



CURRENT AFFAIRS PROGRAM

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1) SEDITION

- **Why in news?**
 - The 22nd Law Commission has recommended that Section 124A of the Indian Penal Code (IPC) dealing with offence of sedition be retained and that the minimum jail term for the offence be enhanced from three to seven years (June 2023)
- **Example Questions**
 - Discuss the provisions and scope of Section 124A of the Indian Penal Code (IPC) pertaining to sedition. Examine its constitutionality in light of freedom of speech and expression [15 marks, 250 words]
 - In light of the recent report by 22nd Law Commission of India, evaluate the need for legislative reforms or amendments to the sedition law in India [10 marks, 150 words]
- **Intro**
 - **Definition:** Conduct or speech inciting people to rebel against the authority of a state or monarch can be considered as sedition.
 - **Section 124A of IPC** defines sedition as "any action whether by words, signs or visible representation which brings or attempts to bring into hatred or contempt, or excites or attempt to excite disaffection towards the Government established by law in India". The section also contains a clarification to the effect that the word "disaffection" includes disloyalty and all feelings of enmity.
 - Under this section, Sedition is punishable with imprisonment for life.
- **Evolution of Sedition Law from the beginning**
 - Not a part of original IPC enacted in 1860.
 - Added a decade later as fears of possible uprising plagued the colonial authorities.
 - Note: Other laws to suppress dissent at that time -> Dramatic Performance Act, 1876 and the Vernacular Press Act, 1878.
 - **The British India government liberally used this provision** during India's freedom struggle to suppress any kind of dissent.
 - **Constituent Assembly:** An attempt to include sedition as an express ground for limiting speech under Article 19(2) was successfully resisted.
 - The law was in a way reimposed in 1951 through First Constitutional Amendment which added two expressions - "friendly relations with foreign state" and "public order" - as grounds for imposing "reasonable restrictions" on free speech.
 - A **Constitutional Bench of the Supreme Court upheld** the validity of Section 124-A in the celebrated case of **Kedar Nath Singh vs. State of Bihar in 1962** but at the same time **attempted to restrict the scope of its misuse**.
 - The Court upheld the right to comment in strong terms upon the measures or acts of **government** and laid down that that a person can be charged with **sedition only if there is incitement to violence in his speech or writing or an intention or tendency to create disorder or disturbance of law and order**.

- The court said "A citizen has a right to say or write whatever he likes about the Government, or its measures, by way of criticism or comment, so long as he does not incite people to violence against the Government established by law or with the intention of creating public disorder"
- In the **Menaka Gandhi** case of 1978, the Supreme Court held that criticizing and drawing opinion against the government's policies and decisions within a reasonable limit that does not incite people to rebel is consistent with the freedom of speech.
- **Inspite of these Supreme Court verdicts**, the law continues to be misused.
 - NCRB report says 356 cases of sedition under Section 124A of the IPC has been registered and 548 people arrested between 2015-2020, with just six convictions.
- **The supreme court** has to pitch in regularly to protect citizen's freedom of speech being suppressed by the sedition law. For e.g.
 - In March 2021, while hearing a plea to "terminate" the Lok Sabha membership of Dr. Farooq Abdullah and book him for sedition, the court held that voicing dissent against government doesn't amount to sedition.
 - In June 2021, a two-judge bench of the Supreme Court quashed a sedition case registered against journalist and Padma Shri awardee Vinod Dua for his critical remarks against the Prime Minister and Union government in a Youtube telecast.
- **Analysis: Criticism**
 - » Too Broad and vaguely worded definition is used to suppress liberty of citizens and Criminalize dissent.
 - This vagueness was misused to suppress dissent and imprison freedom fighters such as Mahatma Gandhi and BalGangadhar Tilak who criticized the policies of the colonial administration.
 - This reduces government accountability as the government is able to ignore its critics and in turn charge them with sedition.
 - » Very strict nature of the law - non-bailable, cognizable and punishment that can extend to life - has a strong chilling effect on free speech and dissent.
 - Note: "**Doctrine of Chilling Effect on Speech** considers the probability of a legal provision causing psychological barriers in the free exercise of the right"
 - Critics of the sedition law argue that this doctrine was not sufficiently developed in 1962 and thus the Kedarnath Singh Judgment should be revised.
 - E.g. After Hathras gang rape case 22 sedition cases were filed. "Vinod Dua" - a journalist was charged with sedition for criticizing governments activities during COVID-19 lockdown.
 - » **Scope of misuse of Law as Political Tool:**
 - Gandhi had said "*Section 124-A under, which I am happily charged, is perhaps the prince among the political sections of the IPC designed to suppress the liberty of citizen*".
 - More than 20 cases were filed under sedition law after the CAA protests.

- » Trial Courts have mostly ignored the 1962 Supreme Court Judgment and have imposed the law even in cases where there was no incitement to violence or attempt towards public disorder.
 - » Sedition is not one of the grounds for reasonable restrictions on free speech provided under Article 19(2).
 - » Law commission of India in a consultation paper, in Aug 2018 observed that berating the country or a particular aspect of it cannot be treated as “sedition” and the charge can only be invoked in cases where the intention is to overthrow the government with violence and illegal means.
 - » UK, which introduced sedition in India, have also abolished it.
 - In fact, in March 2023, even Lahore High Court in Pakistan annulled the offence of 'Sedition' in the Pakistan Penal Code.
 - » Our Criminal law is equipped with other provisions to deal with most of the violations as defined right now under sedition
- **Support of the law**
- » Supreme court has upheld constitutionality of the law. Without sedition, the state would be in jeopardy if the government was subverted.
 - » Law itself might not be problematic, but its implementation is.
 - » Misuse of the law doesn't invalidate it.
 - » Country faces many threats - Terrorism, Naxalism, Enemy states etc. and thus a strong law preventing incitement of violence against state is important to protect unity and integrity of the country.
- **Supreme Court puts the Sedition Law on Hold (May 2022)**
- » A three-judge bench of the Supreme Court has suspended pending criminal trials and court proceedings under Section 124A (sedition) of the IPC till the Centre completes its exercise in re-examining its provisions.
- **22nd Law Commission of India on Section 124A of IPC: Key Recommendations:**
- » The commission recommended that the law should not be repealed but it should be retained with some changes.
 - Why?
 - A necessary legal instrument in the face of threats to India's Internal Security including Maoism, Militancy, secessionist movements etc. The report also quotes NSA Ajit Doval on wars against Invisible Armies, and on a "civil society" that can be subverted, divided and manipulated to hurt the interest of the nation.
 - Allegation of misuse don't automatically justify the repeal of the Section 124A.
 - Further, in the absence of provisions like Section 124A of IPC, any expression that incites violence against the government would invariably be tried under special laws and counter-terror legislation, which contain much more stringent provisions to deal with the accused.
 - While any alleged misuse of section 124A of IPC can be reined in by laying down adequate procedural safeguards, repealing the provisions altogether can have "serious adverse ramifications for the security and integrity of the country", while the subversive forces getting a free hand to further their sinister agenda as a consequence.

- » It has recommended that the **following amendments be made to Section 124A of IPC:**
 - **Include the Kedarnath ruling into the provisions of the law** by adding the words "with the tendency to incite violence or cause public disorder". The report also defines the tendency to incite violence as a "mere inclination to incite violence or cause public disorder rather than proof of actual violence or imminent threat to violence".
 - **Enhancing the imprisonment for sedition** to "remove an oddity"
 - One of the criticisms against the provision is that it **leaves judges with wide discretion on sentencing**.
 - Section **124A has a jail term of up to three years or life imprisonment**. It means either imprisonment for life or imprisonment upto three years only, but nothing in between.
 - The **law commission** has now proposed enhancing the jail term upto seven years or life imprisonment.
 - **To prevent the misuse of the law**, the report suggested including a procedural safeguard that no FIR shall be registered for sedition "unless a police officer, not below the rank of inspector, conducts a preliminary inquiry and on the basis of the report made by the said police officer the Central Government or the State government, as the case may be, grants permission for registering a FIR.
 - Other general suggestions:
 - The police should not use Section 124A to stifle dissent or criticism of the government.
 - The courts should interpret Section 124A narrowly and should not convict a person under this section unless there is clear and convincing evidence that the person has committed the offence.

- **Analysis: Criticism:**

- These recommendations are a step backwards.
 - The Supreme Court in May 2022 had stayed the law and expressed strong reservation and indicated that it could hear arguments in favor of striking down the colonial provision that has proved to be prone to misuse.
 - The report doesn't engage seriously enough with criticism of the sedition provision, including concerns expressed by the Supreme Court.

- **Way forward**

- **Parliament** should do an exhaustive re-examination of the law to determine if it will be appropriate or not to continue the usage.
- **Clarifications given by Supreme Court in Kedarnath case and Law Commission of India should be strictly followed** - "section 124A applies only when there is violence or incitement to violence"

against government". These provisions should be introduced through an amendment to the bill as suggested by 22nd Law Commission of India.

- Simplify the definition to prevent its misuse for curbing dissent and for political reasons.
- Reduce the severity of the law - make it bailable, non-cognizable etc.
- A sign of mature republic is its willingness to stand up to scrutiny by its citizens and accommodate dissent and criticism of the government should not be construed as sedition.

- **Conclusion1 (Supporting the law)**

- The word sedition is extremely nuanced, and the law needs to be applied with caution. It should only be used against serious cases which involves provocation to raise arms against government, demand for separate country etc. But, the legal system needs sedition provision (with some amendments), mostly to act as a deterrent, and on occasion to use against serious offenders.

- **Conclusion2 (Critical of the law)**

- Personal Liberty and Right to Free Speech are hallmarks of liberal democracy and sedition laws and their gross misuse attack the very foundation of these liberties enshrined in the Indian Constitution. The need of the hour requires the judiciary to review the colonial law.
- Even if abolishing of the law is not feasible, it should be toned down and string guidelines should be issued to limit its indiscriminate abuse of the law. This will not only help India's democratic standing but would also safeguard freedom of expression in the country.

1) ECONOMY: FOREIGN TRADE POLICY, 2023

- **Why in news?**
 - » On 31st March 2023, Ministry of Commerce and Industry announced India's Foreign Trade Policy 2023 and it came into force from 1st of April 2023.
- **Example Questions:**
 - » What are the key objectives of India's Foreign Trade Policy, 2023? Highlight some of the challenges to the implementation of this policy. Suggest measures to make this policy more effective in boosting India's exports [15 marks, 250 words]
- **Introduction:**
 - Foreign Trade Policy (FTP) refers to a set of guidelines, regulations and measures formulated by a government to govern its international trade.
- **FTP, 2023** is a policy document which is based on continuity of time tested schemes facilitating exports as well as a document which is **nimble and responsive** to the requirements of trade.
- **The Key Approach** to the policy is based on these **4 pillars**:
 1. Incentive to Remission
 2. Export Promotion through collaboration - Exporters, States, Districts, Indian Missions
 3. Ease of Doing Business, reduction in transaction cost and e-initiatives.
 4. Emerging Areas - E-commerce, Developing Districts as export Hubs and **streamlining SCOMET Policy**.
 - Note: SCOMET stands for Special, Chemicals Organisms, Materials, Equipment, and Technologies (SCOMET) policy.
- **Key Aims and Objectives** of India's FTP, 2023 are:
 - » Boost India's exports to USD 2 trillion by 2030.
 - » Strengthen India's export competitiveness.
 - » Diversify export basket, expand export market, and promote sustainable exports.
 - » Focus on promoting exports from small and medium enterprises (SMEs). For this policy envisages support in the form of access to finance and markets.
 - » Provide incentives for exporters, including duty drawback, export promotion capital goods (EPCG) scheme, and interest subvention schemes.
 - » Encourage collaboration between exporters, states, and districts to promote exports.
 - » Simplify and streamline the process of exporting goods and services:
 - » Focus on emerging areas of export, such as e-commerce, green technology, and defence and aerospace. These are the areas where India has a competitive advantage, and the policy aims to help businesses take advantage of these opportunities.
- **The Policy aims to boost India's exports through several measures:**
 - » Process Re-engineering and Automation (technology enablement) for facilitating exporters.

- » **Expanding the scope of Town of Export Excellence (TEE)** by including Faridabad, Mirzapur, Moradabad and Varanasi in the existing list of 39 towns listed as Towns of Export Excellence (TEE).
 - **Note:** Under this scheme recognised associations of units are provided financial assistance under the Market Access Initiative Scheme on a priority basis, for export promotion projects for marketing, capacity building and technological services, and to visit various trade exhibitions/fairs for exploring more marketing avenues
- » **Promoting Exports from districts** by building partnerships with state government and taking forward the District as Export Hubs initiative to promote exports at the district level.
 - Institutions like State Export Promotion Committee and District Export Promotion Committee will identify export worthy products and services.
 - District specific export action plans will be prepared for each district.
- » A robust export control system in India would provide access of dual use High end goods and technologies to Indian exporters while facilitating exports of controlled items/technologies under **SCOMET** (Special Chemicals, Organisms, Materials, Equipment, and Technologies) from India.
- » **Facilitating E-Commerce Exports** through establishment of e-commerce hubs and other related elements.
 - The consignment wise cap on E-commerce exports through courier has been raised from Rs 5 Lakh to Rs 10 lakh.
 - A comprehensive e-commerce policy addressing export/import ecosystem is planned to be brought soon.
- » **Export Promotion of Capital Goods (EPCG) Scheme** has been rationalized.
 - Prime Minister Mega Integrated Textile Region and Apparel Parks (PM MITRA) scheme has been added as an additional scheme eligible to claim benefits under CSP(Common Service Provider) Scheme of Export Promotion capital Goods Scheme(EPCG)
 - Battery Electric Vehicles (BEV) of all types, Vertical Farming equipment, Wastewater Treatment and Recycling, Rainwater harvesting system and Rainwater Filters, and Green Hydrogen are added to Green Technology products – will now be eligible for reduced Export Obligation requirement under EPCG Scheme.
- » **Introduction of provisions for merchanting trade.**
 - **Note:** Merchanting trade involves shipment of goods from one foreign country to another foreign country without touching Indian ports, involving an Indian intermediary.
- » **Amnesty Scheme** to provide relief to exporters who have been unable to meet their obligations under EPCG and Advance Authorization schemes. This will reduce litigations and foster trust based relationship.

- **Challenges:**

- » **Global Economic Uncertainty:** The global economy is facing a number of challenges, including the COVID-19 pandemic, the Russia-Ukraine war, and rising inflation. These challenges could impact India's exports, as they could lead to lower demand for Indian goods and service.
 - » **Competition** from other emerging economies : Countries like China, Vietnam etc are also competing to increase its export base and may become a hurdle in India's achievement of its export targets
 - » **Domestic challenges** such as infrastructure bottleneck, regulatory hurdles, lack of skilled workforce and high cost of logistics may also become a hindrance to India's exports.
- **Way Forward:**
- » **Increased government support** to exporters in the form of access to finance and market.
 - » **Improvement in infrastructure** such as roads, railways, airways etc for easier and faster export of goods and services.
 - » **Streamlined regulations** related to customs and taxation.
 - » **Increased investment in R&D** for development of innovative products and services fulfilling the global demands.
 - » **Promoting Brand India** in global market. This will attract foreign buyers and increase demand for Indian goods and services.
- **Conclusion1:**
- » Overall, the Foreign Trade Policy 2023 is a comprehensive and ambitious document that has the potential to boost India's exports and promote economic growth. Though, it faces some challenges, but with strong political will, and collaboration with various stakeholders, these challenges could be overcome.
- **Conclusion2:**
- » The new FTP is a shift from an incentive based approach and creates an enabling ecosystem for exporters, which is a move in line with India's vision of becoming 'Atmanirbhar' (self-reliant).

2) ECONOMY: FOREIGN TRADE POLICY, 2023 AND E-COMMERCE

Question: "The Foreign Trade Policy, 2023 approaches digitally enabled cross-border trade in an inclusive manner and seeks to make small players part of India's exports" Elaborate [10 marks, 150 words]

- **Introduction:**
- » India's e-commerce market is one of the largest in the world. It has been made possible due to increase penetration of smart phones, internet and digital payment systems. However, when it comes to e-commerce exports, it accounts for only a very small fraction of India's total exports.
 - » But, FTP, 2023 looks to change this and increase India's e-commerce exports by enabling vendors to access the international markets.
- **Key provisions related to e-commerce in FTP, 2023**
- » The new section on 'Promoting Cross Border Trade in Digital Economy' gives a fillip to e-commerce exports in the following ways:
 - Extending all FTP benefits to e-commerce exports
 - Increasing the value limit for exports through couriers to INR1,000,000 per consignment

- Promoting e-commerce through the **postal routes**: Government aims to operationalize '**Dak Niryat Kendras**' to "work on a hub and spoke model with Foreign Post Offices (FPOs) to facilitate cross border e-commerce and to enable artisans, craftsmen and MEMEs in the hinterland to reach international market.
- The policy also proposed to create E-Commerce Export Hubs (ECEHs), which would act as a centre for favourable business infrastructure and facilities for cross border e-commerce activities. These hubs would provide the necessary infrastructure for exports, and also connect to and leverage the services of the nearest logistics hubs.
- **Handholding and outreach schemes** to small players on how to use e-commerce platforms effectively.

- **Conclusion:**

- E-commerce platforms for exports can serve as a democratized marketplace that allows small vendors, MSMEs, and local artisans to access international market and retain higher profit margins. This will not only boost India's exports but will also lead to inclusive growth and development.

3) ECONOMY: FOREIGN TRADE POLICY, 2023 AND DISTRICTS AS HUB OF EXPORTS

Ques: Discuss the role of Foreign Trade Policy 2023 in galvanizing districts of the country to become export hubs [10 marks, 150 words]

- The Foreign Trade Policy, 2023 was launched with the goal of boosting exports to the USD 2 trillion by 2030. Towards achieving this goal, one of the sections of the FTP aims to galvanize districts of the country to become export hubs.
- It is being done in the following ways:
 - **Identifying products and services** with export potential in the district
 - The policy proposes to do so by creating District Export Promotion Committees (DEPC) and creating District Export Action Plans for each district.
 - The interventions at the district level can generate awareness and help small vendors to access bigger markets.
 - Further, steps such as promotion of exports through e-commerce and promotion of exports from MSME will also contribute to development of small towns and districts as export hubs.
 - Lastly, the FTP has declared four new 'Towns of Export Excellence' (TEE)[Faridabad-Apparel, Moradabad-Handicraft, Mirzapur - Handmade carpet and Dari, Varanasi - Handloom and handicraft] [in addition to existing 39 TEEs] with the objective of moving up the value chain and tapping into new markets.
- These initiatives are thus in sync with the spirit of '**Local goes Global**' and '**Vocal for Local**'. But to make these initiative successful, it is important to focus upon:
 - Improving export infrastructure and regulations in every district and town.
 - Studying global quality standards and bringing Indian standards in sync with global standards

- Take a few more points for way forward from the main FTP Article.

4) S&T: SPACE: NAVIC AND NVS-01

- Why in news recently?
 - ISRO's GSLV-F12 successfully places navigation satellite NVS-01 into intended orbit (May 2023)
- Example Questions
 - What do you understand by 'Standard Positioning Systems' and 'Precision Positioning Systems' in the GPS era? Discuss the advantages India perceives from its ambitious IRNSS program employing just seven satellites [Mains 2015, 12.5 marks, 200 words]
 - Why is Indian Regional Navigational Satellite System (IRNSS) needed? How does it help in navigation? [Mains 2018, 10 marks, 150 words]
 - What is satellite navigation? Discuss the key economic and social uses of Satellite navigation. [10 marks, 150 words]

A) BASICS ABOUT SATNAV

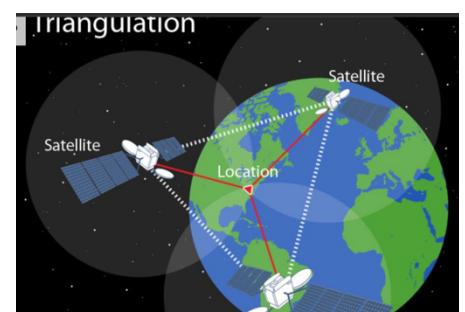
- A satellite navigation (SATNAV) system is a technology that allows users to determine their precise location, velocity, and time information anywhere on or near Earth's surface.
- It uses a network of satellite in space and provide accurate positioning data.
- Currently, there are four global satellite-based navigation system – the American GPS, the Russian GLOASS (GLObalnaya NAvgatsionnaya Sputnikovaya Sistema), the European Galileo and the Chinese BeiDou.
- India has a regional system called NavIC and Japan has Quasi Zenith.

- Methods used in SATNAV: Triangulation and Trilateration

Triangulation: Satnav systems use a technique called triangulation to determine the precise location of a receiver on the Earth's surface.

It is a geometric method that uses the angles formed by lines connecting the receiver to multiple satellites to determine the receiver's position.

By measuring the time it takes for signals to travel from multiple satellites to the receiver, the system can calculate the receiver's position based on the intersection of the satellite signals



Trilateration: GPS receiver use the method of trilateration. Trilateration involves measuring the distance between your GPS receiver (e.g. a smartphone) and multiple satellite in the network. Each GPS satellite broadcasts a signal that includes a timestamp and information about its location. Our GPS receiver picks up these signals and use the timestamp to calculate the distance between itself and each satellite.

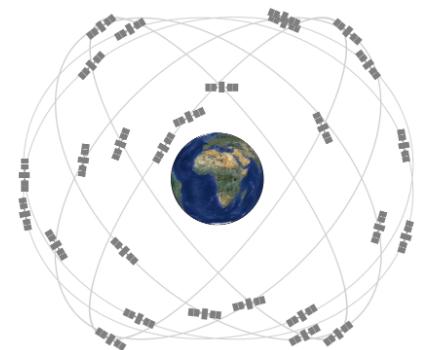
Using the distance from at least four satellites and their known positions, your GPS receiver performs calculations to determine your precise location on earth.

[Please note that GPS doesn't use triangulation (which measure angles), they really don't use angles at all].

- **Accuracy:** They generally provide high levels of positioning accuracy (within a few meters), depending on the quality of receiver and the number of satellites in view. However, various factors such as signal obstruction, atmospheric conditions, and receiver limitations can affect the accuracy.
- **Applications: Navigation purposes** -> helping users find their way while driving, hiking, or boating. It is also used in aviation, surveying, geolocation-based services, precision agriculture, and even in some outdoor recreational activities. It can be used for vehicle tracking, fleet management, precise timing etc.

B) GLOBAL POSITIONING SYSTEM (GPS)

- The best-known satnav system, GPS, uses 24 active satellites (including backups). Day and night, 365 days a year, they whiz around earth once every 12 hours on orbital plane inclined 55 degrees to the equator.
- Wherever you are on earth, you are in sight of at least half a dozen of them, but **you need signals from 3 or 4 satellites** to determine your position with an accuracy of just a few meters.
- **How GPS Finds your location?**
 - It uses **Trilateration**
- **GPS Constellation arrangement**
 - » GPS constellation fly in medium earth orbit (MEO) at an altitude of approx. 20,200 kms. Each circle orbits the earth twice a day.
 - » The satellites are arranged in six equally placed orbital planes surrounding the earth. Each plain contains four slots occupied by baseline satellites. This 24-slot arrangement ensures users can view at least four satellites from virtually any point on the planet.



C) BEIDOU

- **Details**
 - China initiated Beidou in 1994 with first BeiDou satellite launched in 2000.
 - **Second generation BeiDou (BDS-2)** provided coverage to Asia Pacific region starting in 2012.
 - **Third generation BeiDou (BDS-3)** satellite deployment started in 2015 and it started providing navigation services in 2018 to countries taking part in BRI. In 2020, the system has been completed and it can now provide global services. With this they have joined United States' GPS and Russia's GLONASS in providing global PNT services, with Europe's Galileo to follow. These are all compatible and interoperable, meaning users can draw services from all of those to improve accuracy.
- **Satellite Constellation**

- **24 satellites in Medium Earth Orbit** (around 21,500 kms above the earth) provide the positioning, navigation, and timing (PNT) services. These satellites use rubidium and hydrogen atomic clocks for highly-accurate timing that allows precise measurement of speed and location.
- **Satellites in geosynchronous Orbit** (including Geo-stationary orbit) help BeiDou provide short messaging service through which 120-character messages can be sent to other BeiDou receivers.

- **Plans of Expansion:**
 - In Nov 2022, China outlined plans to further expand the global reach of its home grown BeiDou satellite navigation system.
 - a. **Pakistan** in 2014 became the first foreign country to set up a BeiDou network.
 - b. **BeiDou** has set up a first of three Continuously Operating Reference Stations (CORS) for its network in Thailand in 2013, to serve as a hub for ASEAN.

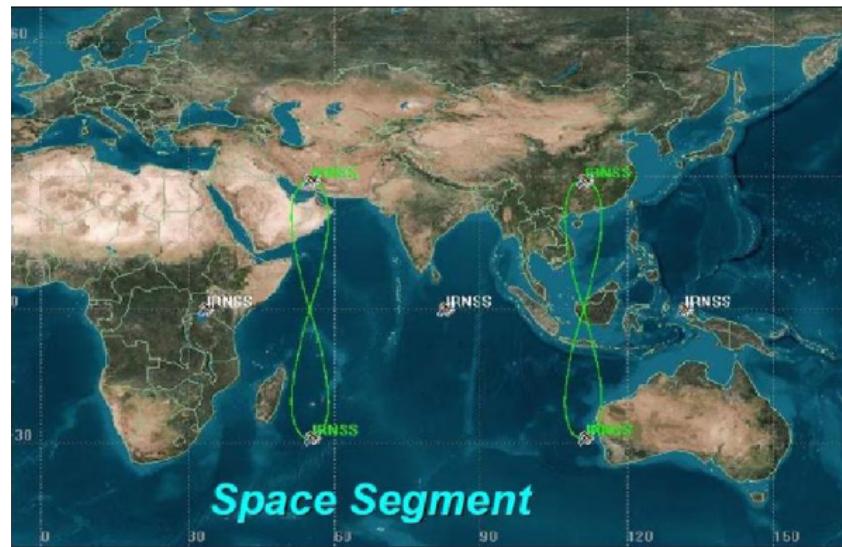
D) NAVIC (NAVIGATION USING INDIAN CONSTELLATION)

- Indian Regional Navigation Satellite System (IRNSS) (also called Navigation Using Indian Constellation (NAVIC)), is a regional satnav system developed by ISRO. It aims to provide reliable position, navigation and timing (PNT) services over India and its neighbourhood, upto 1500 km from its boundary. In addition it is also capable of broadcasting messages. This can be used for broadcasting safety-of-life alerts in areas with poor or no communication, particularly in Ocean.

- **Need of IRNSS** when services like GPS are easily available.
 - The access to foreign controlled global navigation satellite systems is not guaranteed in hostile situations, as happened to Indian military depending on American GPS during **Kargil War**.

- **NAVIC provides two types of services:**
 - » **Standard Positioning Service** (Open for Civilian Use)
 - » **Restricted Services** (Encrypted one, for authorized users (military))

- **Components of IRNSS System:**
 - » Space segments consists of **7 satellites, 3 satellites in GEO stationary orbit (GEO) and 4 satellites in GEO synchronous orbit(GSO)** with inclination of **29 degree** to the equatorial plane.
 - » All the satellites will always be visible in the Indian region.



- » **First of the 2nd generation satellite – NVS-01** was successfully launched in May 2023
 - ISRO's **GSLV F12** (GSLV-MK-II mission) successfully places navigation satellite NVS-01 into intended orbit.
 - **About GSLV F12:**
 - » It is the 15th flight of India's GSLV and the 9th flight with indigenous cryo stage.
- **About NVS-01:**
 - » **Heavier:** It weighs 2232 kg and has been placed in geosynchronous orbit (older IRNSS satellites weighed 1,425 kg)
 - » **Indigenous Atomic Clock:** For the first time, the satellite carries an indigenous atomic clock. The space qualified Rubidium atomic clock has been indigenously developed by Space Application Centre – Ahmedabad.
 - » **L1 signals for better use in wearable devices:** The second generation satellites have send signals in a third frequency, L1, besides the L5 and S frequency signals that the existing satellites provide. This will increase operability with other satellite based navigation systems. L1 frequency is the most commonly used in the GPS and will increase the use of NavIC in wearable devices which use low power signal frequency chip.
 - » **Longer Mission Life** of 12 years (earlier NavIC satellites have a mission life of 10 years).
- **Criticism of NaVIC:**
 - **Delay in developing user receiver:** A 2018 report by the CAG of India has said that even though the cabinet cleared funding of Rs 200 crore to develop user receivers in 2006, work on the project started only in March 2017, by which time seven launches of NavIC was already done.
- **Current Situation (June 2023)**
 - The receivers have now been deployed, and NavIC is in use for projects like public safety, power grid synchronization, real-time train information system, and fishermen's safety.

- Other upcoming initiatives (such as) common alert protocol based emergency warning, time dissemination, geodetic network, unmanned aerial vehicles are in the process of adopting NavIC system.
- Some cell phone chipsets build by Qualcomm, MediaTek integrated NavIC receivers in 2019. Some example phones which are NavIC enabled include Redmi Note 9, realme 6, the OnePlus Nord etc.

- **Way Forward:**

- **Promoting the Use of IRNSS:**
 - **NavIC** chip -> affordable
 - **Spreading awareness** -> Positional accuracy better than 20 m and timing accuracy better than 50 ns (20);
 - **Make compulsory for** phones marketing in India: Mobile phones haven't been made compatible to process its signals.
 - **Government apps** -> start using NavIC for various purpose.
 - HEIs -> Promote use in Labs, among students etc.
- **Fast track** the plans for making NavIC global
- The next generation NVS series of satellites will make the NavIC more versatile and promote ease of use.

3. PRELIMS FACTS

1) PLACES IN NEWS: KAFUE NATIONAL PARK (ZAMBIA)

Kafue National Park: Lion and Leopard populations have begun rebounding in Africa's **third** largest national park - **Zambia's Kafue National Park (KNP)** -after fifty years of poaching, according to a new report from **Panthera**, the global wild cat conservation organizations, and partners.

Factors:

1. **Counter Poaching Operations:** Game changing conservation technologies like **SMART** (Spatial Monitoring and Reporting Tool) and **EarthRanger** were employed in these operations.
2. **Effective Prosecution**
3. Distribution of **synthetic 'heritage Furs'** replacing garments made of authentic leopard and lions skin

Other details about KNP: KNP sits within the **Kavango Zambezi Transfrontier Conservation Area (KAZA)**, the largest terrestrial conservation landscape in the world spanning five countries (**Angola, Botswana, Namibia, Zambia, and Zimbabwe**)



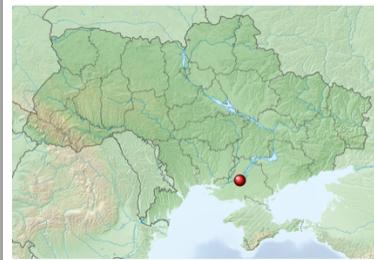
2) PLACES IN NEWS: NOVA KAKHOVKA RESERVOIRS (DAM):

Nova Kakhovka Reservoir (DAM):

The Kakhovka Dam was a dam on the **Dnieper River** (also known as Dnipro) in **Kherson Oblast**, Ukraine. It is a **soviet era** dam and was **destroyed** in June 2023.

This breach has **unleashed flood water in the war zone**. Both, Ukraine and Russia have conflicting accounts on who destroyed it.

This Dam is part of **Kakhovka** hydro-electric power plant. It supplies water to **Crimean Peninsula**, which Russia annexed in 2014, and to the **Zaporizhzhia nuclear power plant**, which is also under Russia control.



Location of Kakhovka Dam in Ukraine

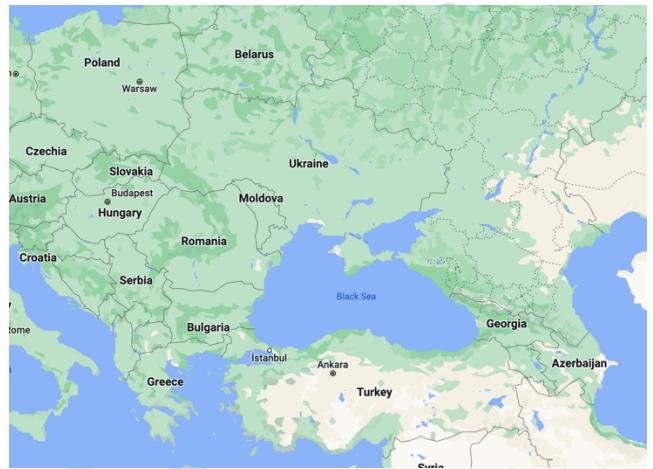


The Zaporizhzhia Nuclear Power Plant is the largest nuclear power plant of Europe. It gets its cooling water from Kakhovka Reservoir. It is located on the southern side, now under Russia control.

A) UKRAINE

Geographical Details

- Ukraine is a country in Eastern Europe. It is the second largest country in Europe after Russia.
- **Neighbours:** It shares its borders with Hungary, Slovakia, Poland to the West, Belarus to North, Russia to North, Northeast and East and Moldova and Romania to the South.
 - **Trick:** Hungry, Slow, Polar, Bear of Russia are Roaming in Moldova.
- **Coastline:** the country has coastline along the sea of Azov and Black Sea.



Recent Political Events:

- Ukraine gained its independence in 1991 after dissolution of Soviet Union. Ukraine declared itself a neutral state, forming limited partnership with both Russia and NATO.
- In 2014, Kremlin leaning Ukrainian President Viktor Yanukovych rejected an association with the European Union (EU) in favor of close ties with Moscow. This resulted in a series of protests across Ukraine, ending with Yanukovych's removal from power the same year.
- Mass protests and demonstrations known as the Euromaidan erupted, escalating into the Revolution of Dignity that led to the establishment of new government. These events led to Russia annexing Crimea and a war in Donbas against Russian backed separatists, culminating in Russian invasion of Ukraine in 2022.

Donbas Region

The Donetsk and Luhansk region of Ukraine is collectively called the Donbas.

Strategic significance of Donbas region: Donbas can act as a corridor between Russia and Crimea (and by extension, the strategically significant port of Sevastopol).

The population of this region is more Pro-Russia and thus a war has been going on since 2014 against Russia-backed separatists in the region.



On 21st Feb 2022, Russia officially recognized the DPR (Donetsk People's Republic) and LPR (Luhansk People's Republic) and on 24th Feb launched a full-scale invasion of Ukraine.

Kherson

It is a port city of Ukraine that serves as the administrative centre of Kherson Oblast. It is located on the black sea and on the Dnieper River.

Kherson's administrative centre is Kherson City. It was occupied by Russia from March 2022 to Nov 2022, when the Ukrainian forces recaptured it. In June 2023, the city was flooded following the destruction of the nearby Kakhovka Dam.

Mariupol

It is a city of the north coast of the Sea of Azov at the mouth of Kalmius river. While internationally recognized as in Ukraine, the city is under the de facto administration of the Donetsk People's Republic.

During the 2022 Russian invasion of Ukraine, the city was besieged and severely damaged in which it received the title of Hero City of Ukraine. On 16th May 2022, Ukrainian troops in Azovstal Steel Plant surrendered to Russian forces and were evacuated to Russian held territory in the Donetsk People's Republic, as Russia secured complete control of the city.



Mariupol shown within Ukraine

3) S&T: DEFENCE: 'FATTAH MISSILE'

Why in news?

- Iran has claimed that it has created a hypersonic missile capable of traveling at 15 times the speed of sound (June 2024)

Fattah is an Iranian hypersonic medium-range ballistic missile developed by the Islamic Revolutionary Guard Corps and unveiled in 2023.

It is Iran's first hypersonic ballistic missile. According to Iran, its high maneuverability and speed allows it to defeat all missile defence systems.



Range: 1,400 kms and **terminal speed** of Mach 13 to Mach 15.

Significance:

It is the first hypersonic missile of Iran and is also believed to be first such missile in the middle east.

Its capabilities could pose a challenge to regional and global missile defense system.

Note: Hypersonic weapons are the weapons which fly at speeds in excess of Mach 5, or five times the speed of sound.

4) BIODIVERSITY: BLACK VEINED BUTTERFLY

- Why in news?

- » Re-emergence of 'extinct' black veined butterfly in England likely due to unscientific release (June 2023: Source - DTE)

About the Black Veined White (*Aporia crataegi*):

It is a large butterfly that became extinct from British Isles in 1925. It was always considered a rarity in the British Isles but on the continent, it is often very common.

In June 2022, the butterfly was spotted in London. These sightings are the result of unofficial release and is unlikely that the butterfly will survive in the wild to breed. It is not known who did this or why.



5) BIODIVERSITY: MAHUA (MADHUCA INDICA)

- Mahua is a medium sized tropical deciduous tree found largely in central, southern and north Indian plains and forests. They are also found in Nepal, Myanmar, and Sri Lanka.
- **Uses:**
 - Mahua flowers, fruits, and leaves are edible and used as vegetables in India and other Southern Asian Countries.
 - » **The sweet, fleshy flower** are eaten fresh or dried, powdered and cooked with flour, used as a sweetener or fermented to make alcohol. This liquor is popular across India.
 - It is also an oil plant, whose seeds yield between 35 and 47% oil. This oil is used for making soaps and candles. It also has a potential use in bio diesel production. Though, it is used as edible oil by tribals, WHO recommends against it as it contains aflatoxin, a toxin component. The processing of oil can get rid of aflatoxin and makes it edible.
 - **Cocoa Butter Extender:** It is prepared from Mahua seed oil and is a prized product. It can be used for making chocolate and other confectionaries. Experts feel that this product has the scope of altering socio-economic conditions of tribals in India.
 - **Timber:** The tree is also used for its hard, strong, dense and reddish timber.
 - **Traditional Medicines** also use some mahua components.
- **Tribal women from Odisha's Kandhamal District** have been using mahua flowers to prepare various delicious varieties of food (Source: DTE, June 2023)
 - Around 120 tribal women members of the state's Van Dhan Vikas Kendras prepare laddus, cakes, jam, toffees, pickles, squash, pakodas, and biscuits using dry mahua flowers and supply them in local markets.
 - The women started preparing these items after attending a training held at the Krishi Vigyan Kendra, Nandurbar, Maharashtra, in Feb 2023

