperatures, raging winds and the distinct burnt-matches scent of sulphur dioxide.

Exoplanet WASP-107b orbits a star WASP-107 that is slightly cooler and lighter than our Sun. The planet is about the same mass as Neptune, but much larger, almost the size of Jupiter. That makes its density much lower than what we are used to in our Solar System, hence the nickname cotton candy planet.

This fluffiness allows astronomers to look fifty times deeper into its atmosphere compared to Jupiter. It enabled them to spot the presence of water vapor, sulfur dioxide, silicate clouds, and the absence of methane.

The exoplanet is scorching hot (with an outer atmosphere that's more than 900 degrees Fahrenheit).

Sand Rain:

Wasp-107b exhibits a water cycle akin to Earth's, but with one peculiar difference: instead of water droplets, the planet experiences 'sand rain'.

The falling grains are, in fact, silicate vapours rising from lower atmospheric levels.

Similar to Earth's water cycle, these sand clouds precipitate back to lower planetary atmospheric levels.

In addition to the silicate clouds, scientists have identified water vapour and sulphur dioxide in the atmosphere of WASP-107b.

The absence of methane is an indication of rapidly rising temperatures. A high internal temperature destroys methane deep in the atmosphere.

XPOSAT

Context

Recently, the Indian Space Research Organisation (ISRO) announced that India is set to launch its first X-ray Polarimeter Satellite (XPoSat).

About

According to ISRO, while space-based X-Ray astronomy has been established in India, focusing predominantly on imaging, time-domain studies, and spectroscopy, the upcoming XPoSat mission marks a major value addition.

This research, supplementing traditional time and frequency domain studies, introduces a novel dimension to X-Ray astronomy, generating anticipation and excitement within the scientific community.

The XPoSat spacecraft is designated for observation from Low Earth Orbit (non-sun synchronous orbit of ~650 km altitude, low inclination of approximately six degree), carrying two scientific payloads. With these two payloads, the XPoSat mission is capable of simultaneous studies of temporal, spectral, and polarization features of the bright X-Ray sources.

The mission objectives include measurement of X-Ray polarization in the energy band of 8-30 keV emanated from X-Ray sources, long-term spectral and temporal studies of cosmic X-Ray sources in the energy band of 0.8-15 keV.

The mission life is expected to be approximately five years. The payloads onboard XPoSat will observe the X-Ray sources during the spacecraft's transit through the Earth's shadow, i.e., during the eclipse period.

The primary payload of XPoSat, POLIX (Polarimeter Instrument in X-rays), is designed to measure polarimetry parameters —specifically the degree and angle of polarization — in the medium X-ray energy range of 8-30 keV photons originating from astronomical sources. The POLIX payload was developed by the Raman Research Institute (RRI), Bengaluru, with support from various ISRO centres.

The secondary payload is the XSPECT (X-ray Spectroscopy and Timing) payload, which will provide spectroscopic information within the

energy range of 0.8-15 keV. The XSPECT payload was developed by the U.R. Rao Satellite Centre (URSC), ISRO.

The XPoSat will be launched by the Polar Satellite Launch Vehicle (PSLV), from the Satish Dhawan Space Center in Sriharikota.

INFUSE MISSION

Context:

Recently, the National Aeronautics and Space Administration (NASA) launched a sounding rocket as part of its INFUSE mission.

About:

- NASA launched a new sounding rocket to study a stellar event in the Cygnus Loop, which is a supernova remnant that took place 20,000 years ago.

- Cygnus is about 2,600 light years away from the Earth. The sounding rocket mission, named the Integral Field Ultraviolet Spectroscope Experiment (INFUSE) was launched from the White Sands Missile Range in New Mexico on Oct 29.

- The INFUSE mission is expected to collect information about the remnant for a few minutes from a height of 150 miles (240 km).

- Specifically, the instrument will gather light streaming from the Cygnus Loop in far-ultraviolet wavelengths.

- INFUSE will observe how the supernova dumps energy into the Milky Way by catching light given off just as the blast wave crashes into pockets of cold gas floating around the galaxy

FIBRE OPTIC CABLES

Context:

During the unprecedented COVID-19 pandemic, the one thing that connected us virtually was the internet. Because of high-speed internet connections, we can now video chat with a friend, pay online, and attend classes or meetings from home. Have you wondered how these connections work?

What is an optical fibre?

- Optical fibres are made of thin cylindrical strands of glass.

- The diameter of a typical fibre is close to the diameter of a human hair.

- These fibres can carry information, such as text, images, videos, telephone calls, and anything that can be encoded as digital information, across large distances almost at the speed of light.

- Ultra-thin fibres seem very fragile.

- But when manufactured correctly as a long thread surrounded by protectives, they serve the purpose in a durable way.

- They are strong, light, and flexible, and ideal to be buried underground, drawn underwater, or bent around a spool.

How do optical fibres work?

✓ When a beam of light falls on a glass surface, it passes through partially while the rest is reflected away.

✓ When it passes through, its path bends because the refractive index of glass is different from that of air.

✓ The refractive index is the property of a medium that determines how fast light can travel in it.

✓ When a beam travels in the reverse direction, that is from glass to air, it's possible that it won't enter the air.

✓ Instead, it will be completely reflected back within the glass.

✓ This phenomenon, known as total internal

reflection, is the basis of guiding light across long distances without a significant loss of optical power.

Advantages and Disadvantages of optical fibre cables:

- Optical fiber provides a fast, constant and stable Internet connection that allows a lot of data to be transmitted over incredible distances.

- As data demands become enormous, fiber optic cabling is the sure way to go for network flexibility and stability.

ADVANTAGES	DISADVANTAGES
Greater bandwidth & faster speed	Low power
Cheap	Fragility
Thinner and light-weighted	Distance
Higher carrying capacity	
Less signal degradation	
Light signals	
Long lifespan	

TANTALUM

Context

A team of researchers from the Indian Institute of Technology (IIT), Ropar has found the presence of tantalum, a rare metal, in the Sutlej River sand in Punjab.

According to experts, the presence of tantalum is significant not only for Punjab but also India as the metal is widely used in electronics and semiconductors.

What is tantalum?

Tantalum is a rare metal with the atomic number 73 — the number of protons found in one atom of the element. It's grey, heavy, very hard, and one of the most corrosion-resistant metals in use today.

It possesses high corrosion resistance because when exposed to air, it forms an oxide layer that is extremely difficult to remove, even when it interacts with strong and hot acid environments.

When pure, tantalum is ductile, meaning it can be stretched, pulled, or drawn into a thin wire or thread without breaking.

Moreover, it is almost completely immune to chemical attack at temperatures below 150°C, and is attacked only by hydrofluoric acid, acidic solutions containing the fluoride ion, and free sulphur trioxide.

Notably, tantalum also has an extremely high melting point, exceeded only by tungsten and rhenium.

Uses of tantalum

- Tantalum is most prominently used in the electronic sector. The capacitors made from tantalum are capable of storing more electricity in smaller sizes without much leakage than any other type of capacitor.

- This makes them ideal for use in portable electronic devices such as smartphones, laptops, and digital cameras.

- As tantalum has a high melting point, it is frequently used as a substitute for

platinum, which is more expensive.

- The rare metal is also used to make components for chemical plants, nuclear power plants, aeroplanes and missiles.

- Tantalum does not react with bodily fluids and is used to make surgical equipment

and implants, like artificial joints.

- A composite consisting of tantalum carbide (TaC) and graphite is one of the hardest materials known and is used on the cutting edges of high-speed machine tools.

GENERIC DRUGS FOR RARE DISEASE CURE

Context

Providing relief to patients with rare diseases across India, the Union Health Ministry has made available generic drugs to support the care and treatment of four ailments: Tyrosinemia-Type 1, Gauchers Disease, Wilson's Disease, and the Dravet-Lennox Gastaut Syndrome.

This means that the cost of these drugs will be slashed by anywhere between 60 and 100 times of their current market value.

In the next few months, the Ministry also plans to include Phenylketonuria and Hyperammonemia to the list.

What is rare disease?

- A rare disease is a health condition of particularly low prevalence that affects a small number of people. It collectively afflicts 6-8% of the population in any country at any given time, so India could have 8.4 crore to 10 crore such cases, according to the Ministry. Nearly 80%

percent of these diseases are genetic in nature.

Tyrosinemia-Type 1

Tyrosinemia type I is an inherited metabolic disorder in which the body lacks an enzyme called fumarylacetoacetate hydrolase (FAH) which is needed to break down the amino acid tyrosine.

Gauchers Disease

Gaucher disease is the result of a buildup of certain fatty substances in certain organs, particularly in spleen and liver.

Wilson's disease

Wilson's disease is a rare inherited disorder that caused by abnormal copper accumulation in your liver, brain and other vital organs.

Dravet-Lennox gastaut syndrome

Dravet syndrome (DS), Lennox-Gastaut syndrome (LGS) are rare drug-resistant epileptic conditions, characterised by seizures.

FIVE-HUNDRED APERTURE SPHERICAL TELESCOPE (FAST)

Context:

Using the Five-hundred Aperture Spherical Telescope (FAST), astronomers from China and Australia have recently discovered five new pulsars.

About:

It is a radio telescope in China's Guizhou Province.

It is the world's largest and most sensitive radio telescope, with a receiving area equivalent to 30 football fields, measuring 500 meters in diameter.

FAST uses a data system developed at ICRAR (International Center for Radio Astronomy) in Perth, Australia, and at ESO (European Southern Observatory) to manage the huge amounts of data it generates.

It aims to,

- Detect neutral hydrogen at the edge of the universe; reconstruct the images of the early universe;

- Discover pulsars, establish a pulsar timing array, and participate in pulsar navigation and gravitational wave detection in the future;

- Join the International Very-Long-Baseline Interferometry Network to obtain hyperfine structures of celestial bodies;

- Perform high-resolution radio spectral survey. Detect weak space signals;

- Participate in the search for extraterrestrial intelligence.

About Pulsars

- Pulsars are rapidly rotating neutron stars that blast out pulses of radiation at regular intervals ranging from seconds to milliseconds.

- Pulsars have strong magnetic fields that funnel particles along their magnetic poles, accelerating them to relativistic speeds, which produce two powerful beams of light, one from each pole.

- Because the poles of the magnetic field aren't aligned with the axis of spin of the pulsar, the beams of particles and the light they produce are swept around as the pulsar rotates.

- The periodicity of pulsars is caused by these beams of light crossing the line of sight on Earth, with the pulsar appearing to 'switch off' at points when the light is facing away from us.

- The time between these pulses is the 'period' of the pulsar.

About Neutron star

- When a massive star explodes as a supernova at the end of its life, its core can collapse into a tiny and superdense object with not much more than our sun's mass.

- These small, incredibly dense cores of exploded stars are neutron stars.
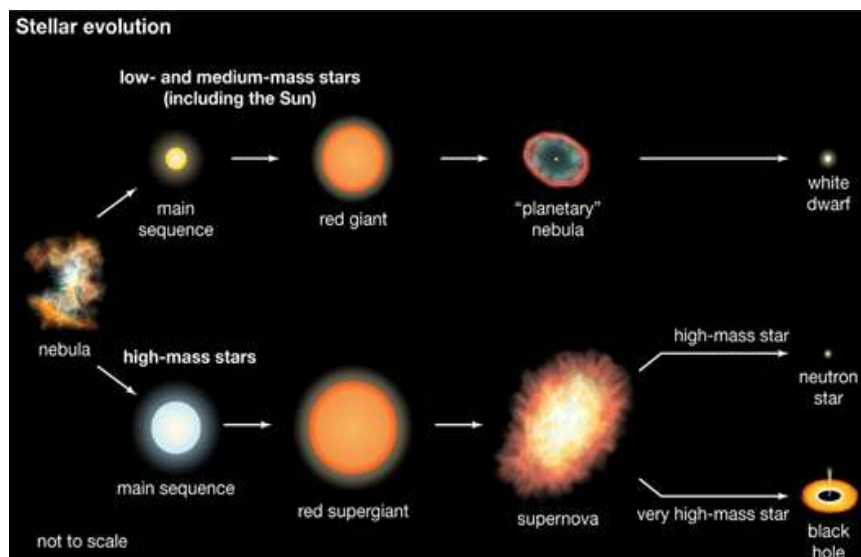
DECENTRALISED AUTONOMOUS ORGANISATIONS (DAOS)

Context:

Decentralised Autonomous Organisations (DAOs) represent a groundbreaking innovation at the intersection of blockchain technology and governance.

About Decentralised Autonomous Organisations (DAOs)

According to the World Economic Forum (WEF), Decentralized Autonomous Organization (DAO) is a general term used for an organization group that uses blockchains and related technologies to coordinate its activities.

Key Characteristics of DAOs

- DAOs operate on a decentralized network, often utilizing blockchain technology. This means there's no single point of control or failure.

- They're autonomous in the sense that they execute predefined rules encoded in smart contracts without the need for human intervention once set up.

- They often utilize cryptocurrencies as a means of decision-making and resource allocation.

- They are controlled by the respective organization members and not influenced by the government.

- Participants can propose and vote on decisions related to the organization's goals and resources. This decentralized decision-making process ensures that no single entity holds undue influence.

Applications of DAOs

- Finance: Platforms like Compound and MakerDAO have introduced lending and borrowing services, enabling users to participate in the global financial ecosystem without relying on traditional banks.

- Intellectual property protection: In the art world, artists are tokenizing their creations and utilizing DAOs to manage royalties and maintain control over their intellectual property.

Traditional Top Down Organizations

CEO
Top Management
Mid-level Management
Even Lower Management
Non-management
Lowest non-management

Decentralized Autonomous Organizations (DAO)
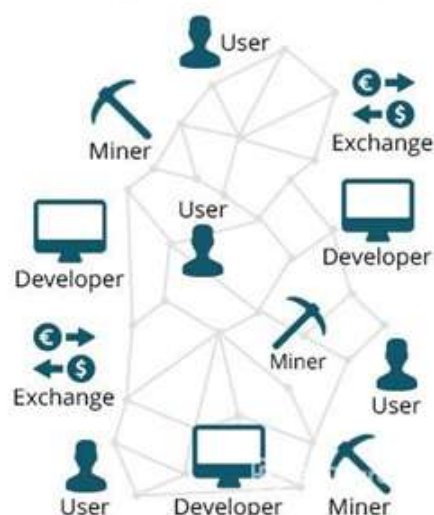
- Supply chain management: DAOs offer transparency and traceability in global supply chains, ensuring the authenticity and quality of products.

- Online governance: DAOs have emerged as tools for decision-making, with platforms like DAOstack facilitating decentralized governance structures for internet communities.

NASA'S PSYCHE SPACECRAFT

NASA's Psyche spacecraft fired a communication laser to Earth from about 16 million kilometres away, demonstrating an important technology DSOC (Deep Space Optical Communications) that could define the future of communication in space.

The Psyche Spacecraft is the first to carry a DSOC transceiver and will test high-bandwidth optical communications to Earth.

About NASA's Psyche Mission:

It aims to study a metal-rich asteroid with the same name, located in the main asteroid belt between Mars and Jupiter.

In 2013, NASA's Lunar Laser Communications Demonstration tested record-breaking uplink and downlink data rates between Earth and the Moon using similar technology.

DSOC, however, is taking optical communications into deep space, paving the way for high-bandwidth communications far beyond the Moon and over 1,000 times farther than any optical communications test.

How has Space Communication done?

- Like wireless communications on Earth, spacecraft encode data on various bands of electromagnetic frequencies.

- Currently, most space communication uses radio waves with the highest wavelengths but lowest frequencies in the electromagnetic spectrum.

- Radio waves are more widely used for space communication because of their desirable propagation properties and large wavelength compared to other electromagnetic waves.

- Properties of Radio Wave: Ability to pass through the atmosphere regardless of weather, pass through foliage and most building materials, and bend around obstructions.

NASA's Revolutionary New Technology:

1. The DSOC is a new laser communication technology that encodes data in photons at near-infrared wavelengths to communicate between a probe in deep space and Earth.

2. This allows the spacecraft to communicate more data in a given amount of time.

3. DSOC will allow data rates at least ten times higher than radio telecommunications systems of comparable size and power.

4. Benefits: DSOC can send scientific information, high-definition imagery, and streaming video to support humanity's next giant leap: sending humans to Mars.

Challenges:

- The flight laser transceiver and ground-based laser transmitter must point precisely.

- Reaching their targets like hitting a dime from a mile away while the dime is moving (A dime, or coin, that is less than 2 cm in diameter).

SEMICONDUCTOR ECOSYSTEM IN INDIA

Context

India and the European Union has signed a Memorandum of Understanding (MoU) on cooperation on the semiconductor ecosystem which will facilitate investments, joint ventures and technology partnership including manufacturing facilities.

How big is the industry?

Semiconductors are the thumbnail-sized building blocks of almost every modern electronic device from smartphones to connected devices in the Internet of Things (IoT). They help give computational power to devices.

The global semiconductor industry is currently valued at $500-$600 billion and caters to the global electronics industry currently valued at about $3 trillion.

Why is the government encouraging semiconductor manufacturing?

Semiconductor fabrication units, or fabs, turn raw elements such as silicon into integrated circuits that are fit to be a part of practically all electronic hardware in the world. Fabs are highly capital-intensive undertakings, costing billions of dollars for large facilities.

Semiconductor fabs of today may still be building circuits, but they require highly reliable and high-quality supply of water, electricity, and insulation from the elements, reflecting the high degree of precision, cost and capital needed to make the sophisticated circuits.

Countries have spotted strategic value in cornering segments as China pulled ahead of Taiwan last year, in terms of share of global sales from fabs, according to a report by the Semiconductor Industry Association (SIA).

Therefore, the global chip shortage, U.S.-China tensions over Taiwan, and the supply chain blockages owing to the Russia-Ukraine conflict have led major economies to enter the chip-making sector with a renewed push. The U.S. passed the CHIPS Act, Science Act and the EU's Chips Act, providing upwards of $280 billion in subsidies and investments to manufacturers opening fabs and making semiconductors in the U.S. This has been combined with restrictions and sanctions on the Chinese semiconductor industry.

Are fabs opening in India?

The government's Invest India agency estimates that electronics manufacturing as a whole will be worth $300 billion by the financial year 2025–26.

While facilities for assembling finished products have been growing in number steadily, fabs for making chipsets and displays, which are crucial parts of the manufacturing process for many electronics, are rarer.

Can semiconductors and finished products both be made in India?

The SIA which represents the bulk of semiconductor manufacturers in the U.S. and elsewhere, said in a report that India should lean on its strength in the electronics manufacturing value chain.

Conventional "foundry companies", which turn silicon into semiconductors, require investments that cost run into billions of dollars. But companies that specialise in Outsourced Semiconductor Assembly and Test (OSAT) are less expensive to set up, and generate better margins which take care of the less capital-intensive parts of chipmaking, such as assembling the precise components that have already been manufactured, and running specialised tests to approve them.

What other advantage does India have?

India has an advantage here, as a large portion of semiconductor design engineers globally are either Indian or Indian-origin; chipmaking firms such as Intel and NVIDIA

have large facilities in India that are already flush with Indian talent working on design problems.

This is an advantage that China is losing control over in the face of sanctions and an ageing population.

Will India's semiconductor ambition be limited?

The opening of display and semiconductor fabs is one of the strategic and economic goals of India's electronics manufacturing incentive programmes, and breaking new ground on ambitious plans connected to popular brands such as Apple is something that the Union government and States are equally eager to accomplish.

Overall, the government appears to be developing the parts of the ecosystem that have promise for sustainable growth and fiscal feasibility.

The chip-making process is complex and highly exact, having multiple other steps in the supply chain such as chip-designing done by companies to develop new circuitry for use in appliances, designing software for chips

and patenting them through core Intellectual Property (IP) rights. It also involves making chip-fabrication machines; setting up fabs or factories; and ATMP (assembly, testing, marking and packaging)

What are the initiatives to India's chip-making scheme?

1. In December 2021, India announced its roughly $10 billion dollar production-linked incentive (PLI) scheme to encourage semiconductor and display manufacturing in the country. It also announced fiscal support for a design-linked initiative (DLI) scheme to drive global and domestic investment related to design software, IP rights etc.

According to the Electronics and IT Ministry, semiconductor demand in India would increase to $70-$80 billion by 2026 with the growing demand for digital devices and electronic products.

2. India Semiconductor Mission is a specialized and independent Business Division within the Digital India Corporation that aims to build a vibrant semiconductor and display ecosystem to

enable India's emergence as a global hub for electronics manufacturing and design.

3. The National Policy on Electronics 2019 envisages to position India as a global hub for ESDM (Electronics System Design and Manufacturing) with thrust on exports by encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally.

4. The comprehensive Semicon India programme with a financial outlay of INR 76,000 crore for the development of a sustainable semiconductor and display ecosystem in 2021.

As India navigates the challenges and invests in the ecosystem, it's building a foundation for a future where it's not just a consumer of technology but a creator and innovator. The journey ahead is marked by challenges, but it's also filled with immense opportunities. India's path to semiconductor self-sufficiency is a testament to its unwavering commitment to technological empowerment, economic growth, and environmental sustainability.

SECURITY

What's Inside?

DEEPFAKES

INDO-PACIFIC MARITIME DOMAIN AWARENESS (IPMDA) INITIATIVE

Context:

The Indo-Pacific Maritime Domain Awareness (IPMDA) initiative, recently unveiled by the Quad grouping (India, Australia, Japan, and the U.S.), underscores a shared commitment to uphold a free, open, inclusive, and rules-based Indo-Pacific.

About Indo-Pacific Maritime Domain Awareness (IPMDA) initiative:

It was announced at the 2022 Quad Leaders' Summit in Tokyo.

It was announced to track "dark shipping" and build a "faster, wider, and more accurate maritime picture of near-real-time activities in partners' waters", integrating three critical regions in the Indo-Pacific — the Pacific Islands, Southeast Asia, and the IOR.

Purpose of IPMDA:

It is a technology and training initiative to enhance maritime domain awareness in the Indo-Pacific region and to bring increased transparency to its critical waterways.

It harnesses innovative technology, such as commercial satellite radio frequency data collection, to provide partners across Southeast Asia, the Indian Ocean region and the Pacific with near real-time information on activities occurring in their maritime zones.

What is QUAD?

It is the grouping of four democracies –India, Australia, the US, and Japan.

All four nations find a common ground of being democratic nations and also support the common interest of unhindered maritime trade and security.

It aims to ensure and support a "free, open and prosperous" Indo-Pacific region.

The idea of Quad was first mooted by Japanese Prime Minister Shinzo Abe in 2007. However, the idea couldn't move ahead with Australia pulling out of it, apparently due to Chinese pressure.

Finally in 2017, India, Australia, the US and Japan, came together and formed this "quadrilateral" coalition.

'PRALAY' BALLISTIC MISSILES

Context:

India successfully test-fired its surface-to-surface short-range ballistic missile (SRBM) 'Pralay' from the Abdul Kalam Island off the Odisha coast, a Defence official said.

About:

Pralay is an indigenous short-range ballistic surface-to-surface missile. The missile will be India's first tactical quasi-ballistic missile and will give the armed forces the capability to hit enemy positions and key installations in actual battlefield areas.

Developed by: The solid-fuel, battlefield missile developed by the Defence Research Development Organisation (DRDO) is based on

Prithvi Defence Vehicle from the Indian ballistic missile programme.

Features:

Pralay' is powered with a solid propellant rocket motor and other new technologies. The missile guidance system includes state-of-the-art navigation and integrated avionics, according to the DRDO.

The advanced missile has been developed in a way to be able to defeat interceptor missiles. It has the ability to change its path after covering a certain range mid-air.

It is capable of carrying a conventional warhead of about 350 kg to 700 kg, which gives it a deadly punitive capability.

Range:

The canisterised Pralay missile, has a range of 150-500 kilometres.

Ballistic missiles:

They are initially powered by a rocket or series of rockets in stages, but then follow an unpowered trajectory that arches upwards before descending to reach its intended target at high speed.

Unlike intercontinental ballistic missiles that exit the Earth's atmosphere, short-range ballistic missiles stay within it.

'SAGAR KAVACH'

Context:

The coastal security exercise 'Sagar Kavach' is a half-yearly drill conducted by the Indian Coast Guard with the aim of assessing and validating coastal security mechanisms and operational procedures. The exercise is scheduled to take place in Kerala and Mahe on November 16-17, 2023.

Key Features of 'Sagar Kavach'

The exercise involves active participation from multiple agencies including the Indian Navy, Coastal Police/State Police, Intelligence Bureau, Customs, CISF, Department of Port, Department of Fisheries, Directorate General of Lighthouses and Lightships (DGLL), and Kadalora Jagiratha Samithi.

It operates through two teams, the Attack (Red) and Defence (Blue) forces.

The Attack teams simulate infiltration attempts into coastal areas from the sea, while the Defence team establishes Coastal Security Surveillance to intercept and neutralize these attempts.

Indian Coast Guard (ICG)

The ICG is a vital maritime law enforcement and search-and-rescue agency established under the Coast Guard Act, 1978.

It operates under the Ministry of Defence and has jurisdiction over India›s territorial waters, contiguous zone, and exclusive economic s.

Collaborating closely with multiple agencies like the Indian Navy, Department of Fisheries, Department of Revenue (Customs), Central Armed Police Forces, and State Police Services, the Coast Guard plays a crucial role in ensuring maritime security and safety.

TRISHAKTI PRAHAR

Context:

Much-anticipated joint exercise 'Trishakti Prahar' recently began near the western border of Rajasthan in Jaisalmer.

About Trishakti Prahar:

It is a joint military exercise involving the Indian Army, the Indian Navy, and the Indian Air Force.

Objectives:

It aims to enhance mutual coordination and operational efficiency.

It seeks to create new strategies and assess operational capabilities in the context of modern warfare.

During the exercise, all three wings of the Indian Army actively engage in live practice sessions, simulating real war scenarios with complete coordination.

The exercise includes long-range attacks by reconnaissance aircraft, emphasizing precision and high-volume attacks to effectively neutralize hypothetical adversaries.

It involves a diverse array of military assets, including various types of howitzers, helicopters, and weaponry. This encompasses the deployment of the Army's T-90s and Arjun main battle tanks.

A major highlight of the exercise is the demonstration of the operational capability and

readiness of the Pune-based Southwestern Command of the Indian Air Force. This segment showcases the Air Force's preparedness for integrated air-land operations, combined arms operations, and its fast mobility and deep strike offensive capabilities.

Fighter aircraft, Apache attack helicopters, Chinook heavy lift helicopters, and various Navy aircraft contribute to the multifaceted nature of the exercise.

It serves as a platform to evaluate the effectiveness of modern warfare technologies such as unmanned aerial vehicles, precision-guided missiles, loiter munitions, counter-drone systems, communication systems, and automatic spectrum monitoring systems in a simulated operational environment.

MITRA SHAKTI

Context:

The ninth edition of the joint military exercise, "Exercise MITRA SHAKTI-2023," kickstarted in Aundh, Pune, aiming to foster cooperation and enhance operational readiness between the Indian and Sri Lankan armies.

Objectives of Exercise MITRA SHAKTI-2023

Sub Conventional Operations: The primary objective is to jointly rehearse Sub Conventional operations under Chapter VII of the United Nations Charter, focusing on counter-terrorist operations.

Scope of Operations: The exercise encompasses various tactical actions such as raids, search and destroy missions, heliborne operations, etc., aimed at enhancing joint responses during counter-terrorist operations.

Training Elements: The curriculum includes the Army Martial Arts Routine (AMAR), combat reflex shooting, yoga, and the employment of drones and Counter Unmanned Aerial Systems (CUAS). Drills for securing helipads and undertaking casualty evacuations during counter-terrorist operations will be practiced.

ORGANIZED CRIME AND CORRUPTION REPORTING PROJECT (OCCRP)

Context:

The Securities and Exchange Board of India (SEBI) recently asked the Organized Crime and Corruption Reporting Project (OCCRP) to give it

platform for 50+ independent media outlets around the world, publishing more than 100 investigations a year.

It was founded in 2006 to conduct transnational

access to "key documents" about the allegations of stock manipulation and accounting fraud against the Adani Group.

About:

OCCRP is a nonprofit investigative reporting

investigative reporting and promote technology-based approaches to exposing organised crime and corruption worldwide.

It aims to develop and equip a global network of investigative journalists and publish their stories.

With this, OCCRP exposes crime and corruption so the public can hold power to account.

Vision:

"A world where lives, livelihoods, and democracy are not threatened by crime and corruption."

OCCRP provides media outlets and journalists with a range of critical resources and tools, including digital and physical security, and allows those covering the most sensitive topics to work in teams with trusted editors.

OCCRP Aleph:

It is an investigative data platform where journalists can search and cross-reference more than three billion records to trace criminal connections and patterns and efficiently collaborate across borders.

It also trains reporters and partners in advanced journalism techniques.

OCCRP also partners with advocacy groups, arming civil society with information to meaningfully press for justice and change and unearths evidence that enables law enforcement to act.

KAVRO DOMA 360

Context

Kanpur-based MKU Limited recently unveiled the Kavro Doma 360, world-first rifle-rated ballistic helmet at Milipol Paris exhibition.

About

The rifle rated helmet is indigenously developed in India.

The helmet offers uniform protection across all five zones of the head against threats like AK-47 MSC, M80 NATO BALL, and M193 rifle bullets without the need for additional armor. It has been tested with 5 rounds of bullets in 5 head zones.

Unlike other helmets, it does not incorporate bolts or metal parts. This design choice minimizes the risk of bolts penetrating the skull upon impact, providing 40% more protection area against AK-47 assault rifles compared to standard helmets. It is the only boltless rifle rated helmet in the world.

It maintains a back face signature/trauma of less than 20 mm, indicating its ability to absorb impact and significantly reduce the risk of injury from high-energy bullet impacts.

Engineered with dynamic impact technology, it offers protection not only from straight impacts

but also from rotational/angular impacts that are known to cause concussions or brain injuries. The helmet has longitudinal and lateral harness adjustment functionality for stability and a secure fit.

The helmet weighs as low as 1.45 kgs for HCH Small and provides maximum compatibility with various head-mounted devices and combat equipment, including night vision devices, communication devices, masks, torches, and more.

The Kavro Doma 360's impact is anticipated to extend globally, not only setting new benchmarks

in defense equipment but also shaping the future of defense technology.

ISRAELI HERMES 900 STARLINERS DRONES

Context:

India is set to acquire additional Israeli-made Hermes Starliner 900 drones that will enhance the Indian Army's surveillance capabilities along its northern borders.

About:

It is an Israeli medium-altitude, long-endurance unmanned aerial vehicle.

It is the larger variant of the Hermes 900.

The Hermes 900 Starliners will be the latest Israeli remotely piloted aircraft in the Indian Army's inventory, which first acquired the first-generation Heron UAVs nearly two decades ago. The Hermes 900 UAVs are currently in use in the ongoing Israeli-Hamas conflict.

Features:

It has a wingspan of 17m and a maximum take-off weight of 1,600kg.

The aircraft has a service ceiling of 30,000ft and offers a flight endurance of up to 36 hours.

The aircraft's automatic take-off and landing (ATOL) capability allows it to take-off and land in near-zero visibility environments.

An active de-icing system is installed for removing ice from surfaces to ensure safe operation in icing conditions.

It can carry a range of multi-sensor payloads weighing up to 450kg for multiple applications.

The onboard imaging sensors capture real-time imagery/video and provide wide-area persistent surveillance during both the day and night.

It is equipped with a terrain avoidance warning system (TAWS) for terrain prediction and obstacle avoidance.

It is equipped with synthetic aperture radar (SAR), a ground moving target indicator (GMTI) radar, and maritime patrol radar to detect, locate and acquire targets.

It can also carry electronic warfare payloads to provide airborne electronic attack capability.

COMPREHENSIVE TEST BAN TREATY

Context:

Russia has test-launched an intercontinental ballistic missile "Bulava" capable of carrying nuclear warheads from one of its submarines. The 12-metre-long missile has a range of over 8,000 kilometres. The launch comes just days after the Russian withdrew its ratification of the Comprehensive Test Ban Treaty in a move Russia argued was needed to bring its position in line with the United States.

About

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) is an international treaty aimed at banning all nuclear explosions for both civilian and military purposes. Its primary goal is to promote nuclear disarmament and prevent the proliferation of nuclear weapons.

The CTBT was first proposed in 1954, and negotiations began in the 1990s. It was adopted by the United Nations General Assembly in 1996.

Objective: To end nuclear testing and promote nuclear disarmament and non-proliferation. By prohibiting all nuclear explosions, it aims to

prevent the development of new nuclear weapons and promote global security.

Negotiation and Adoption: The treaty was subsequently opened for signature on September 24, 1996, and it has been signed by 187 countries and ratified by 178 countries as of October 2023.

Entry into Force: CTBT has not entered into force as of November 2023. CTBT requires that all 44 "nuclear capable" states (also known as "Annex II" states) ratify the treaty before it may enter into force. Eight Annex II states have yet to ratify the CTBT.

Countries that have signed but not ratified CTBT: United States, China, Egypt, Iran, and Israel.

Those that have neither signed nor ratified: India, Pakistan and North Korea.

Comprehensive Nuclear-Test-Ban Treaty Organization was established to oversee the implementation and verification of the CTBT. It is headquartered in Vienna, Austria, and is responsible for managing the International Monitoring System (IMS) and the International Data Centre (IDC) to detect and analyse nuclear test events.

NATIONAL SECURITY STRATEGY

After years of deliberations in the military and strategic community, India has kickstarted the process of bringing in a National Security Strategy.

The National Security Council Secretariat (NSCS) is in the process of collating inputs from several Central ministries and departments to stitch together the draft of the strategy before seeking the final cabinet approval for it.

What is a National Security Strategy?

A National Security Strategy document outlines the country's security objectives, and the ways to be adopted to achieve these.

Updated periodically, it defines traditional, non-traditional threats and opportunities while introducing accountability of agencies tasked with the implementation of such responsibilities.

In a nutshell, a national security strategy would guide the military as well as critical defence and security reforms with strategic implications, providing a holistic view of the overall national security, the threats and the roadmap to address them.

The exact contours of the strategy being drafted is not known, but it will likely include the entire range of newer challenges and modern threats facing India, including non-traditional ones such as financial and economic security, food and energy security, information warfare, vulnerabilities in India's critical information infrastructure, as well as those associated with supply chains and environment.

India has never had a national security strategy due to political hesitation and concerns about accountability in defence management. Various experts suggest reasons ranging from a lack of coordinated government effort to the government's reluctance to disclose its national security objectives.

What would be the guiding principles of the NSS?

Doctrine normally precedes strategy. A doctrine is a set of established or agreed principles that guide actions. A strategy is a plan of action that emanates from doctrine.

While doctrines are more permanent than strategies, they must also remain flexible to cater for changing paradigms and major conceptual shifts. Doctrines must be reviewed periodically to ensure that they remain relevant and do not become dogmas. And with every update in doctrine, the strategy must be reviewed.

Another feature of doctrine and strategy is that they must be taught in order to facilitate a common understanding among planners and practitioners of national security. This is yet another need that the NSS must fulfil.

IGLA-S ANTI-AIRCRAFT MISSILE

Context

India is in the process of procuring a batch of Igla-S hand-held anti-aircraft missiles from Russia to bolster the combat capability of the Army units deployed in various sensitive forward locations.

About Igla-S

The Igla-S is a man-portable air defence system (MANPADS) that can be fired by an individual or crew to bring down an enemy aircraft.

The hand-held defence system has a capability of bringing down low flying aircraft.

It can also identify and neutralise air targets such as cruise missiles and drones.

It has an effective range upto 6 km.

The limiting altitude of effective target destruction for the "Igla-S" complex is 3.5 km

NEW FLARE-UP IN MYANMAR

Context:

Over the past week, resistance forces have captured two towns close to the India-Myanmar border.

The Ministry of External Affairs on Thursday expressed "deep concern" over the ongoing fighting in the Rikhawdar area in Myanmar's Chin State, close to the border with India opposite Zowkhathar in Mizoram, which has led to Myanmarese nationals crossing to the Indian side.

Story So Far:

The resistance forces are reported to have overrun more than 100 military outposts in Shan State and seized control of crucial border towns and checkpoints, including Chinshwehaw, a critical point on the China-Myanmar border trade route, which is an important source of revenue for the junta.

The rebels are now pushing towards Laukkai, the capital of Shan state's Kokang region, where the MNDAA has been active for more than three

decades.

Fighting has also broken out elsewhere in the country, led by various local resistance forces — in the Rakhine State in West Myanmar, Kayin State in South-East Myanmar, Sagaing region in North West Myanmar bordering Manipur, and Chin State in West Myanmar bordering Mizoram.

India's concern:

The immediate concern for India is the influx of Myanmarese nationals in the border states of the Northeast at a time when the situation in Manipur remains volatile.

The anti-junta forces have captured two important towns close to the only two border crossing points between Myanmar and India — Rikhawdar, close to Zokhawthar in Mizoram, and Khampat in Sagaing region, around 60 km from Moreh in Manipur.

The latter is also part of the proposed India-Myanmar-Thailand trilateral highway project.

DEEPFAKES

What is Deepfake?

Deepfakes refer to *digitally manipulated media altered to impersonate someone* using artificial intelligence.

Deepfakes are videos creating delusion with the use of deep learning, AI and photoshopping techniques to create images of events to spread disinformation. The technologies namely, GANs (Generative Adversarial Networks) or ML (Machine Learning) are interplayed to create the videos.

Deepfake imagery could be an imitation of a face, body, sound, speech, environment, or any other personal information manipulated to create an impersonation.

What are its effects?

Artificial Intelligence (AI)-Generated Synthetic media or deepfakes have clear benefits in certain areas, such as accessibility, education, film production, criminal forensics, and artistic expression.

Benefits:

1. Entertainment: Deepfake technology can be used to create realistic special effects in movies and TV shows. It can also be used to create personalized entertainment experiences, such as virtual reality simulations that allow users to interact with their favourite celebrities.

2. Education: Deepfake technology can be used to create more engaging and interactive educational experiences. For example, it could be used to create simulations of historical events or to allow students to interact with virtual characters.

3. Activism: Deepfake technology can be used to raise awareness of social issues. For example, it could be used to create videos that show the impact of climate change or to give a voice to marginalized groups.

4. Hyper-Personalisation:Deepfake technology has led to an upsurge in hyper-personalization.A brand can provide individual customers with more relevant messaging and experiences based on their personal preferences, such as their ethnicity or skin colour. For example, if a customer was of a different ethnicity than a brand's model for their marketing.

5. Digital Reconstruction & Public Safety: Reconstructing a crime scene is both a science and an art. It requires both inductive and deductive reasoning as well as evidence. Artificial intelligence-generated synthetic media can aid in the reconstruction of a crime scene. Also, a team of civil investigators created a virtual crime scene using cell phone videos. It used autopsy reports and surveillance footage.

6. New possibilities in healthcare : The use of deep learning to synthesise realistic data that will help researchers to develop new ways of treating diseases without usual actual patient data.

However, as access to synthetic media technology increases, so does the risk of exploitation. Deepfakes can be used to damage reputation, fabricate evidence, defraud the public, and undermine trust in democratic institutions. All this can be achieved with fewer resources, with scale and speed, and even micro-targeted to galvanise support.

Harmful Effects:

1. Pornography - Deepfake pornography exclusively targets women. Pornographic deepfakes can threaten, intimidate, and inflict psychological harm. It reduces women to sexual objects causing emotional distress, and in some cases, lead to financial loss and collateral consequences like job loss.

2. Cause decline in traditional Media - Deepfakes can also cause short-term and long-term social harm and accelerate the already declining trust in traditional media. Such erosion can contribute to a culture of factual relativism, fraying the increasingly strained civil society fabric.

3. Undermines Public Safety - Deepfake could act as a powerful tool by a malicious nation-state to undermine public safety and create uncertainty and chaos in the target country. Deepfakes can undermine trust in institutions and diplomacy.

4. Deepfakes can be used by non-state actors, such as insurgent groups and terrorist organisations, to show their adversaries as making inflammatory speeches or engaging in provocative actions to stir anti-state sentiments among people.

5. 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 weaponise deepfakes and use fake news and alternative-facts narrative to dismiss an actual piece of media and truth.

6. Declining trust in a potential "post-authentic" era : The prevalence of deep fakes and AI-generated content challenges the authenticity of information, leading to a blurred line between truth and falsehood.

7. Misinformation spread through deepfakes could jeopardize national security in myriad ways. For example, misinformation could jeopardize the safety of military forces engaging with a foreign civilian population if a deepfake circulated depicting

military members disparaging, assaulting, or killing civilians. A bad actor could take advantage of a region's instability by using a deepfake to inflame a local population, which could lead to civilian casualties, greater enemy recruitment

8. Election Interference: The release of a well-timed deepfake also has the potential to interfere in state and union elections by injecting convincing falsehoods and uncertainty concerning candidates' personal lives and policy positions into the electoral process. Such uncertainty could undermine faith in the outcome of that election

9. Risks for Financial Services: For banks and other financial services providers, deepfakes could impact:

• Onboarding processes could be subverted and fraudulent accounts created to facilitate money-laundering

• Payments or transfers could be authorised fraudulently

Synthetic identities could be created, whereby criminals take elements of a real or fake identity and attach them to a non-existent individual

Measures taken

1. National Cyber Crime Helpline — 1930.

2. Section 66 of the Information Technology Act of 2000, Section 66E of the IT Act prescribes punishment, for violation of privacy of an

individual through publishing or transmitting the image of private area of such a person without his or her consent, with imprisonment of three years with fine of INR 2 lakh.

3. Pictures and images are sensitive personal data of an individual that are capable of identifying that very individual as defined under the Digital Personal Data Protection Act, 2023. Deep fakes are, thus, breach of personal data and violation of the right of privacy of an individual. Data publicly available may not fall under the law but do the social media giants will still have to own up if the information put on their sites can be mined for the purposes of creating misinformation.

4. The Union Minister of Electronics and Technology has announced that the government is likely to unveil a framework to deal with the misuse of technology for AI and 'Deepfake' on November 24, 2023.

5. Provisions of the Indian Penal Code (IPC) can also be resorted for cybercrimes associated with deepfakes — Sections 509 (words, gestures, or acts intended to insult the modesty of a woman), 499 (criminal defamation), and 153 (a) and (b) (spreading hate on communal lines) among others.

6. The IT Rules, also prohibit hosting 'any content that impersonates another person' and require social media platforms to quickly take down 'artificially morphed images'

of individuals when alerted. In case they fail to take down such content, they risk losing the 'safe harbour' protection — a provision that protects social media companies from regulatory liability for third-party content shared by users on their platforms.

Technological Measures:

• Intel's deepfake detector called FakeCatcher, which is said to spot 'blood flow' in the pixels of a video (measures how much light is absorbed or reflected by blood vessels) to detect deepfakes.

• The Coalition for Content Provenance and Authenticity (C2PA), an open technical standard created by the coming together of many software companies with an aim to authenticate digital pictures.

Coalition for Content Provenance and Authenticity (C2PA)

The Coalition for Content Provenance and Authenticity (C2PA) addresses the prevalence of misleading information online through the development of technical standards for certifying the source and history (or provenance) of media content.

C2PA is a Joint Development Foundation project, formed through an alliance between Adobe, Arm, Intel, Microsoft and Truepic.

C2PA unifies the efforts of the Adobe-led Content Authenticity Initiative (CAI)

which focuses on systems to provide context and history for digital media, and Project Origin, a Microsoft- and BBC-led initiative that tackles disinformation in the digital news ecosystem.

Suggestive measures:

• Laws having direct implications on the effects of Generative AI are the need of the hour. the current regulations only focus on either online takedowns or criminal prosecution but lack a deeper understanding of how generative AI technology works and the wide range of harm that it can cause

• A regulating agency which makes regulations and guidelines and strictly implements it is the need of the hour, which can be modelled similar to the SEBI.

• Further the dissemination of this disinformation also takes place through the social media channels and controls have to put in place for the same. Youtube has recently announced measures requiring creators to disclose whether the content is created through AI tools. The need will be to create a uniform standardization that all channels can adhere to and are common across borders

Global Regulation on AI

1. Global Partnership on Artificial Intelligence Summit-

• GPAI is a multi-stakeholder initiative bridging

the gap between AI theory and practice through research and applied activities on AI priorities.

• Its founding members are Australia, Canada, the European Union, France, Germany, India, Italy, Japan, the Republic of Korea, Mexico, New Zealand, Singapore, Slovenia, the UK and the US.

• Launched in 2020 with 15 members, GPAI's membership now includes 28 countries and the EU.

• The 1st 3 GPAI summits were held in Montreal, Paris and Tokyo, respectively.

• OECD hosts the secretariat for the GPAI.

• India became the Council Chair of the GPAI in November 2022 after France.

• It will bring experts from industry, civil society, governments, and academia to promote the responsible evolution of AI.

• It is built around a shared commitment to the OECD Recommendation on AI.

Initially, it will work on four themes:

• Responsible AI

• Data Governance

• Future of Work

• Innovation and Commercialisation

New Delhi Declaration of GPAI:

• In the 2023 summit, GPAI unanimously adopted

the New Delhi Declaration, emphasising:

Risk mitigation in AI development

Equitable resource access for AI innovation

• The declaration acknowledges AI's rapid advancement and recognises its potential for economic growth, innovation, job creation, and societal benefits.

• The declaration also flagged concerns about AI systems, including misinformation and bias, unemployment, intellectual property and personal data protection, threats to human rights and democratic values, deepfakes, cybersecurity, and cyber-terrorism.

• It also agreed to support AI innovation in agriculture as a new "thematic priority".

• It said that GPAI will aim for diverse membership, prioritising low and middle-income countries.

• AI Research Analytics and Knowledge Dissemination Platform (AIRAWAT) and National Program on Artificial Intelligence and its role in shaping AI ecosystem in India was prominently emphasized.

2. UK AI Safety Summit - The Bletchley Declaration

• The World's 1st Artificial Intelligence (AI) Summit was held at Bletchley Park, a historic site in UK where the Enigma code was cracked during World War II.

• A meeting of 28 nations, including the U.S. and China, to discuss the risks and benefits of AI and how to regulate its development and use.

• The summit is centred around 'frontier AI', which is defined as "highly capable foundation models that could possess dangerous capabilities sufficient to pose severe risks to public safety."

• The Bletchley Declaration (UK AI Safety Summit declaration)– A collective effort in collaborative spirit

• The Declaration, lays down a step forward for countries and nations to cooperate and collaborate on the existing and potential risks of the AI and sets in the agenda aimed at:

• Identifying risks in the arena of AI;

• Building respective risk-based policies across countries aimed at increasing transparency by private players developing frontier AI capabilities

Bletchley Declaration vs. New Delhi Declaration

While the GPAI New Delhi declaration addresses the need to tackle AI-related risks, it largely supports innovation in the technology in various sectors, including agriculture and healthcare. By contrast, the declaration that was signed at the UK AI Safety Summit last month put security and

safety risks related to AI in the centre of the discussions. At the Bletchley Park meeting, 28 major countries agreed to sign on a declaration saying global action is needed to tackle the potential risks of AI.

3. UN Advisory Group on AI : UN Secretary-General António Guterres has announced the establishment of a new advisory body on addressing risks and opportunities in international governance of artificial intelligence (AI). The High-Level Advisory Body on Artificial Intelligence will enable a global, multidisciplinary, and multistakeholder conversation on the governance of AI. The High-Level Advisory Body will explore ways to link various AI governance initiatives and, by the end of 2023, make preliminary recommendations on how to leverage AI to accelerate the delivery of the SDGs in the following areas:

• International governance of AI;

• A shared understanding of risks and challenges; and

Key opportunities and enablers.

The Advisory Body's recommendations will support preparations for the 2024 Summit of the Future and feed into negotiations towards the proposed Global Digital Compact.

"At the inaugural session of the GPAI Summit, Prime Minister Narendra Modi

flagged the dual potential of AI — while it can be 21st century's biggest development tool, it can also potentially play a very destructive role — and called for a global framework that will provide guardrails and ensure its responsible use."

Countries that have taken proactive steps towards curbing the menace of deepfakes

• The UK government has planned to introduce national guidelines for the AI industry evaluating the implementation of legislation that would require clear labelling for AI generated photos and videos.

• The European Union has enforced Digital Services Act which obligates social media platforms to adhere to labelling obligations, enhancing transparency and aiding users in determining authenticity of media.

• South Korea passed a law that makes it illegal to distribute deepfakes that could cause harm to public interest with offenders facing up to five years or imprisonment or fines upto 50 million won (aproximately 43,000 USD).

• In January 2023, China, the Cyberspace Administration of China and the Ministry of Industry and Information Technology and the Ministry of Public Security, stressed have that the deepfakes must be clearly labeled in order to prevent public confusion.

The United States, has advocated the Department of Homeland Security (DHS) to establish a task force to address digital content forgeries, also known as "deepfakes." Many states have enacted their own legislations to combat deepfakes.

ART & CULTURE

KOLKALI

Context:

Recently, MP Shashi Tharoor shared a video of a folk dance from Kerala that looked a lot like dandiya-garba.

About:

Kolkali is a folk art performed in Malabar region of Kerala, India.

The dance performers move in a circle, striking small sticks and keeping rhythm with special steps.

The circle expands and contracts as the dance progress. The accompanying music gradually rises in pitch and the dance reaches its climax.

Kolkali is now a popular event in Kerala School Kalolsavam, which is considered as the biggest cultural event of Asia.

There are two styles of Kolkali: the actual Kolkali and Thekkan Koladi. The actual Kolkali consists of Thacholikali, Rajasooyam etc. The actual kolkali is almost at verge of extinction and Thekkan Koladi is still alive as it is added in state kololsavams.

Kolkali, also have drawn elements from Kalarippayatt during their stages of evolution

In Kerala, the Kolkali dance form and its many variations are performed using small sticks. These group dance forms are popular in the Malabar region of the southern state. The women's version of Kolkali dance is called Kolattam

TAMIL LAMBADI EMBROIDERY

Context

Porgai Artisan Association Society, with 60+ women, has been making and selling embroidered clothes to ensure that there is awareness about the art form and that it is passed on to the next generation

About

The Lambadi community has been practising the craft of Lambadi embroidery for a long time, which has served the purpose of decorating their own attire and household items.

It has been an integral part of their identity, and the Lambadis have made constant efforts to maintain it.

The intricate embroidery is done by Lambadi women on cotton and silk fabrics, using colourful cotton threads.

The traditional embroidery designs are all geometrical patterns with squares, rectangles, and circles.

They have also been influenced by the local forests, birds, fruits, and flowers.

Tamil lambadi designs are not the same as those of the Banjaras in Andhra Pradesh or the Lambanis in Karnataka, with few differences such as usage of mirror is prevalent in the latter.

The elderly women of this tribal community continue to wear the Petia, their traditional five-piece dress which is made with Mushru silk from Kutch.

About the Lambadi community

The Lambanis are also known as Banjaras, and most of them are found in Telangana, Andhra Pradesh, Tamil Nadu, and Karnataka.

Several hundred years ago, the Lambadi tribals migrated from North Western India to down south for a living.

They were a nomadic tribe but ended up settling down in Madhya Pradesh, Maharashtra, Karnataka, Andhra Pradesh and Tamilnadu. Sittilingi Valley (Tamil Nadu) is the second southernmost settlement of Lambadis in India.

This community settled across the country with different names, have permanently abandoned their nomadic lifestyle and settled in their settlements called Tandas.

Lambadi or Labanki or Gor boli is a language spoken by the once nomadic Lambadi Banjara people across India and it belongs to the Indo-Aryan group of languages. The language does not have a native script.

UNESCO'S CREATIVE CITIES NETWORK

Context:

Recently, the United Nations Educational, Scientific and Cultural Organization (UNESCO) announced the addition of 55 new cities to its Creative Cities Network (UCCN).

Among the new entrants, two Indian cities made their mark: Kozhikode in Kerala as the 'City of Literature' and Gwalior in Madhya Pradesh as the 'City of Music'.

About

On World Cities Day, designated by the United Nations on October 31, 55 cities joined the UNESCO Creative Cities Network (UCCN) which include Bukhara – Crafts and Folk Art, Casablanca – Media Arts, Chongqing – Design, Kathmandu – Film, Rio de Janeiro – Literature, and Ulaanbaatar – Crafts and Folk Art.

Kozhikode is a permanent venue for the annual Kerala Literature Festival and hosts several other book festivals.

Gwalior has a rich and diverse musical heritage encompassing classical Hindustani music, folk music, and devotional music. The city also has some prestigious music institutes and hosts popular festivals.

UNESCO Creative Cities Network (UCCN)

It was created in 2004 with the aim to "promote cooperation among cities which recognize creativity as a strategic factor in their urban development". Sustainable Development Goal 11 aims for Sustainable Cities and Communities.

With the latest additions, the UCCN now counts 350 cities in more than a hundred countries, representing seven creative fields:

- Crafts and Folk Art
- Design
- Film
- Gastronomy
- Literature
- Media Arts
- Music

Every year, UNESCO seeks applications from various cities across the globe to put them under its UCCN project. The applications in India are routed through the Ministry of Culture.

The network is aimed at leveraging the creative, social, and economic potential of cultural industries. It was launched to promote UNESCO's

goals of cultural diversity and strengthen resilience to threats such as climate change, rising inequality, and rapid urbanisation. It encourages a culture of creativity in urban planning and solutions to urban problems.

To promote cooperation with and among cities that have identified creativity as a strategic factor for sustainable urban development.

Other Indian cities which are added to this network

1. Srinagar : crafts and folk arts

2. Jaipur: crafts and folk arts

3. Mumbai: Film

4. Chennai Music

5. Varanasi: Music

6. Hyderabad: Gastronomy.
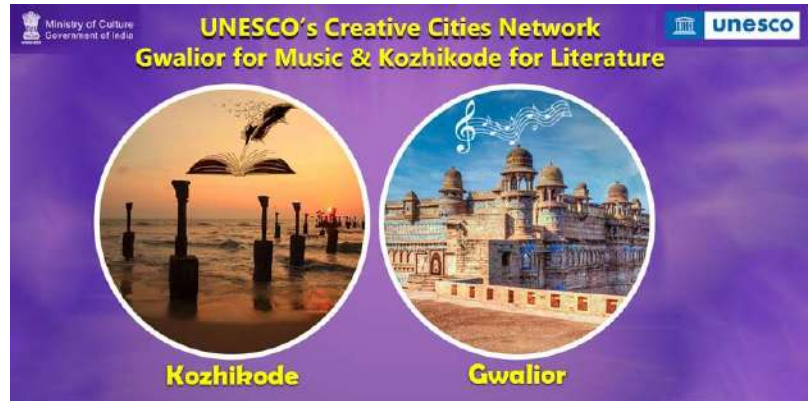
CHHATH FESTIVAL

Context:

Chhath Puja is a Hindu festival celebrated every year as a gratitude to the Sun God, or Surya Dev for Sun is the prime source of all life on earth, the deity which makes life sustainable.

Meaning of word CHHATH:

The word chhath means sixth and the festival is celebrated on the sixth day of the month Kartika of the Hindu lunar Bikram Sambat calendar.

Rituals:

The festival is observed over a period of four days. They rituals include holy bathing, fasting, standing in water for long periods of time, and offering prayers and food to the setting and rising sun.

Four-Day Festival:

Day 1: Nahay Khay (Holy Bath and Fasting Begins)

Day 2: Kharna (Preparing Prasad and Breaking Fast)

Day 3: Sandhya Arghya (Evening Offerings to the Setting Sun)

Day 4: Usha Arghya (Morning Offerings to the Rising Sun)

Regions:

The festival is observed most elaborately in Mithila Province of Nepal, Terai-Madhesh region of Nepal, Indian states of Bihar, Jharkhand and UP.

The main worshipers, called Parvaitin, are usually women. However, many men also observe this festival as Chhath is not a gender-specific festival.

GEOGLYPH

Context

A geoglyph in the form of a circle, said to be 3,000 years old, has been unearthed on the outskirts of Telangana. Archaeologists have termed it as a first-of-its-kind discovery and suggests that this circle might have served as a model for megalithic communities in planning their circular burial sites.

About

A geoglyph is a work of art which is created by arranging or moving objects within a landscape. These objects are usually stones or earth.

In creating this art form the artist or group of artists arrange objects to create the art or remove objects in a structured pattern to create lines or spaces that contrast with the surrounding terrain to form the art work.

Geoglyphs in India

While most common rock art in India are in the form of rock paintings, rock etchings, cup marks and ring marks, the large concentration of geoglyphs on the laterite plateaus (Sada) in the Konkan are unique and most remarkable open-air ensembles of prehistoric human expression since 30,000 years ago.

These are distinct concentrations of pictorial

Context	Rock paintings	Petroglyphs	Geoglyphs
Definition	Rock paintings are found painted on the walls of rock shelters and are sometimes accompanied by petroglyphs, cupules etc.	Petroglyphs are engravings on the vertical surfaces or on boulders and may sometimes accompany paintings.	Geoglyphs are engraved or incised on the floor or rock bed and are open air ensembles.
Distribution	The highest concentration of rock paintings are found in Central India and few in the eastern parts of the Indian sub-continent E.g. Rock Shelters of Bhimbetka 2003	This is widely available across the subcontinent with higher concentration in the Himalayas, North East and Southern parts of the Indian peninsular region. Other sites are located in rock shelters in Eddikal (Kerala), Perumukkal and Kollur (Tamil nadu), Champhai district of Mizoram and Salangthel, Khoupum, and Tharon (Manipur).	These are extremely rare to find and only occur on the lateritic plateaus of the Konkan belt (western edge of the Western Ghats, in peninsular India).
	 Bhimbetka cave paintings	 Edikkal, Kerala	 Konkan geoglyphs

representations that include marine and riverine, mammals, reptiles, amphibian and avian life which have vanished from the region several centuries ago.
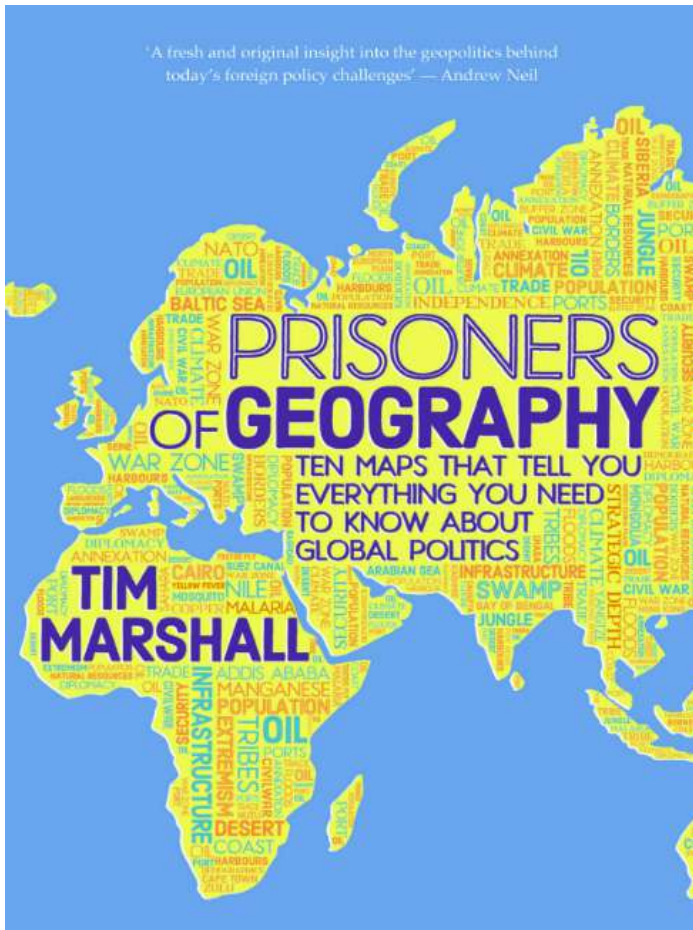
There is a highly concentrated cluster of geoglyphs in the Konkan region.

Faunal themes are integral and characteristic of the Geoglyphs of Konkan. Some prominent animal forms include large mammals like the tiger, elephants, monkeys, animals from the deer family, cattle like buffalo, pig, rabbit, wild boar, monkey, etc. and species such as rhinoceros and hippopotamus that became extinct 30Kya.

These add a new chapter in prehistoric rock art and shed light on the transitory phase from Stone Age to Early Historical period of the Konkan region.

The Indian sub-continent has a rich diversity of rock art that are more-or-less of contemporary beginnings and different timelines of continuity. These are the oldest tangible expressions of human creativity and can be classified as petroglyphs, paintings and geoglyphs.

"PRISONERS OF GEOGRAPHY" by Tim Marshall

geographical challenges and opportunities faced by the nations within those regions.

Russia And Its Expansive Terrain

Marshall begins with Russia, a vast nation stretching across Eastern Europe and northern Asia. He explains how Russia's need for warm-water ports, its vast Siberian resources, and the flat terrain that makes it vulnerable to invasions have all influenced its foreign policy and expansionist tendencies.

The vastness of the Russian plain, for instance, has historically made it an easy target for invasions, from Napoleon to Hitler, pushing Russia to maintain a buffer of satellite states for security.

China, India, And Other Asian Dynamics

Moving to Asia, Marshall discusses the geographical challenges faced by China and India, two emerging superpowers. While China's eastern coastal regions have been its economic powerhouse, the vast Tibetan plateau and the deserts in the west have historically isolated it from the rest of Asia.

India, on the other hand, is geographically protected by the Himalayas in the north but faces challenges in projecting power beyond its immediate neighborhood.

The South China Sea is also discussed as a crucial geopolitical hotspot, given its rich resources and strategic importance to global trade routes.

The Middle East and Resource Geopolitics

The Middle East, with its vast oil reserves, takes center stage in Marshall's discussion on the geopolitics of resources. He details how the discovery of oil has led to both wealth and conflict in the region.

The arbitrary borders drawn by colonial

Prisoners of Geography by Tim Marshall is an exploration into the role of geography in shaping the history, politics, and current events of nations. Marshall delves into how mountains, rivers, and other geographical features have influenced political decisions, conflicts, and the fate of nations.

The book examines ten global regions and reveals how their physical landscapes influence political power dynamics, economic success, and strategic decisions. Marshall argues that despite technological advancements, geography remains a pivotal factor in global affairs, often dictating the options available to nations and their leaders.

The book is structured around ten maps of crucial regions of the world, each illustrating the

powers, combined with ethnic and sectarian divisions, have further fueled tensions. Rivers like the Tigris and Euphrates become essential in this context, as nations vie for control over these vital water sources.

Africa, Europe, and the Americas

In Africa, Marshall focuses on the challenges posed by the Sahara Desert, which acts as a barrier to integration and trade.

He also touches upon the Congo River basin and its vast resources. Europe's relative geographical cohesion, despite its cultural and linguistic diversity, has played a role in its global dominance over the centuries.

The Americas, particularly the US, benefit from a protective oceanic buffer, but the rugged terrain in South America, especially the Andes, has hindered political unity and economic integration.

Throughout the book Marshall emphasizes that while geography sets the stage, human agency and decision-making play crucial roles in shaping the course of history.

However, understanding the geographical constraints and advantages can provide a clearer picture of global politics and the motivations of nations.

Key Lessons

One of the primary lessons from the book is understanding the extent to which geographical features can limit or enable a nation's choices. Mountains, rivers, deserts, and oceans aren't just physical entities; they play a significant role in determining a country's defense strategy, economic policies, and even diplomatic relations.

For instance, Russia's flat terrain and lack of natural barriers make it vulnerable to invasions, influencing its historical need for buffer territories.

Recognizing these geographical constraints helps in predicting potential moves on the global stage and understanding the historical context of many international decisions.

Resources And Conflict

Another key takeaway is the intricate link between natural resources and geopolitics.

The Middle East's oil reserves are a prime example of how resources can be both a boon and a bane. While they have brought immense wealth, they have also been a source of conflict, both internally and externally. Rivers, especially in arid regions, become geopolitical hotspots, as nations vie for control over these crucial water sources.

The lesson here is that the distribution and availability of resources, be it water, oil, or minerals, can heavily influence regional stability, power dynamics, and global politics.

Colonial Legacies and Modern Conflicts

The book highlights how arbitrary borders drawn by colonial powers, often without regard for ethnic, cultural, or geographical coherence, continue to impact modern geopolitics.

In the Middle East and Africa, many of these borders split communities or lumped together disparate groups, leading to internal strife and regional tensions.

Understanding the historical context of these borders is crucial for grasping the root causes of many contemporary conflicts.

It underscores the importance of informed, culturally and geographically sensitive policymaking and the dangers of external powers dictating territorial demarcations without a deep understanding of local dynamics.

The book underscores that while technology and human ingenuity can overcome some geographical challenges, nations are still, to a large extent, bound by their physical landscapes.

FACT SHEET

GENERAL STUDIES – II

SOCIAL ISSUES

✦ The rural households given tap water connection is 70%. The Jal Jeevan Mission aims to provide safe and adequate drinking water to all households in rural India by 2024. Of the 19.24 crore rural households, 13.47 crore households have been provided tap water connections till now.

"HungerMap LIVE: Global insights and key trends" by World Food Programme:

✦ Global Food Insecurity and Hunger 828 million people are chronically hungry globally.

✦ 193 million experiencing acute hunger in 53 countries.

✦ Countries with a high prevalence of insufficient food (12 countries) account for 33% of the total number of people with insufficient food consumption.

India's performance in hunger-related SDGs:

✦ In the 2021 Sustainable Development Report, India's ranking slipped from 117 to 120 among 193 countries, placing it in the serious category of hunger.

✦ The Global Hunger Index (GHI) for 2022 ranked India 107 out of 121 countries, lagging behind Nigeria (103) and Pakistan (99).

✦ Food Security and Malnutrition According to the State of Food Security and Nutrition in the World Report 2022, India is home to over 224 million undernourished people.

INTERNATIONAL RELATIONS

✦ Poppy growth has fallen by 95% in Afghanistan since Taliban ban: UN

GENERAL STUDIES – III

ECONOMY

✦ According to a Morningstar report, the value of FPIs' investments in Indian equities rose from $566 billion as of September 2022 to $651 billion at the end of September 2023.

✦ The government cut the windfall tax on crude oil to 6,300 Indian rupees/tonne (from 9,800 rupees/tonne) while cutting the diesel windfall tax to 1 rupee/litre (from 2 rupee/litre). The windfall tax on gasoline and aviation turbine fuel (ATF) remained unchanged at zero.

ENVIRONMENT

✦ According to the UN's World Meteorological Organization, three main greenhouse gases i.e., carbon dioxide, methane and nitrous oxide hit new record highs in 2022, with no end in sight to the rising trend.

✦ The global mean temperature in 2022 was 1.150 C above the 1850-1900 average.

✦ The 2015 Paris Agreement saw countries agree to cap global warming at "well below" 20 C above average levels measured between 1850 and 1900 — and 1.50 C if possible.

Climate Services Report 2023 by, the World Meteorological Organization (WMO):

✦ Less than 25 per cent of health ministries across the world utilise climate information and services to monitor health risks related to climate sensitivity.

✦ While extreme heat causes the greatest mortality of all extreme weather, heat warning services are provided to health decision-makers in only half of the affected countries.

✦ Climate change mitigation leading to reducing air pollution can save lives.

1. Tamil Nadu's first artificial intelligence (AI)-based early warning system to prevent wild elephants from getting hit by trains along the Ettimadai–Walayar section, is nearing completion. The installed 12 e-surveillance towers for this project will give an additional layer of protection for elephants.

2. According to a blog post by the US-based cybersecurity firm 'Resecurity', a threat actor known as "pwn0001" posted a thread on Breach Forums, offering access to 815 million Indian citizen's Aadhaar and passport records.

3. Recently, Boeing's internal data was published online by Lockbit, a cybercrime gang running a ransomware operation. It's ransomware infiltrates systems and holds them hostage. LockBit demands payment to unlock the compromised computers, often threatening to leak stolen data to pressure victims to pay.

4. The World Health Organization (WHO) has declared loneliness a significant global health threat, highlighting its mortality impact equivalent to smoking 15 cigarettes a day.

5. India has voted in favour of a draft resolution in the UNGA that expressed deep concern over Israel not withdrawing from the Syrian Golan. It declared that Israel failed to comply with UNSC resolution 497 (1981), which said that "the Israeli decision to impose its laws, jurisdiction and administration in the occupied Syrian Golan Heights is null and void and without international legal effect." The resolution also stressed the illegality of the Israeli settlement construction and other activities in the occupied Syrian Golan since 1967. It demanded Israel's withdrawal from all of the occupied Syrian Golan.

6. India was named the Chair of the International Sugar Organisation (ISO) for 2024 at the organisation's 63rd council meeting in London. India is the largest consumer and second-largest producer of sugar, globally.

7. The Union Agriculture Ministry, in collaboration with the Wadhwani Institute for AI, developed Krishi 24/7. It is the first-ever AI-powered solution for automated agricultural news monitoring and analysis, with support from Google. It will identify relevant news, generate timely alerts, and take prompt action to protect farmers' interests and promote sustainable agricultural growth through improved decision-making.

8. The Cotton Corporation of India, the nodal agency for the government's Minimum Support Price (MSP) operation for the natural fibre, has bought 2.5 lakh bales (of 170 kg each) worth ₹900 crore since start of season on October 1. CCI enters the market whenever prices drop below the MSP fixed by the government.

9. Ireland's Paul Lynch, has won the 2023 Booker Prize with his novel "Prophet Song," a dystopian narrative set in Dublin amid totalitarian rule. The novel explores a family's struggle in a world where democratic norms are eroding. Lynch mentioned that the inspiration for "Prophet Song" came from the Syrian war and refugee crisis.

10. The IIT Madras formally inaugurated its first international campus in Zanzibar, Tanzania. The campus is IIT Madras's first offshore campus in Africa.

11. A police sub-inspector in Maharashtra has been suspended indefinitely from service after becoming a crorepati. It reports on how despite it being legal, real-money fantasy sports gaming in India carries the stigma of propagating gambling and betting in society.

12. Increasing focus on policy responses to climate-induced displacement in recent years. Few OECD countries have explicit policies to address this issue. Notably, Colombia began discussing a pioneering bill in April 2023, aiming to recognize and support climate-displaced individuals, with a broad definition and provisions for housing, healthcare, education, and a national register.

13. Oxygen-producing materials made from meteorites found on Mars have been produced using a robotic AI-chemist. The research, published in 'NatureSynthesis', provides a proof-of-concept for generating oxygen and may have implications for future manned missions to Mars.

14. Amazon WoW is a networking platform for all women engineering students in India that connects them to Amazon leaders, recruiters, etc. The objective of the platform is to help women students build long-term careers in technology.

15. Seven villages, having over 900 families in the Erode district of Tamil Nadu, have been celebrating quieter Diwali without firecrackers for 22 years. It is to protect the avian population at a nearby bird sanctuary, especially during the breeding season, recognizing the sensitivity of the period.

TERMS IN NEWS

1. **Kessler syndrome:** This is an idea proposed by NASA scientist Donald Kessler in 1978. If there was too much space junk in orbit, it could result in a chain reaction where more and more objects collide and create new space junk, to the point where Earth's orbit became unusable.

2. **Anarcho-capitalism:** Anarcho-capitalism refers to a political philosophy which calls for the abolition of the state and for the provision of law and order to be controlled by private companies in a free market. It has recently gained popularity with Javier Milei, who calls himself an anarcho-capitalist, winning the race to become the President of Argentina last month.

3. **Tropicalization:** It refers to the process by which temperate ecosystems are transformed due to the movement of tropical organisms towards higher latitudes. This transformation occurs as a response to rising ocean temperatures.

QUOTES/POEMS (FOR ESSAY & GS)

1. **Women:** "There is no chance of the welfare of the world unless the condition of women is improved. It is not possible for a bird to fly on one wing" - Swami Vivekanand.

2. **Poverty:** "Poverty is like a punishment for a crime you didn't commit." - Eli Khamarov.

3. **Democracy:** The will of the people is the only legitimate foundation of any government, and to protect its free expression should be our first object – Thomas Jefferson.

4. **Law vs Ethics:** "In law, a man is guilty when he violates the rights of others. In ethics he is guilty if he only thinks of doing so" - Immanuel Kant.

5. **Dream Life:** "Hold fast to dreams; for if dreams die; Life is a broken-winged bird; that cannot fly. Hold fast to dreams; for when dreams go; Life is a barren field; frozen with snow."- LangstonHughes