Prelim Bits 24-08-2023 | UPSC Daily Current Affairs

The Fujiwhara Effect

Recently, powerful winds had haunted the Bay Area and other parts of Central and Southern California because of the Fujiwhara effect.

- The Fujiwhara effect was first described by Japanese meteorologist *Sakuhei Fujiwhara* in the 1920s.
- **Fujiwhara effect** - When two hurricanes (or cyclones) *spinning in the same direction* pass close enough to each other, they begin an intense *dance around their common center.* This interaction between two cyclones is called the Fujiwhara effect.
- **Happenings** - If one hurricane is a lot stronger than the other, the smaller one will orbit it and eventually come *crashing into its vortex* to be absorbed.
- Two storms closer in strength can gravitate towards each other until they reach a common point and *merge, or merely spin each other* around for a while before shooting off on their own paths.
- In rare occasions, the effect is additive when the *hurricanes come together*, resulting in one larger storm instead of two smaller ones.

- **Reasons** - The rising frequency of this unusual effect has been attributed to a rapidly warming world and the subsequent heating of ocean waters.
- **Examples** - *Typhoon Hinnamnor*, the strongest tropical cyclone of 2022, underwent fujiwhara effect with *tropical storm Gardo* in the eastern Pacific ocean.
- Eventually, Gardo was assimilated in Hinnamnor.

A research scholar at the National Central University in Taipei, found that between 2013 and 2017, there were 10 cases of the Fujiwhara Effect in the northwest Pacific Ocean.

References

1. The Indian Express| The Fujiwhara effect
2. NWS | Fujiwhara Effect

Right to Change Gender

Allahabad HC has affirmed the 'constitutionally recognised right' of an individual to change gender and has asked Uttar Pradesh DGP to consider the request of a constable to undergo

sex change surgery.

- **Allahabad HC observations -** The Allahabad High Court relied on the Supreme Court (SC) ruling in the ***National Legal Services Authority v. Union of India and Others case of 2014*.**
- In this case, the SC had declared transgender people as the "*third gender*" while giving them the right to self-identification of their gender as male, female or third gender.
- The court stressed on the importance of *right to dignity* and gave due recognition to their gender identity which was based upon reassigned sex after undergoing Sex Reassignment Surgery as the person has a constitutional right to get recognized as a male or female.
- **Changing gender** - The Ministry for Social Justice and Empowerment has introduced the *Transgender Persons (Protection of Rights) Act in 2019.*
- According to the Act, an application for obtaining a Certificate of Identity should be made to the *District Magistrate (DM).*
- An individual may apply for a revised certificate from the DM if he/she undergoes surgery to change the gender either as a male or a female.
- The DM shall, on receipt of an application along with the certificate issued by the Medical Superintendent or Chief Medical Officer, and on being satisfied with the correctness of such certificate, issue a certificate indicating change in gender.

References

1. The Hindu | Allahabad HC affirms right of an individual to change gender
2. PRS | The Transgender Persons (Protection of Rights) Bill, 2019

National Curriculum Framework for School Education (NCF-SE)

The Education Ministry has announced a new National Curriculum Framework for School Education, which promises to usher in greater curricular flexibility and choice for students.

- NCF-SE is the curriculum framework for the *5+3+3+4 design* of schooling as proposed by the *National Education Policy 2020 (NEP 2020).*
- It has been drafted by the National Steering Committee headed by ***Mr. K Kasturirangan.***
- **Coverage** - The framework covers all the *4 stages of schooling* – Foundational Stage, Preparatory Stage, Middle Stage, and Secondary Stage.
- **Board exams** - Board exams are to be conducted *twice a year.*
- **Class 11 and 12** - The NCF suggests that *at least two languages*, one of them being an Indian language, will be offered to students in classes 11 and 12.
- It recommended a *semester system for classes 11 and 12*, and no hard separation between arts, humanities, and sciences.
- **Linguistic proficiency** - It aims at developing linguistic proficiency for academic use in *3 languages by age 15 (Class 10).*
- At least 2 out of these 3 languages should be languages native to the student.

- **Social science** - It proposes social science in class 6-8. Students from class 9 onwards will study history, geography, political science and economic life as *separate units.*
- **Mandatory subjects** – The number of mandatory subjects for Class 9 and 10 is *seven* and it is *six* for Classes 11 and 12.
- **Software to set question paper** - The National Council of Educational Research and Training (NCERT) has suggested the creation of a "*comprehensive test item bank.*"
- It will serve as a repository of test questions that can be utilized to develop exams using appropriate software.
- **Optional subjects** – They have been grouped into 3 parts.
    - 1st group - Vocational education, art education, and physical education
    - 2nd group – Social science, Humanities, inter disciplinary areas
    - 3rd group – Science, Maths and computational thinking
- **Weightage of marks** - For 1st group, the weightage of the assessment is
    - 75% - demonstration-based assessment (practicals)
    - 25% - written examination
- For subjects like sciences, demonstration-based assessment will have 20-25% weightage in the overall certification of the subject.
- **Term based systems** – The NCF has recommended that in the long term, all Boards should change to semester or term based systems.

National Curriculum Framework was last revised in 2005.

References

1. PIB | National Curriculum Framework for School Education
2. Economic Times | National Curriculum Framework for school education
3. Hindustan Times | National Curriculum Framework

LUPEX Mission

With Chandrayaan-3 successfully landing on the Moon's South Pole, ISRO is planning for its next lunar mission LUPEX.

- LUPEX - *Lunar Polar Exploration*
- It will be accomplished in partnership with Japan's space agency, *Japan Aerospace Exploration Agency (JAXA).*
- The mission is slated to be launched in *2025.*

Mission Objectives
• To explore the lunar polar region's suitability for establishing a base on the Moon for sustainable activities. • To obtain knowledge regarding the availability of lunar water-ice resources. • To demonstrate lunar and planetary surface exploration technologies such as vehicular transport and overnight survival.

- The launch vehicle and rover for this programme are supposed to be contributed by

the Japanese agency, while the lander will be contributed by ISRO.

Upcoming Missions of ISRO

Missions	Significance
Aditya-L1	• ISRO's first mission to Sun.
ISRO - NASA Joint human spaceflight mission	• A joint mission to send humans to International Space Station (ISS). • Through this mission, the first Indian astronaut will go in to space after 40 years.
NISAR Satellite	• A collaboration between NASA & ISRO. • It will map the entire globe in 12 days and provide spatially and temporally consistent data for understanding changes in Earth's ecosystems, ice mass, sea level rise, and natural hazards.
Spadex Mission	• A short form of space docking experiment. • The Spadex project of ISRO is a twin spacecraft mission to mature technologies related to orbital rendezvous, docking, formation flying, with scope of applications in human spaceflight, in-space satellite servicing and other proximity operations.
Gaganyaan	• Gaganyaan project envisages demonstration of human spaceflight capability by launching crew of 3 members to an orbit of 400 km for a 3 days mission and bring them back safely to earth, by landing in Indian sea waters.
Shukrayaan	• An Orbiter to Venus to study the surface and atmosphere of Venus.

References

1. The Economic Times | ISRO's next Moon mission
2. The Indian Express | Next mission to Moon
3. ISRO | Upcoming missions

ASTRA Missile

Light Combat Aircraft (LCA) Tejas successfully test fired the indigenously made ASTRA missile.

- **ASTRA** – It is a Beyond Visual Range (BVR) class of *Air-to-Air Missile* (AAM) system.
- **Indigenous** - It was designed and developed by the Defence Research and Development Laboratory (DRDL), Research Centre Imarat (RCI) and other laboratories of the ***DRDO***.
- **Targets** - It was designed to be mounted on fighter aircraft to destroy highly manoeuvring *supersonic aerial targets*.
- **Range**
  - **Astra -1** - Around 100 km
  - **Astra - 2** - Around 160 km
- **Capability** - The missile has all weather day and night capability.
- The ASTRA Mk-I Weapon System integrated with SU-30 Mk-I aircraft is being inducted into the Indian Air Force (IAF).

LCA Tejas

- It is an *indigenously designed* and manufactured *4th generation* multi-role fighter aircraft.
- It is capable of taking up offensive air support, close combat and ground attack role at ease.
- It has critical operational capabilities which includes an Active Electronically-Scanned Array (AESA) radar, an Electronic Warfare (EW) suite, and is capable of air-to-air refuelling (AAR).
- It is also designed to undertake Ground Maritime Operations.
- *LCA Mk1A* is the most advanced version of the LCA Tejas.

References

1. The Hindu | LCA Tejas successfully test fires ASTRA
2. The Indian Express | ASTRA Air-to-Air-missile
3. DRDO | ASTRA Missile
4. HAL | LCA Tejas

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