DAILY CURRENT AFFAIRS

Time: 45 min **Date: 26-09-2023**

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Dispute in South China Sea

Syllabus: GS2/ International Relations

In News

- The Philippine coast guard has **removed a floating barrier** placed by China's coast guard in the South China Sea.

About

- China installed a **300-metre-long barrier** at the entrance to the lagoon at Scarborough Shoal to prevent Filipino fishing boats from entering the lagoon.
- The move by China **was the violation of International Law and against the sovereignty of the Philippines.**

Background

- Scarborough Shoal in the South China Sea has long been a source of tension between the countries.
- China **claims sovereignty over nearly all of the South China Sea,** including the Second Thomas Shoal, based on historical records dating to the Xia dynasty, nearly 4,000 years ago.
- Beijing has illustrated its claim to the critical maritime area with a vague, **U-shaped "nine-dash line".**
- But a tribunal at The Hague, **based on a suit brought by the Philippines**, ruled **in 2016 that China had no "historic title"** over the waters of the South China Sea and that its nine-dash line and historic claims were superseded by the 1982 United Nations Convention on the Law of the Sea. **China has ignored the ruling, however.**

Scarborough Shoal

- Scarborough Shoal sits **240 km west of the Philippines' main island** of Luzon and nearly 900 km from the nearest major Chinese land mass of Hainan.
- It is a **prime fishing spot** and within the Philippines' exclusive economic zone (EEZ), it has been the site of decades of on-off disputes over sovereignty.
    - Under the 1982 United Nations Convention on the Law of the Sea, **countries have jurisdiction over the natural resources within about 200 nautical miles (370 km) of their shore.**

Nine Dash Line

- China stakes claim to **90% of the South China Sea,** and this claim is based on the **U-shaped nine-dash line etched** on map in the **1940s by a Chinese geographer**.
- He helped to officially name **each chunk of rock and reef,** referring to the **territory collectively as the 'South China Sea Islands.**
- These lines **cuts into the exclusive economic zones**, or EEZs, of **Brunei, Indonesia, Malaysia, the Philippines, Taiwan and Vietnam.**
- An arbitral tribunal in July 2016 ruled that Chinese claims of historic rights within the nine-dash line were without legal foundation.

- In recent years, China has **doubled down on its territorial claims in the SCS,** including in the waters off the Philippines, where Chinese vessels have engaged in brazen acts of provocation.

Significance of South China Sea

- It is a major **shipping route**. The United Nations Conference on Trade and Development estimates that o**ver 21% of global trade** transited through these waters in 2016.
- It is also **home to rich fishing grounds** that provide for the livelihoods of millions of people across the region. **More than half of the world's fishing vessels operate in this area.**
- Although largely uninhabited, the **Paracels and the Spratlys may have reserves of natural resources around them.**
- Control of the sea lane would allow China to **potentially disrupt, or threaten to disrupt,** cargo shipments travelling to and from all countries in East and Southeast Asia.
- China could also **deny foreign military forces,** particularly the United States', access to the maritime region.
- Additionally, the South China Sea may contain **massive oil and natural gas reserves beneath its seafloor.**
- Sovereignty over the region could also give China **a level of energy security and independence** far beyond what it currently possesses.

Source: TH

60% Children Spend 3 Hours A Day On Social Media: Study

Syllabus: GS2/ Issues Related to Children

In News

- A national survey conducted in India found that Six out of 10 youngsters in the 9-17 age group spend over three hours daily on various social media or gaming sites.
    - The survey, carried out by the community-based social media platform LocalCircles.

Key Points of Survey

- **Children & their rely on Social Media:**
    - The report highlighted that 37% of surveyed parents said their children spent the most time viewing videos or OTT, while 35% said their children spent the most time on social media, and 33% said their children enjoy online gaming.
    - In Maharashtra, 17% of the respondent parents said their children were online for over six hours every day.
- **Role of Pandemic:**
    - Online classes were the only option during Covid, but internet use by children for leisurely activities has only increased due to their urge to watch videos, play online games or connect with friends.
- **Impacts:**
    - The report also found that parents are more alarmed by the fact that their children and/or dependents have become more aggressive, impatient, depressed, and/or listless. There are also parents who have described their children as hyperactive.
    - More than 40% of children in the general population are addicted to social media or gaming.
    - Social media has various negative impacts like privacy issues, information overloads and internet fraud.
    - High incidence of online violence and abuse to women.

Conclusion

- The central government is in the process of finalising the new Digital Private Data Protection Law which mandates that parental consent should be sought for apps used by children under the age of 18.
- There is a need to increase media literacy.

Source: TOI

SARFAESI Act

Syllabus: GS3/Indian Economy and Issues related to mobilization of resources

News

- The Reserve Bank of India (RBI) recently issued directions to the Regulated Entities (REs) under **the SARFAESI Act, 2002.**

About

- RBI asked Regulated Entities (REs), namely commercial banks and Non-Banking Finance Companies (NBFCs), **to display information regarding borrowers whose secured assets have been taken into possession by the REs** under the SARFAESI Act, 2002 in a given format.
- REs shall **upload this information on their website in the format as prescribed**.
- The first such list shall be displayed on the website of REs **within six months from the date of this circular,** and the list shall be updated on a monthly basis.
- This is part of the **move towards greater transparency**.

Regulated Entities

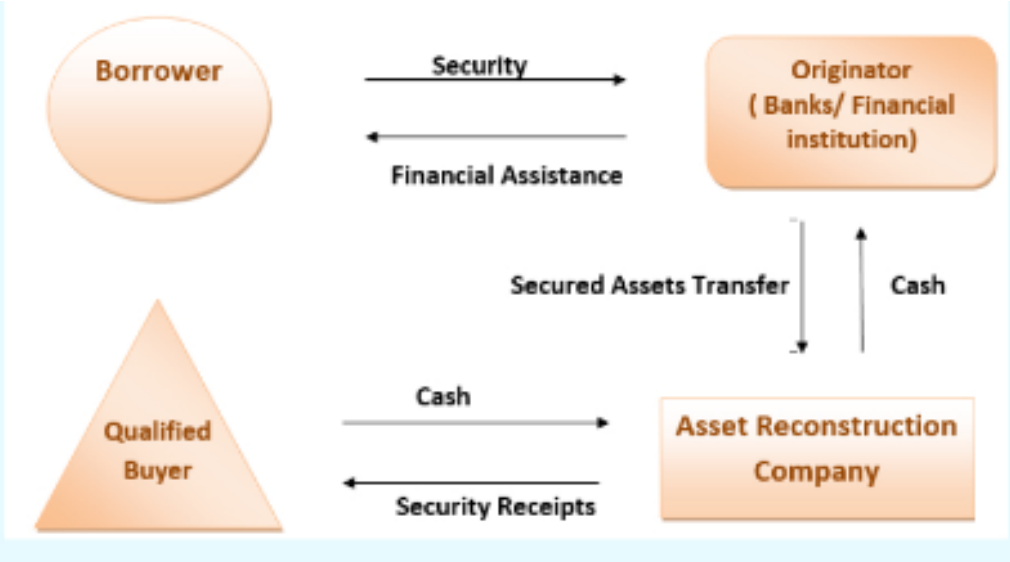
- REs means all Scheduled Commercial Banks (SCBs)/ Regional Rural Banks (RRBs)/ Local Area Banks (LABs)/ All Primary (Urban) Co-operative Banks (UCBs) /State and Central Co-operative Banks (StCBs / CCBs) and any other entity which has been **licenced under Section 22 of Banking Regulation Act, 1949**.
- They as a group shall be referred as 'banks', All India Financial Institutions (AIFIs), All Non-Banking Finance Companies (NBFCs), Miscellaneous Non-Banking Companies (MNBCs) and Residuary Non-Banking Companies (RNBCs).

SARFAESI (Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest) Act:

- **Background:** Before the Act, banks and other financial institutions were **forced to take a lengthy route** to recover their bad debts.
    - The lenders would appeal in civil courts or designated tribunals to get hold of 'security interests' to recovery of defaulting loans, **which in turn made the recovery slow** and added to the growing list of lender's non-performing assets.
- **Aim of the Act**: To guard financial institutions against loan defaulters.
    - To recover their bad debts, the **banks under this law can take control of securities pledged against the loan**, manage or sell them to recover dues without court intervention.
- **Coverage:** The law is applicable throughout the country and covers all assets, movable or immovable, promised as security to the lender.
    - According to a 2020 Supreme Court judgment, **co-operative banks can also invoke Sarfaesi Act.** According to the Finance

Ministry, the **non-banking financial companies (NBFCs) can initiate recovery in Rs 20 lakh loan default cases.**

- **Procedure under the Act:**
    - The Act comes into play if a borrower defaults on his or her payments for more than **six months.**
    - The lender then can send a notice to the borrower to clear the dues within **60 days.** The defaulter, meanwhile, has a **recourse to move an appellate authority set up under the law within 30 days** of receiving a notice from the lender.
    - In case that doesn't happen, **the financial institution has the right to take possession of the secured assets** and sell, transfer or manage them.



- **Modes of recovery:**
    - Securitisation
    - Asset reconstruction
    - Enforcement of security without the interruption of the court

<u>Issues with the Act</u>

- One of the Act's significant shortcomings is that **it does not apply to unsecured creditors.**
- Bank might acquire the asset if there was no better bidder but, **if the asset is in an extremely remote place, it is of no use to the bank.**
- The Act permitted the bank to keep a specific asset for a **maximum of seven years.** However, if the bank does not get a reasonable bid within the specified time frame, **the remedy for such a situation is not specified in the Act.**

<u>Way Forward</u>

- **Improve the fundamentals:** Experts have consistently pointed to the **need for improving the examination process during the initial stages of the lending process.**
    - Usually the cause of bad loans has been traced to **reckless lending** undertaken by the banks to meet their lending targets.
- **Firm steps required to address the crisis:** Government emphasised **'4R strategy'** needs to be implemented in letter and spirit,
    - Recognition of NPAs,
    - Resolution of bad loans and recovery of value from the assets,
    - Recapitalisation of the banks by the government and
    - Reforms in the banking sector.

Source: TH

Hybrid Seeds

Syllabus: GS3/Science and Technology, Biotechnology

In News

- Hybrid seeds are becoming increasingly popular in India.

What are Hybrid Seeds?

- A hybrid seed, also called an F1 hybrid, is produced by **controlled cross-pollination** between different varieties of the same plant.
    - **F1 hybrid:** It is a first-generation hybrid, which means that the seeds came from the cross pollination of two parent plants from two different "pure" lines.
- These are chosen to **enhance the characteristics** of the resulting plants including – **better yield, greater uniformity, and disease resistance**.
- The origin of hybrids can be traced to **India's Green Revolution in the 1960s,** when the government's effort was primarily to increase agricultural productivity.
    - For this, **the National Seed Corporation was set up** to develop, store and distribute high yield variety seeds.

Significance of Hybrid Seeds

- Hybrid seeds are **crucial** in addressing food shortage, wastage, climate concerns and deteriorating food quality.
- They enhance the resulting plants' characteristics, such as better yield, greater uniformity, pest resistance and disease resistance.
- This enhances farm productivity, thus increasing the profitability of farmers, which mainly benefits smallholders, who account for over 80% of all farmers in India.

Hybrid Seeds in Indian Market

- Hybrid seeds are mostly **developed and sold by national and multinational private sector firms**, and the share of private sector in India's seed market has increased from **57.3 per cent in 2017-18 to 64.5 per cent in 2020-21.**
- A 2019 report by Indian Council of Food and Agriculture says that the country's seed market reached a value of US $4.1 billion in 2018, registering a **growth rate of 15.7 percent in 2011-18,** and is expected to **grow at 13.6 percent in 2019-24.**

Concerns with Hybrid Seeds

- **Threat to Crop Diversity:** Till the 1980s, the public sector had a firm control on the seed market and supplied Open-pollinated varieties (OPV) seeds to farmers. Towards the end of the decade, the **government allowed development and distribution of hybrid varieties by private players.**
    - This trend has continued, but poses a t**hreat to the country's crop diversity** and the t**raditional varieties t**hat are more suited to the local climates.
    - In this process, the **great genetic diversity of crops were replaced** by a narrow genetic range of crops.
    - This has also resulted in a **decline of traditional varieties** that are suited to the climes of their native place.
- **Hybrid seeds are more sensitive:** Unlike traditional seeds, **hybrid seeds are quite sensitive to temperature and rain**. For instance, hybrid variety of paddy requires rainfall within 15-20 of sowing.
    - There is also a **rise in cases of crop failure** of hybrid varieties, such as maize.
- **Price Manipulation:** Manufacturers of hybrid seeds also **tend to hike prices when the demand rises.** When it was introduced about a decade ago, the rate was quite cheap.
    - But now, when traditional seeds have almost become negligible, the rate of hybrid seeds have been hiked.
- **Require more input:** Hybrid seeds require more input application than common and local seeds and on time.

Difference between Genetically Modified (GM) and Hybrid

- GMOs are created through biotechnology, which involves **modifying an organism's DNA** using in **vitro nucleic acid techniques** or forcing the combination of unrelated organisms with newer methods.
- Hybridization can occur in nature when **two plants of related species cross-pollinate** due to insects, animals or the wind.

    - In this case, people replicate what already happens in nature **in a more controlled environment.**
- Via genetic manipulation in a laboratory, scientists can sidestep the slow, natural process of hybridization and can do things that hybridization would never be capable of.

Conclusion

- Integrating hybrid seeds in farming isn't smooth, often due to a **lack of awareness at the grass-root level,** inadequate access to quality seeds from trusted suppliers and fragmented land ownership in India.
- In this regard, enhancing industry-farmer partnerships to provide appropriate training, support and knowledge to the farmers can help increase the adoption of hybrid seeds.

Source: DTE

Global Debt

Syllabus:GS3/ Economy

News

- According to a report released by the Institute of International Finance (IIF) the Global debt rose to an all-time high of **$307 trillion** in the second quarter, by the end of June 2023.

Background

- Global debt has risen by about **$100 trillion** over the last decade. Further, global debt as a share of **gross domestic product (GDP)** has started to increase to hit 336% after dropping quite steeply for seven consecutive quarters.
- **Most (over 80%) of the rise in global debt** in the first half of the year has come from advanced economies such as **the U.S., the U.K., Japan, and France.**
- Among emerging market economies, **China, India and Brazil** have seen the most growth in debt. During the first half of 2023, total global debt rose by **$10 trillion.**

What is global debt?

- Global debt refers to the **borrowings of governments as well as private businesses and individuals**. Governments borrow to meet various expenditures that they are unable to meet through tax and other revenues.

- Governments also borrow to pay interest on the money that they have already borrowed to fund past expenditures.
- The private sector borrows predominantly to make investments.

Reason for rising global debt

- **Rising interest rates:**The rise in global debt has happened amid rising interest rates.Also a rise in debt levels over time is to be expected since the total money supply steadily rises each year in countries across the globe.
- **Rise in savings and investments:** A simple rise in the total amount of savings in an economy can cause a rise in debt levels as these increased savings are channeled into investments.

Concerns

- **Sustainability of debt:** The government debt is prone to rise rapidly due to reckless borrowing by politicians to fund populist programmes. When central banks raise interest rates, servicing outstanding debt becomes a challenge for governments with a heavy debt burden.
- **Interest rates rise:** Earlier the interest that governments had to pay lenders largely remained manageable due to extremely low interest rates.Now rising interest rates can increase pressure on governments and force them to either default outright or inflate away their debt.

Inflating away of debt

- **Inflating away of debt** refers to the phenomenon wherein the central bank of a country either directly or indirectly uses freshly created currency to effectively pay off outstanding government debt by, for example, purchasing government bonds in the market.
- But the creation of fresh money causes prices to rise, thus imposing an indirect tax on the wider economy to pay the government's debt.

- **Rising private debt:** There are worries due to rapidly rising private debt levels because such a rise is linked to unsustainable booms that end in economic crises when such lending is not backed by genuine savings.The most recent example of the same was the **2008 global financial crisis.**

Source:TH

Studies related to Joshimath Land Subsidence

Syllabus :GS 3/Environment /Disaster Management

In News

- Separate studies conducted by eight premier Institutions of India to know the cause of **land subsidence in Joshimath** were made public after the Uttarakhand High Court questioned the State for hiding them.

About Joshimath

- It is a small and busy town in Uttarakhand's Chamoli district

- After the **1962 India-China war, J**oshimath emerged as a place of strategic importance.
- The town is also a gateway to noted sites of pilgrimage – Badrinath for Hindus and Hemkund Sahib for Sikhs; the international skiing site of Auli; and the Valley of Flowers, a UNESCO World Heritage site

Land subsidence

- Land subsidence is a gradual settling or sudden sinking of the Earth's surface.
- It can happen for a host of reasons, man-made or natural, such as the removal of water, oil, or natural resources, along with mining activities.

About the study

- The eight institutions — the Wadia Institute of Himalayan Geology (WIHG), the National Geophysical Research Institute (NGRI), the National Institute of Hydrology (NIH), the Indian Institute Of Technology (IIT-Roorkee), the Indian Institute of Remote Sensing (IIRS), the Geological Survey of India (GSI), the Central Ground Water Board (CGWB) and the Central Building Research Institute (CBRI) — were given the mandate to identify the causes of land subsidence by the government.
    - The reports of these institutions were submitted earlier this year

Major Findings of study

- **Reasons for subsidence :** The seismic activities, construction loopholes, population pressure, poor drainage system among others as 'likely' reasons for the sinking of the Himalayan town.
- CBRI stated that the Joshimath town has **44%, 42%, 14%** of masonry, RCC and other (traditional, hybrid) construction typologies among which 99% are non-engineered — means they are not complying with the National Building Code of India 2016 provisions.
    - **Joshimath** town is situated on Vaikrita groups of rocks overlain by morainic deposits which are composed of irregular boulders and clay of varying thicknesses.
    - Such deposits are **less cohesive and susceptible** to slow subsidence and landslide subsidence
- **Roorkee based-NIH** said that various spring, drainage network, areas of subsidence maps infer that land subsidence and subsurface water in the Joshimath area might have some connections.
- The **WIHG mentioned earthquakes** as a reason for slow and gradual land subsidence in the area.
- IIT-Roorkee suggested that the overall soil fabric of Joshimath is found to be a **complex mixture of boulder**s, **gravels and soil**, the internal erosion in such soils causes the instability of the whole fabric and results in the readjustment of the boulders, leading to subsidence.
    - The main reason for the subsidence appears to be **internal erosion c**aused by the subsurface drainage, which may be due to infiltration of rainwater/melting of ice/wastewater discharge from household and hotels.

- Analysing by Small BAseline Subset (SBAS) Interferometry SAR Technique, the ISRO stated that the subsidence in Joshimath region may be **due to toe-cutting phenomenon, slope instability** as a result of seepage of local drainage water in the soil, terrain and edaphic characteristics, loose and unconsolidated moraine materials of the slope (due to old landslide) and flash flood events in and around the area in the recent past.
    - This has resulted in development of cracks in the ground as well as houses in Joshimath town.

Issues linked to report

- With every study conducted with a different approach, these reports largely recreated the sensitivity of the area but nothing concrete has come out on what exactly went wrong.
- A geologist termed the reports of the eight institutions 'old wine in a new bottle'.

Suggestions

- There is a need for reviewing the principles of town planning for development of towns in hilly regions.
- There is a need for the safe disposal of the water coming from the upper reaches and waste of town should be the top priority.
- Since Uttarakhand is a mountain State, and often faces mountain disasters, it is of utmost importance that LiDAR topographic mapping is done for the State.
- Though subsidence is continuous phenomenon, it can be minimised by controlling infiltration of water, which helps in minimising the internal erosion
- the national and the State governments must listen to both science and the people already living near mines and dams
- The stress should be on environment and conservation for a sustainable development in the Himalayas without ignoring human sufferings and emerging socioeconomic impacts the developments cause.

Source:TH

Jharia Master Plan (JMP)

Syllabus :GS 2/Government Policies and Interventions

In News

- The **Ministry of Coal** managed to reduce the number of fire sites in the Jharia **Coalfield from 77 to 27** after the implementation of the **Jharia Master Plan in 2009,** resulting in a significant reduction of the affected surface area from 17.32 square kilometres to just 1.80 square kilometres.

About the Jharia Master Plan (JMP)

- **Evolution** : In 1996, Government of India constituted a High-Power Committee under the chairmanship of Secretary, Ministry of Coal to review the problems of fire and subsidence in **Jharia Coalfield(JCF).**
    - To address fires and rehabilitate the residents in vicinity two master plans were formulated in 1999,later revised and updated in 2004

which was based on enhanced fire dealing efforts of BCCL and Ministry of Coal.

- Finally, **Jharia Master Plan (JMP)** for dealing with Fire, Subsidence and Rehabilitation was approved on 12th August 2009 with implementation period of 10 years and pre-implementation period of two years with estimated investment of Rs. 7112.11 crores.
    - The Masterplan identified 595 sites that needed to be rehabilitated, covering an area of 25.70 square kilometres.

Progress

- The Ministry of Coal has been closely monitoring fire incidents and rehabilitation efforts. High-Power Central Committee (HPCC) meetings, chaired by the Secretary, Ministry of Coal, were held to oversee the progress of the **Jharia Master Plan.**
    - The fire-affected area has significantly reduced from 77 sites (Pre-Nationalization) to 67 sites (As per Jharia Master Plan,2009) covering 17.32 sq. km to 27 sites covering 1.8 sq. km according to surveys conducted in 2021.
- According to JMP, housing has emerged as a major component in rehabilitation, with due consideration given to skill development, employment opportunities, and inclusive shifting.

Challenges

- The complexities ranged from technological limitations in assessing underground fires to the perception among affected families that the plan was aimed at acquiring land for coal mining rather than addressing fire and subsidence hazards.
- Non-acceptance of the rehabilitation package by land owners, absence of a legal framework for land rights transfer to JRDA complicated the process of rehabilitation.

Initiatives

- The **Ministry of Coal worked tirelessly to overcome each obstacle** and demonstrated remarkable resilience and achieved significant progress.
- Furthermore, to address resettlement and rehabilitation needs, e**xtensive planning was undertaken,** including the diversion of rails, roads, and surface infrastructure.
- **Detailed project reports (DPRs)** were prepared to support affected families, with significant progress made in constructing new houses.
- **Substantial funds** were allocated for fire management and rehabilitation, emphasising the importance of these efforts.
- Even after the expiration of the Jharia Master Plan in August 2021, the Ministry of Coal continues to review the progression of activities undertaken by BCCL & JRDA on a biweekly and monthly basis.
- A committee was constituted in **2022 headed by Secretary Coal,** to review the Jharia Master Plan with a focus on extinguishing fires, rehabilitating affected families, and proposing a way forward.

Conclusion

- The efforts of the Ministry of Coal in tackling the fires, resettling the affected families, and ensuring the sustainable extraction of coal have laid the groundwork for a brighter future.

Do you know ?

- **Coal mines in Jharia Coalfield** date back to **1916** when the first incidence of fire was reported.
- Since then, a number of fires have occurred within the overburden debris. Prior to nationalisation, these mines were privately owned and operated with a profit-driven approach and mining methods were unscientific with least concern for safety, conservation and the environment.
    - This practice has resulted in severe land degradation, subsidence, coal mine fires and other socio-environmental problems.
- After nationalisation, Polish team & Indian experts were appointed in 1978 to study the Jharia coal fire predicament.
- According to the investigations,77 fires across 41 collieries of BCCL were identified.

Source:PIB

Facts In News

Schemes for Scheduled Caste Students

Syllabus:GS2/ Social Justice, Welfare Schemes

News

- The Pre-Matric Scholarships Scheme for SCs & Others and Post-Matric Scholarships Scheme for SC students (PMS-SC) has been revised.

Pre-Matric Scholarships Scheme for SCs and Others

- It is a **Centrally Sponsored scheme** launched by the **Ministry of Social Justice and Empowerment.**
- **Objective:** Promoting literacy and uninterrupted education at the Pre-Matric level for children belonging to Scheduled Castes and children of parents/guardians who are engaged in unclean and hazardous occupations.

Components of the Pre-Matric Scholarships Scheme

- **Component 1:** Pre-Matric Scholarship for SC students.
    - The students should be studying in **class IX and X** on a full time basis.
    - They should belong to a Scheduled Caste.
    - Their Parent/Guardian's income should not exceed **Rs. 2.50 lakh per annum.**

- **Component 2:** Pre-Matric scholarship for children of parents/guardians engaged in Unclean and hazardous Occupation.
    - The students should be studying in **classes I to X** on a full time basis
    - There is **no family income ceiling.**
    - Scholarship will be admissible to the children/wards of parents/guardians **irrespective of their caste/religion**.

Post-Matric Scholarships Scheme for SC students (PMS-SC)

- PMS-SC is a **Centrally Sponsored Scheme** launched by the **Ministry of Social Justice and Empowerment.**
- **Conditions:** The scheme is for the **SC students for studies in India only** whose Parent/Guardian's income should not exceed **Rs. 2.5 lakh per annum.**
- **Objective:** Provide financial assistance to the Scheduled Castes students and to appreciably increase the **Gross Enrollment Ratio (GER)** of SC students in higher education from **23.0 %** to the national average till **FY2025-26.**

Source:PIB

Fish Mint

Syllabus: GS-3/Environment

News:

- Recently, researchers from Taiwan probed the benefits of the **herb Fish Mint** on mice.

Fish Mint:

- **Names:** Houttuynia cordata is a herbal plant and is also known as fish mint, fish leaf, rainbow plant, chameleon plant, heart leaf, fish wort, or Chinese lizard tail.
- **Genus and Family:** Houttuynia cordata is one of two species in the genus Houttuynia (the other being H. emeiensis). It is called **chameleon plant because of** the herb's membership of the Saururaceae or lizard-tail family of plants.
- **Distribution:** It is believed to be a **native of southeast Asia.** It grows easily in **moist soils and is resistant to flooding.**
- **Indian scenario:** In India, **fish mint is used across the northeastern states,** where people know the herb by different names. In **Meghalaya**, it is called **ja mardoh,** in **Manipur**, it is called **tokning-khok** and in **Assam it** is called **masunduri.**
- **Medicinal Usage:** It is used in traditional Chinese and Japanese medicine, as well as in Ayurveda and Siddha to fight fever, heart ailments, respiratory diseases and kidney problems. Other health benefits of fish mint include its a**bility to reduce body weight, epididymal fat, insulin resistance, plasma and liver lipids.**

Features:

- Fish mint is a herb with **white flowers and broad heart-shaped leaves.**
- It is called Fish mint because of the distinct **fish-like smell and taste of the leaves**.
- The plant has **two distinct flavors. The Chinese variety**, common in China and Vietnam, has a **strong coriander-like aroma**, while the **Japanese variety,** distributed from Nepal to Japan, has a **lemon- or ginger-like aroma and its leaves are used more, in salads and fish recipes.**

Source: DTE

Mangalyaan

Syllabus: GS3/Developments in Science and Technology

News

- Recently, the anniversary of **Mars Orbiter Mission (MOM)**, **Mangalyaan** was observed which successfully entered into orbit around Mars on September 24, 2014.

Mars

- Mars is the **fourth planet from the Sun.**
- **Terrain:** Mars is a terrestrial planet. A terrestrial planet, telluric planet, or rocky planet, is a planet that is composed primarily of silicate rocks or metals.
- **Geological Features:** Mars hosts a large shield volcano (Olympus Mons) and one of the largest canyons in the Solar System (Valles Marineris).
- **Soil: Mars is known as the Red Planet** because iron minerals in the Martian soil oxidize, or rust, causing the soil and atmosphere to look red.
- **Atmosphere:** Mars is a **dusty, cold, desert world with a very thin atmosphere,** made up mostly of carbon dioxide (CO_2), argon (Ar), nitrogen (N_2), and a small amount of oxygen and water vapor.
- **Seasons:** The axial tilt of Mars is 25.19° relative to its orbital plane, which is similar to the axial tilt of Earth. As a result, Mars has seasons like Earth, though on Mars they are nearly twice as long because its orbital period is

that much longer.

- **Orbit and Rotation:** Mars's average distance from the Sun is roughly 230 million km, and its orbital period is 687 (Earth) days. The solar day on Mars is only slightly longer than an Earth day: 24 hours, 39 minutes, and 35.244 seconds.
- **Rings:** There are no rings around Mars.
- **Moons**: Mars has two moons-**Phobos and Deimos.**
- **Missions:** The first successful Mars mission was the Mariner 4 flyby in 1965 by NASA. NASA currently has **two rovers (Curiosity and Perseverance), one lander (InSight), and one helicopter (Ingenuity)** exploring the surface of Mars. In 2021, **China became the second nation to ever land successfully on Mars** when its **Zhurong Mars** rover touched down.

MOM

- **Name:** The Mars Orbiter Mission (MOM), unofficially known as Mangalyaan, was India's first interplanetary mission.
- **Timeline:** It was launched by ISRO aboard PSLV-C25 from Sriharikota in 2013 and was put into Mars orbit on September 24, 2014. It stayed in touch with Earth till April 2022, when communications were finally lost.
- **Mission Objectives: The mission was a "technology demonstrator"** project to develop the technologies for designing, planning, management, and operations of an interplanetary mission.
- **Payloads:** It carried the following five scientific payloads:
    - Mars Color Camera (MCC)
    - Thermal Infrared Imaging Spectrometer (TIS)
    - Methane Sensor for Mars (MSM)
    - Mars Exospheric Neutral Composition Analyser (MENCA)
    - Lyman Alpha Photometer (LAP)

Significance and Achievements

- **ISRO became just the fourth space agency** — after the US's NASA, Russia's ROSCOSMOS, and the European Space Agency, to orbit Mars.
- India's ability to successfully realize the mission to Mars in its first attempt, in a cost-effective (Rupees 450 Cr) propelled India's image as a credible space fairing nation.
- The mission also achieved its **many scientific objectives**, **studying the martian surface and atmosphere, as well as other planetary and solar phenomena**.
- The Mars Colour Camera produced 1100+ images and published a Mars Atlas.
- Observations by MENCA have shown for the first time that the abundance of Oxygen exceeds that of Carbon-Dioxide at an altitude of ~270 ±10 km, during the perihelion evening hours

Mars Orbiter Mission 2 (Mangalyaan 2)

- ISRO is planning to launch Mangalyaan 2 in 2024.
- The spacecraft will carry "a hyperspectral camera, a high resolution panchromatic camera and a radar to understand early Martian crust, recent basalts and boulder falls."

Source: IE

Bharat Drone Shakti 2023

Syllabus: GS3/Defence

Context:

- The Union Defence Minister inaugurated the **first-ever drone exhibition 'Bharat Drone Shakti 2023'** at the Hindan Air Force Station, Ghaziabad.

About:

- The event is jointly **organised by the Indian Air Force (IAF) and the Drone Federation of India (DFI)** featuring over 75 drone start-ups from across the country.
    - It includes survey drones, agriculture drones, fire suppression drones, tactical surveillance drones, heavy-lift logistics drones, loitering munition systems, drone swarms, and counter-drone solutions in the exhibition.
- It is focused on the latest **in-house innovations projects** such as a *hybrid drone detection system, an Artificial Intelligence (Al) engine for fault diagnosis, a fly-by-wire tester, stabilised power supply trolleys, a QR code-based tool crib management system, and also modern teaching aids.*

The Drone Federation of India (DFI):

- It is a **non-government, not-for-profit, industry-led body** that promotes and strives towards building a safer and scalable unmanned aviation industry in India.
- It hosts conferences and discussions throughout the year which brings together the **entire UAV industry under one roof.**
- DFI acts as a bridge between the industry and regulators to ensure safe skies and exponential technology adoption.
- DFI enables rapid innovation and accelerated growth by establishing strategic partnerships across industries.

Drone Ecosystem in India:

- The drones can be employed for a variety of **military and civil applications**. The Indian government has played a crucial role in supporting the growth of the drone industry by relaxing several guidelines.
- The IAF and DFI seek to develop **a major drone hub by 2030** and bolster the **Make in India**, by showcasing their capabilities through a series of **aerial & statics demonstrations.**

Meher Baba Swarm Drone Competition:

- It was initiated by the **Indian Air Force (IAF)** for demonstrating its confidence in the nation's drone capabilities.
    - The IAF has extensive experience in deploying Remotely Piloted Aircraft for Intelligence Surveillance and reconnaissance operations.

- The **Production Linked Incentive (PLI) scheme,** aimed at attracting a $600 million investment and creating 10,000 jobs in the sector, has

been instrumental in promoting **self-reliance and domestic production of drones**.

Source: TH

Phase II of the 'Amazon Future Engineer Programme'

Syllabus:GS2/ Education

News

- National Education Society for Tribal Students (NESTS), under the Ministry of Tribal Affairs, launched the Phase II of the 'Amazon Future Engineer Programme' in **54 Eklavya Model Residential Schools (EMRS).**

About

- **Objective:** The Programme has been launched to train tribal students in advanced coding and Artificial Intelligence.
- The three-day in-person teachers training workshop has been inaugurated along with the **EMRS Coders Expo.** The expo is an exhibition of the top **20 Coding Projects.**
- The second phase of the programme would include an Advanced Block Programming and Artificial Intelligence curriculum.

Need of the programme

- India has a tribal population of **over 10 crores**, which in many cases still faces language and cultural barriers to access modern education.
- The programme has been launched to bridge these barriers in teaching to improve learning outcomes for tribal students.

Significance

- **Digital opportunities for tribals:** Amazon Future Engineer Programme initiative is a huge step towards ensuring that the succeeding tribal generations become well-equipped to leverage digital opportunities.
- **Capacity building of teachers** in their local languages, especially for tribal communities in India, will empower them to deliver curriculum in a much-enhanced manner and prepare the tribal students to compete in the technologically advanced world.

Source:PIB

Justice Gita Mittal Committee

Syllabus: GS2/Governance

Context:

- The Supreme Court of India asked petitioners in the **Manipur ethnic violence** case to trust the **Justice Gita Mittal Committee**.

About the Justice Gita Mittal Committee:

- It was constituted by the Supreme Court of India **to intervene and monitor relief and rehabilitation, and restoration of homesteads, religious places of worship,** and to **oversee relief and rehabilitation of victims of violence in Manipur.**
- It is a **three member** committee**, headed by former Jammu and Kashmir high court Chief Justice Gita Mittal**. It has Justices Shalini Phansalkar Joshi and Asha Menon, as other two members.

Report submitted by the Committee:

- **The First Report:** It highlights the **loss of essential documentation** of the residents of Manipur who have been dishoused.
    - The Bench directed the Unique Identification Authority of India to provide **Aadhaar cards** to persons who have been displaced during the violence, provided their records were already with the authority.
    - The Supreme Court ordered the State **to issue duplicates of disability certificates**, especially to people in relief camps.
    - The **State Finance Department** has been directed to issue appropriate orders to banks to facilitate the displaced **to access their accounts.**
    - The Committee has suggested that **a nodal officer be appointed** to head the **process of reconstructing these documents**.
- **The Second Report:** It has highlighted that the **compensation scheme for victims in Manipur** needs to be improved and updated with the NALSA scheme in mind.
    - Victims who have benefitted from other schemes out of the ambit of the scheme.
- **The Third Report:** It proposed the **appointment of domain experts for administrative directions**.
    - It also noted that **certain procedural directions** were required in the matter **to pay for expenses including infrastructure.**

The Hindu

CE20 E13 Engine For Gaganyaan

Syllabus: GS3/Science and Technology

Context:

- The Indian Space Research Organisation (ISRO) completes a key engine test for Gaganyaan Mission.

About:

- ISRO has successfully completed the CE20 E13 engine hot test for the Gaganyaan qualification and 22-tonne thrust qualification.

CE20 E13 Engine:

- It is a vital component, serving as the **powerhouse of the Cryogenic Upper Stage (CUS)** responsible for propelling the **upper stage of the Launch Vehicle Mark-3 (LVM3)**.
- It is developed by the **Liquid Propulsion Systems Centre (LPSC), Valiamala in Thiruvananthapuram, Kerala** and was tested at **ISRO Propulsion Complex (IPRC), Mahendragiri in Tamil Nadu**.
- **E13** is the **engine hardware of the CE20** which is selected for both Gaganyaan qualification and **22-tonne thrust level operations**.
    - **CE20 E13 Engine** has demonstrated its capability by successfully operating at a thrust level of 19 tonnes **in six successive LVM3 missions,** including the **Chandrayaan-2, Chandrayaan-3, and two commercial OneWeb missions.**

A Cryogenic Engine/ Cryogenic Stage:

- It is the **last stage of space launch vehicles** which makes use of **Cryogenics**.
    - Cryogenics is the study of the production and behaviour of materials at **extremely low temperatures** (below -150°C) t**o lift and place heavier objects in space.**
- Cryogenic stage is technically a much more complex system in comparison to solid or liquid propellant (stored on earth) stages due to the usage of propellants at extremely low temperatures.
- It provides more force with each kilogram of cryogenic propellant it uses compared to other propellants, such as solid and liquid propellant rocket engines.

Propellants in Cryogenic Engine:

- It makes use of **Liquid Oxygen and Liquid Hydrogen** as propellants which liquefy at **-183 °C and -253 °C respectively.**
- The major components of a cryogenic rocket engine are combustion/thrust chamber, igniter, fuel injector, fuel cryo pumps, oxidizer cryo pumps, gas turbine, cryo valves, regulators, the fuel tanks and a rocket engine nozzle.

Hot Test (HT) of CE20 E13 Engine For Gaganyaan:

- ISRO has achieved a **'22-tonne thrust capability' by successive** HT-01, HT-02 and HT-03.

    - **E13 HT-01:** a test focused on **engine tuning**, successfully conducted for a 50-second duration.
    - **E13 HT-02:** It marked a significant milestone with the engine operating flawlessly for an impressive 720 seconds, which demonstrated the **engine's reliability and stability.**
    - **E13 HT-03:** It was conducted at the state-of-the-art test facility located at IPRC, Mahendragiri (TN), and operated at the coveted **22-tonne thrust level for a duration of 670 seconds.**
- The successful completion of E13 HT-03 signifies the culmination of rigorous testing and the readiness of the CE20 engine for the Gaganyaan program.

Source: ISRO

ciTRAN (a Circular RNA Virus)

Syllabus: GS-3/Science and Technology

Context

- Recently, the researchers at the Indian Institute of Science Education and Research (IISER) in Bhopal have identified **a Circular RNA virus, ciTRAN.**

What is Ribonucleic Acid (RNA)?

- It is a molecule in living cells that carries genetic information and helps in production of proteins. Unlike DNA, however, RNA is most often single-stranded.
- While most **RNAs have a linear structure with free ends**, a unique type known as **circular RNA (circRNA) forms a closed-loop.**
- Its role in HIV-1 replication has remained unclear for a long time.

Human Immunodeficiency Virus (HIV)?

- **About:**
    - HIV is a virus that attacks the immune system, specifically the CD4 cells, which are crucial for fighting off infections.
    - On the basis of genetic characteristics and differences,**HIV is classified into the types 1 and 2 (HIV-1, HIV-2).** HIV-2 develops more slowly and has a lower transmission rate than HIV-1.
    - **HIV-1 is the most common type of HIV**, and it occurs all over the world. Around **95%** of people living with HIV have HIV-1.

    - HIV-2 is mainly present in West Africa, but it is slowly starting to appear in other regions, including the United States, Europe, and India.
- **Causes:** It primarily spreads through unprotected sexual contact, sharing needles or syringes, and from mother to child during pregnancy, childbirth, or breastfeeding.
- **Symptoms:**
    - Many people with HIV do not experience any symptoms for years after infection, but the virus continues to damage the immune system.
    - As HIV progresses, symptoms may include fever, fatigue, weight loss, night sweats, swollen lymph nodes, and recurrent infections.
- **Treatment:**
    - At present, there is **no cure** for HIV or AIDS, but antiretroviral therapy (ART) can slow the progression of the virus and improve quality of life.
    - It involves taking a combination of medications that target different stages of the virus's life cycle, reducing its ability to replicate and damage the immune system.
    - The drugs have to be taken for life because the virus continues to persist in reservoirs across the body.
    - If left untreated, the virus destroys a person's immune system and leads to AIDS resulting in death.

Significance of the Finding

- The identification of ciTRAN's role in HIV-1 multiplication represents a major breakthrough in HIV research.
- This newfound understanding of viral mechanisms and the development of a molecule capable of inhibiting viral transcription bring us one step closer to effective treatments for HIV-1 and potentially other viral infections.

Source: DTE

Goa Shack Policy 2023-2026

Syllabus: GS-3/Indian Economy, Tourism

Context:

- Recently, the Goa government has approved the **'Goa State Shack Policy 2023-2026'**.

What are Beach Shacks?

- Beach shacks are built from **eco-friendly materials** such as **bamboo, wooden poles and thatched palm leaves.**

- They are temporary structures where people can stay overnight or can be used as eateries and are built at the beachfront.
- It has become a **popular attraction for domestic and international tourists** visiting Goa.

What is the Beach Shack Policy?

- **Aim:** To bring significant changes in beaches of Goa and maintain a balance between **promoting tourism, preserving the environment and providing economic opportunities for the local community.**
- The government has allowed the construction of temporary beach shacks, deck beds and umbrellas along beach stretches for the **next three tourist seasons.**
- **259 shacks** are permitted on nominated beach stretches in **North Goa** and **105 shacks** are allowed in **South Goa.**
- **Eligibility:**
    - It allows unemployed persons of Goan domicile to operate **'temporary' shacks** during peak tourist season.
    - The licenses for operating these shacks are allotted based on categories of experience by draw of lots, and one shack is permitted per family.
    - The **age of applicants** for allotment of beach shacks should be between **18 and 60.**
        - The previous beach shack policies had no bar on age.
    - The government has relaxed the eligibility **criteria for experience**
        - 90 percent of shacks to be allotted to applicants having at least one year of experience
        - 10 percent of shacks to those with no experience.
- **New Features:**
    - **Quality Food:** To lodge complaints from tourists about **missing Goan food** from shacks, the new policy makes it mandatory for shacks to serve Goan cuisine.
    - **Digital Coast Initiative:** This allows shack allottees to be provided with **POS (point of sale) machines** to facilitate digital transactions for customers.
    - **Penalty for Violation:**
        - The penalty for subletting a shack has been hiked from Rs 10 lakh to Rs 25 lakh.
        - If a toilet is found "unhygienic", a fine of Rs 10,000 will be levied.

Source: IE