

WEEKLY CURRENT AFFAIRS MAGAZINE for



C.D.S.

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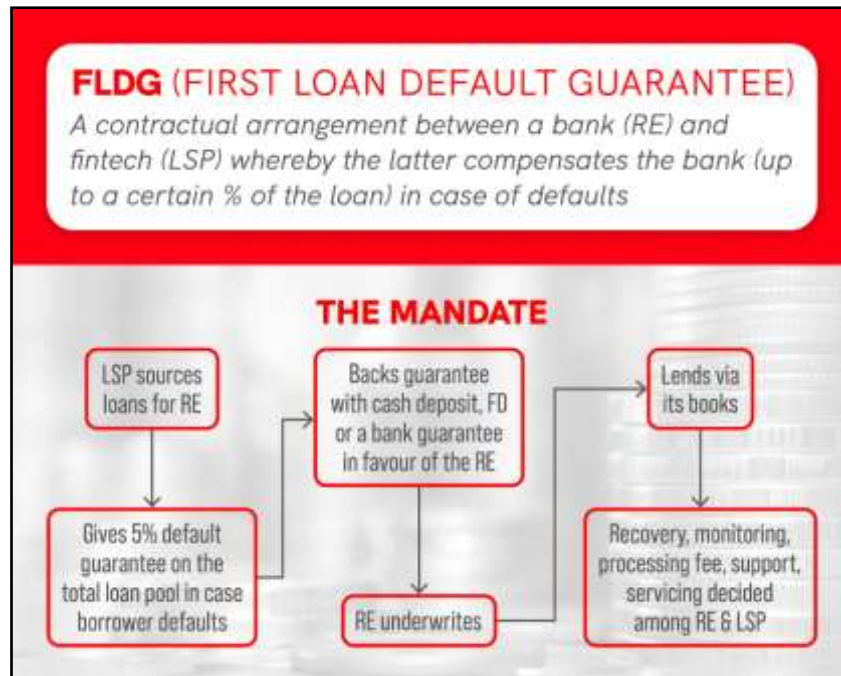
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Topic 1. RBI GIVES GREEN SIGNAL TO FIRST LOSS DEFAULT GUARANTEE (FLDG) FRAMEWORK

Important for the subject: Economy



FLDG:

FLDG allows Indian fintechs to partner with banks and NBFCs. Banks and NBFCs act as the third party in arrangement between customer (who takes loan) and the Fintech company. The first hit on a default is taken by the fintech firm that originated the loan.

Key Points:

- Arrangements between **Regulated Entities (REs)** and **Lending Service Providers (LSPs)** or between two REs involving **default loss guarantee (DLG)**, commonly known as FLDG, has since been examined by the Bank and it has been decided to permit such arrangements. Important for the subject to the guidelines laid down.
- FLDG arrangements conforming to these guidelines shall not be treated as ‘synthetic securitization’ and/or shall also not attract the provisions of ‘loan participation.’”

Regulated and non-regulated LSPs:

- For regulated LSPs (Fintech) the proposal to announce a regulatory framework will bring

in more clarity as digital lending is going to stay and increase substantially in scale.

- No clarity for non-regulated LSPs, if non-regulated entities are allowed to offer FLDGs with necessary safeguards, it could provide further impetus to digital lending.

The regulatory framework:

- It is based on the principle that lending business can be carried out only by entities that are either regulated by the Reserve Bank or entities permitted to do so under any other law.
- RBI directed that RE shall ensure that the total amount of DLG cover on any outstanding portfolio which is specified upfront shall not exceed 5% of the amount of that loan portfolio.

Impact on fintech, banks, NBFCs:

- Big positive for data-tech NBFCs and fintechs as the move will strengthen the digital lending ecosystem.
- Allows synergies between Fintec and Banks to strengthen credit penetration and boost the digital lending ecosystem.
- Regulations will promote more transparency and discipline in digital lending environment.

Topic 2. CACP RECOMMENDS BRINGING UREA UNDER NBS

Important for the subject: Economy

Key Points:

CACP has recommended the Centre to bring urea under the **nutrient-based subsidy (NBS)** regime to address the problem of imbalanced use of nutrients. Main cause of the nutrient imbalance is price distortions resulting from fertilizer subsidies, which have grown dramatically and continue to increase rapidly

Impact of imbalance in prices:

- Fertilizer response and efficiency has continuously declined over decades mainly due to imbalanced use of nutrients, deficiency of micro and secondary nutrients Overuse of Urea resulting in depletion of soil organic carbon Increasing fertilizer subsidy
- It also recommended a cap on the number of subsidized bags of fertilizers per farmer, as

has been done for subsidized LPG cylinders. For *Kharif* season **2023-2024**, the government approved **Rs 1.08 lakh crore** as fertilizer subsidy on May 17, 2023. Out of this, **Rs 70,000 crore** will be spent for **urea subsidy** and **Rs 38,000 crore** for subsidy for **DAP and other fertilizers**.

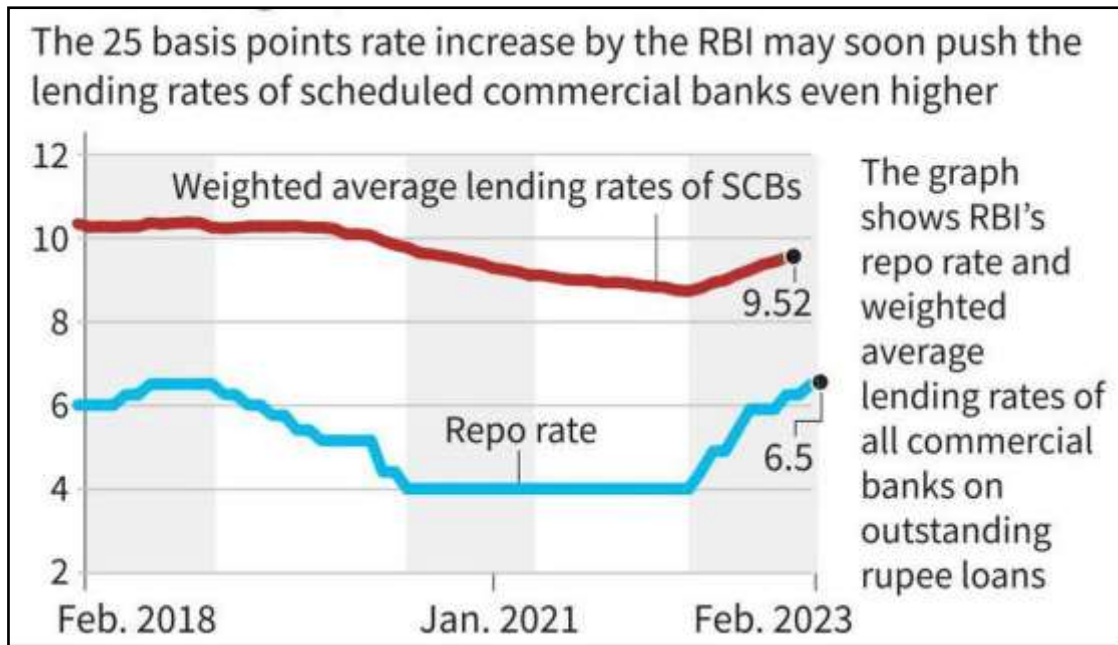
- **Present system of pricing of Fertilizers in India** Urea does not come under NBS, which includes non-urea fertilizers like **phosphorus** and **potassium**.
- Manufacturers of these fertilizers have the freedom to fix MRP within “reasonable limits”, and a fixed per-tonne subsidy linked to their nutrient content is given. Government has direct control over MRP of urea and its subsidy.

Other Recommendations of CACP:

- encouraged to increase production of oilseeds and protected against uncontrolled imports through dynamic tariff structure linked to world prices, demand-supply situation and domestic prices of edible oils linked to MSP of oilseeds duty differential between crude and refined oil may be raised to about 10-15 per cent to discourage import of refined oils to reduce the import dependence, the CACP has recommended that the National Mission on Edible Oils (NMEO) should be launched with a special focus on major oilseeds such as rapeseed & mustard, groundnut, soybean, sunflower seeds. To promote the production and consumption of millets, it has recommended a two pronged strategy to address both supply and demand side challenges. It has recommended an increase in production of millets through genetic improvement, strengthening seed chain, improved agronomic practices and enhanced shelf-life through value-addition, Demand creation by including millets in the public distribution system and other welfare schemes, industrial usage of millets and exploiting export market opportunities.

Topic 3. MONETARY POLICY COMMITTEE CONTINUES STATUS QUO ON REPO RATE AT 6.5%

Important for the subject: Economy



In News: Reserve Bank of India (RBI) Thursday left the main policy instrument, repo rate, unchanged at 6.50 per cent for the second consecutive monetary policy

Key points:

- Has kept rate unchanged after hiking it consecutively for 6 times from May 2022– April 2023 RBI has retained the real GDP growth projection at 6.5 % for FY2024 but cut the inflation (CPI) projection marginally from 5.2 per cent to **1 %** for the current fiscal.
- Inflation at 6.7 % in 2022-23 was above the tolerance limit of 6%. Headline inflation (Consumer CPI) is still above the target of 4% rate action in the policy is “a pause and not a pivot” meaning RBI still focused on “withdrawal of accommodation” (reducing liquidity) and not entering a cycle of reducing interest rates.

Growth supported by:

- Higher rabi crop production, expected normal monsoon, continued buoyancy in services and softening inflation should support **household consumption**.
- Healthy twin balance sheets of banks and corporates, supply chain normalization and

declining uncertainty, conditions are favorable for the **capex cycle** to gain momentum

Risks to growth:

- weak external demand, volatility in global financial markets, protracted geopolitical tensions and intensity of El Nino impact.

Impact on home loan

- When the RBI lowers the repo rate, the cost of borrowing for banks goes down. Banks are expected to pass on this benefit to the consumers eventually.
- Conversely, home loan interest rates go up with the RBI making an upwards tweak in its lending rate.
- Incidentally, banks are quicker in passing on the increase in rates to the customers, while they are generally quite slow in reducing their lending rates.
- So, even though changes in the repo rate should reflect in financial institutions' interest rates immediately, only increases see fast transmission and often the RBI has to nudge banks, to pass on the benefits of reduced rates to borrowers.

Impact on Fixed Deposits

- Many financial institutes often increase the interest rates on FDs when they increase the repo rates, making FDs more attractive to investors.
- It means that investors who are looking for stable returns can now invest their money in FDs and get higher returns.

Monetary Policy Committee

- Meets bi-monthly (once every 2 months) to decide repo-rate (rate at which RBI provides funds to the Banks).
- Objective is to maintain price stability while keeping in mind the objective of growth. MPC has 6 members Mandate to keep inflation in the 4 +/- 2 %

Repo Rate:

- The interest rate at which the Reserve Bank provides overnight liquidity to banks against the collateral of government and other approved securities under the liquidity adjustment

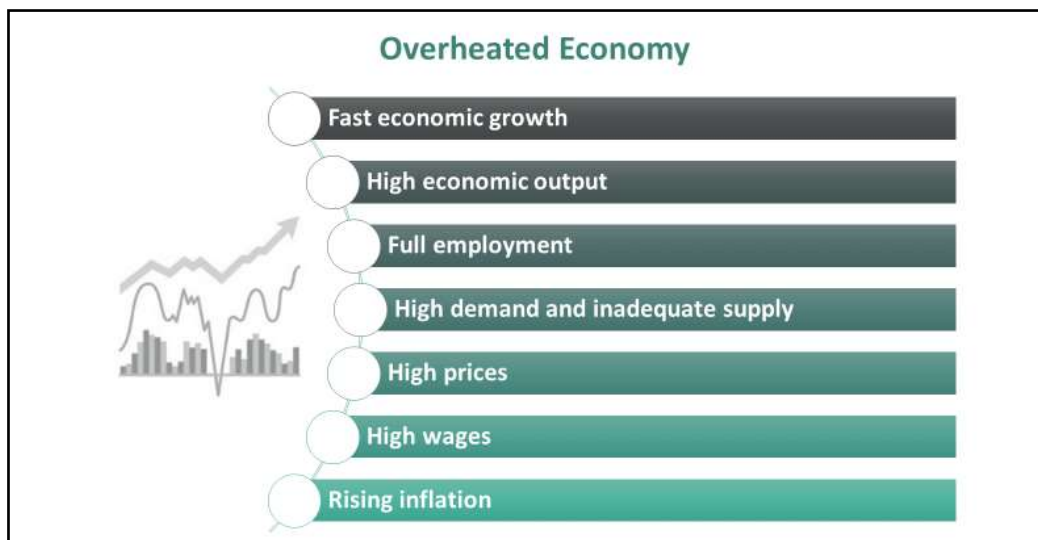
facility (LAF)

CPI (Headline inflation) vs Core CPI

- CPI is the consumer price index. A measure of the cost of living for the typical person.
- Core CPI = CPI minus (-) energy and food prices.
- Energy and food prices are removed because they have tendency to be highly volatile.

Topic 4. OVER-HEATING OF ECONOMY

Important for the subject: Economy



India can grow for a prolonged period without running into overheating problems says CEA
An **overheated economy** is when the economy grows too fast. An overheated economy reaches the limits of how much output it can produce to meet the demand while using all the resources available.

Characteristic of overheating:

- The economy is producing beyond its **potential output** or beyond **full employment**.
- Potential output is the output an economy can sustainably produce given the available amount of resources such as workers, technology, and equipment. The optimum employment level is called the **natural rate of unemployment (NRU)**. Any lower unemployment cannot be achieved without.
- High inflation is a main sign that an economy is beginning to overheat. It is generally caused by an increase in demand for goods due to low interest rates. It can be addressed

by raising interest rate.

Wage-price spiral

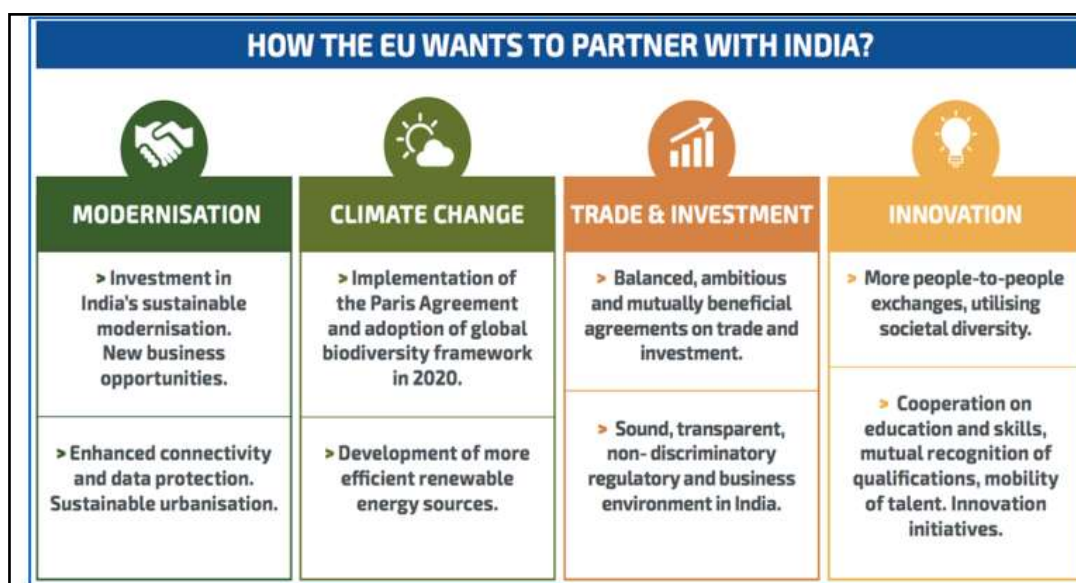
- When the economy overheats some producers are not able to supply all the goods that consumers demand. This can lead to prices rising faster than they otherwise would.
- This in turn can cause a “wage-price spiral” to develop, where higher prices lead to higher wages and vice versa. Wage-price spirals are more likely to occur when an economy is close to full employment, because employers need to offer higher wages in order to attract new workers or retain existing workers.

Why Indian economy should not overheat:

- **Sound macroeconomic policies** of the government, structural reforms such as GST, IBC etc, thrust on infrastructure and digitalization has ensured that the Indian economy can grow for a longer period.
- **Fiscal prudence for fostering macroeconomic stability**, better credit rating translates into lower cost of borrowing by the government, thus contributing to a fiscal stimulus for the economy.

Topic 5. EU’S TRADE POLICY REVIEW (TPR)

Important for the subject: Economy



What is Trade Policy Review:

TPRs are an exercise, mandated in the WTO agreements, in which member countries' trade and related policies are examined and evaluated at regular intervals.

Some points:

- Significant developments that may have an impact on the global trading system are also monitored.
- The frequency of each country's review varying according to its share of world trade. For each review, two documents are prepared: a policy statement by the government under review, and a detailed report written independently by the WTO Secretariat.
- The EU's 15th TPR was carried out by the WTO on June 5 and June 7 2023 and covered a three-year period following its previous review in January 2020.

Two issues that India wants addressed:

- Concern that environmental measures such as the **Carbon Border Adjustment Mechanism (CBAM)** will have negative implications for existing trade volumes and future trade potential EU's **Deforestation Regulation (EU-DR)**, wherein exporters to the EU must ensure that the identified products have been grown on the land which has not been deforested after December 31, 2020, may also affect exports of a number of items from India such as meat, leather hide, wood furniture, paper and coffee, according to experts.

CBAM

- Under the proposed CBAM, the EU will levy an import tariff on carbon-intensive goods, such as steel, from 2026 onwards.
- The CBAM will enter a transitional phase from October 1 2023 when importers of goods into the EU, covered by the new rules, have to report the greenhouse gas emissions (GHGs) for data collection purposes, which will increase costs.

Topic 6. GOVERNMENT CONSIDERING FEWER GDP ESTIMATES TO AVOID CONFUSING MARKETS

Important for the subject: Economy

Government is weighing a proposal to cut official annual gross domestic product estimates to **four** releases from **six** to avoid multiple revisions. Multiple estimates make them confusing for market participants.

Impact of the change:

- The time for finalizing national income estimates should reduce to two years from nearly three years at present.
- Will allow the Statistics Ministry to incorporate more data in its estimates, enabling better policymaking, particularly for budget on **February 1** and avoiding major deviations in revisions. NSO compiles provisional and quarterly estimates of national income using the **benchmark-indicator method** i.e. the estimates available for the previous year referred to as the benchmark year (2021-22 in this case) are extrapolated using the relevant indicators reflecting the performance of sectors.
- **GDP:** The GDP measures the monetary value of all “final” goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year).

Sub-components of GDP:

- Knowledge about them helps us understand how sustainable India’s economic recovery is. Broadly speaking, **GDP has four engines of growth in any economy.**
- **Private Final Consumption Expenditure- PFCE.:** Private Final Consumption Expenditure (PFCE) or the money spent by people on goods and services for personal consumption; this is the biggest contributor of GDP, accounting for almost 55%-60%

Gross Fixed Capital Formation or GFCF: Government Final Consumption

- Expenditure (GFCE) or the money spent by governments towards its daily needs; this accounts for 10% of GDP.
- **Government Final Consumption Expenditure (GFCE):** Gross Fixed Capital Formation (GFCF) or the money spent by private firms and governments towards building

productive capacities (investments); this accounts for 30%-32% of GDP **Net Exports-(Export-Import) i.e. NX** Net of exports and imports; this is typically negative impulse to GDP because imports are more than exports, implying money going out of the country

So, $GDP = C$ (or PFCE) + I (or GFCF) + G (or GFCE) + NX India's context: – share of components in total GDP:

- Private Final Consumption Expenditure (56%) > Gross Fixed Capital Formation (32%) > Government Final Consumption Expenditure (11%) > Net export. **NX is the smallest engine of GDP growth and is often negative.**

Alternatives

- Often, overall GDP does not tell us the full picture. To get a better understanding of how an average Indian is affected the GDP datasheet also looks at per capita income (or p.c. GDP) and per capita expenditure or per capita PFCE.
- **Per capita income** is a measure of the amount of money earned per person in a nation or geographic region. Per capita income can be used to determine the average per-person income for an area and to evaluate the standard of living and quality of life of the population. **Per capita income for a nation is calculated by dividing the country's national income by its population.**
- **Per capita expenditures** refers to the market value (price at which they are sold in the market) of all goods purchased by households divided by population of the country. Durable goods like tv, computer, washing machine, AC. Purchase of properties or capital goods is not included but rent paid for rented houses is included and money paid for services is also included.

GDP and GVA:

- For any financial year, the two main variables of national income are GDP and GVA (or Gross Value Added):
- **The GDP calculates** India's national income by adding up all the expenditures in the economy while, **The GVA calculates** the national income from the supply side by looking at the value added in each sector of the economy.

GVA sub-components:

- Agriculture, forestry and fishing Mining and quarrying, Manufacturing Electricity, gas, water supply and other utility services Construction Trade, hotel, transport, communication and services related to Broadcasting Financial, real estate and professional services Public administration, defense and other services.

While both the variables measure national income, they are linked as follows:

- **GDP = (GVA) + (Taxes earned by the government) — (Subsidies provided by the government).**
- As such, if the **government earned more from taxes than what it spent on subsidies, GDP will be higher than GVA.**
- If, on the other hand, the government **provided subsidies in excess of its tax revenues, the absolute level of GVA would be higher than the absolute level of GDP.**

Topic 7. GOVT IDENTIFIES 1.24 LAKH UNREPRESENTED PANCHAYATS TO SET UP M-PACS

Important for the subject :Economy

Of over 1 lakh such entities across the country are not functioning as fertilizer retailers, the Centre has decided to identify them and encourage them to retail the crop nutrients on the basis of their feasibilities.

- On the basis of mapping, those PACS which are not functioning as fertilizer retailers will be identified and also will be encouraged to function as retailers on the basis of feasibility in a phased manner, it said. Besides, PACS will be brought under the ambit of Pradhan Mantri Kisan Samridhi Kendras (PMKSK), it said.
- PMKSK Launching the PM-Kisan Samruddhi Kendras (PMKSKs) in October 2022, the Prime Minister had inaugurated 600 such outlets, which act as one-stop shops to provide inputs and services to farmers. He had announced that about 3.25 lakh fertilizer retail shops will be converted into PMKSKs across the country.
- The Co-operation Ministry also announced that PACS have been enabled to rent out drones for spraying fertilizers and pesticides as well as for property surveys.
- Further, the ministry said in the supply and marketing chain of bio and organic fertilizers, PACS will also be included as wholesalers/retailers by the companies.
- PACS will be connected with the marketing of organic fertilizers, especially Fermented

Organic Manure (FoM)/Liquid Fermented Organic Manure (LFOM)/Phosphate Enriched Organic Manure (PROM).

What are Primary Agricultural Credit Societies?

- PACS are the ground-level cooperative credit institutions that provide short-term and medium-term agricultural loans to the farmers for the various agricultural and farming activities.
- It works at the grassroots gram Panchayat and village level.

Features

- The Primary Agricultural Credit Societies are the association of persons, unlike in the case of the Joint Stock Companies, where there is just accumulation of capital.
- Primary Agricultural Credit Societies confers equal rights to all its members without considering their holding of share and their social standing.
- Since these are cooperative bodies, individual farmers are members of the PACS, and office-bearers are elected from within them. The membership fee is low enough that even the poorest agriculturist can join. A village can have multiple PACS.

PACS are generally providing the following facilities to the members:

- Input facilities in form of cash or kind component to members Agriculture implements on hiring basis Storage facility.

Topic 8. RBI SURVEYS SHOW RISE IN CONFIDENCE, EASING OF INFLATION PERCEPTION AMONG CONSUMERS

Important for the subject: Economy



The latest round of consumer surveys conducted by the Reserve Bank of India (RBI) for May has shown an improvement in consumer confidence and easing of inflation expectations.

- The ‘current situation index’ (CSI) improved by 1.5 points from the previous survey round to 88.5 on the back of improved assessment for all the survey parameters, barring essential spending.
- The ‘future expectations index’ (FEI) also improved marginally—by 0.80 points to 116.3 in the latest survey round.
- Headline CPI inflation has come down to 4.7 per cent in April, the lowest reading since November 2021. Monetary policy tightening and supply side measures contributed to this process. The easing of inflation was observed across food, fuel and core (CPI excluding food and fuel) categories. Food inflation fell to 4.2 percent in April, while core inflation moderated to 5.1 per cent.
- On inflation, the RBI survey said households’ median inflation perception for the current period eased by 10 basis points (bps) to 8.8 percent.
- Inflation expectations for both three-month and one-year-ahead periods moderated by 10 bps each from the March 2023 level to 10.1 per cent and 10.4 per cent, respectively.
- **Consumer Confidence Survey (CCS):** o The CCS asks people across 19 cities about their current perceptions and one-year ahead expectations on the general economic situation, employment scenario, overall price situation and own income and spending. Based on the responses, the RBI comes up with two indices: **the Current**

Situation Index (CSI) and the Future Expectations Index (FEI).

- An index below the 100 mark implies people are pessimistic and a value higher than 100 conveys optimism. **The CSI** has been **recovering** since falling to a historic low in July 2021. However, consumer confidence still remains in the negative territory.
- **The FEI** is in the **positive territory** but stays below the pre-pandemic levels. **Inflation Expectations Survey (IES)**. It tracks people’s expectations of inflation.
- It shows that the **households’ inflation perception for the current period has moderated** along with their three months and one-year ahead median inflation expectations.

Topic 9. UNEMPLOYMENT RATE FALLS TO 7.7% IN MAY ON DIP IN LABOUR PARTICIPATION

Important for the subject :Economy

The rate in India fell to 7.7 per cent in May due to a decline in the labor participation 441.9 million, according to a data released by private economic think tank CMIE.

- Unemployment rate in India among people aged 15 years and above fell to 7.7 per cent in May 2023, from 8.5 per cent in the previous month
- The unemployment rate inched down as a consequence of a fall in the labor participation, which implies a fall in the number of people who entered the labor market in search of work. Compared to April, labor participation rate (LPR) fell by 1.1 percentage point to 39.6 per cent in May, she said.
- This drop in LPR in May was expected because April witnessed a large number of people entering the labor force but only a small share was able to secure employment in the month. This was bound to discourage many from searching for work in the month of May. As a result, the labor force shrank in size from 453.5 million to 441.9 million.
- Meanwhile, the decline in labor participation in May 2023 was considerably higher in rural India compared to urban India. In urban India, the labor force shrank by close to 4.5 million.
- There were around 147 million people in the urban labor force in April, which inched down to 142.5 million in May the urban labor market recorded a fall in the number of employed as well as unemployed people.
- The 4.5 million fewer people in the urban labor force in May was the result of a combination of a decline in jobs by around 2.4 million and a fall in the number of unemployed in urban India by 2.1 million.
- This resulted in a total of 129.5 million people in the urban workforce, and around 13 million unemployed persons, it added.

Various indicators of employment and unemployment

- **Labour Force Participation Rate (LFPR)**-the percentage of persons in labour force (working or seeking or available for work) in the population of all age **Unemployment rate** -refers to the percentage of unemployed persons in the labour force. Labour force

includes persons who are either employed or unemployed but seeking work.

- **Worker Population Ratio (WPR)**-the percentage of employed persons in the population.

Activity Status

- **Usual Status:** The activity status determined on the basis of the reference period of the last 365 days preceding the date of survey, it is known as the usual activity status of the person.
- **Current Weekly Status (CWS):** The activity status determined on the basis of a reference period of the last 7 days preceding the date of survey is known as the current weekly status (CWS) of the person).

Topic 10. YIELD CURVE INVERSION PERSISTS IN CORPORATE BOND MARKET

Important for the subject: Economy

Yield curve inversion occurs when the yield on short-term debt instruments is higher than that of longer-term bonds. It is a rare but significant occurrence in finance and has historically preceded recessions, making it a reliable indicator.

- In developed markets, an inversion in the yield curve implies an oncoming recession. In India, supply-demand dynamics generally determine the trajectory of the yield curve. So, the inversion in the yield curve is not a leading economic indicator.
- The corporate bond market in India has been experiencing a yield curve inversion due to a supply-demand mismatch, with issuers preferring to raise resources via 3-5 year bonds while investors prefer high-yielding long-term bonds with maturities of 10 years and above.
- This mismatch has led to the shorter end of the market being higher yielding than longer-dated securities, pushing the yield curve to invert. Normalization of the curve is expected to occur within the next couple of quarters, once the Reserve Bank of India hints at any rate cuts.
- Future yields will be determined by various factors, the overall impact of which will determine the direction.

Factors supporting a decline in bond yields (or increase in Bond price):

- Declining inflation, peaked policy rates, and a comfortable external position are all strong backdrops supporting the bond market over the medium term.

Factors supporting an increase in bond yields (or increase in Bond price):

- Uncertainty over the timing, quantity, and distribution of rainfall amid forecasts of El Nino conditions.

Bond Yield and the Yield curve**Bond Yield**

- Bond yield refers to the return on investment in a bond. It is the figure that shows the return an investor gets on a bond and is calculated by dividing the coupon amount by the price. The relationship between bond prices and yields is inverse, with rising prices resulting in lower yields and vice versa.

Yield Curve

- The **yield curve** is a graphical representation of yields on similar bonds across various maturities, and an idealized yield curve slopes upward to reflect the higher risk associated with holding longer-term debt

Topic 11. WHAT FLDG MEANS FOR FINTECH LENDERS***Important for the subject: Economy***

Default loss guarantee (DLG) is an arrangement between two entities, often two regulated entities, or between a regulated entity and fintech **lending service providers (LSPs)**, whereby the LSP guarantees to compensate the regulated entity for loss due to default up to a certain threshold of the loan portfolio. It is also known as first loss default guarantee or FLDG.

- Under FLDG, up to 5% of the loan portfolio can be covered, and the clauses must be invoked within 120 days from the date of default.
- Fintech players were asking for FLDG as the RBI's previous rule revisions on securitisation challenged them to enter default loss guarantee agreements, and REs were

hesitant to lend through fintechs without commitment towards loan loss.

- The circular issued by the RBI sets the base for enabling the system to handle these loans formally, but there are still a few grey areas that need to be addressed, such as how loan outstanding should be computed.
- For borrowers, FLDG could imply an increase in the cost of loans as LSPs may charge a fee to cover up for the likely losses guaranteed under FLDG FLDG contracts for digital lending will help in the growth of these platforms, but fintechs have been working with REs on co-lending structures and even FLDG in a different manner in the past years, making the incremental increase in business difficult to quantify

Topic 12. INFLATION SURPRISE

Important for the subject: Economy

The RBI is expected to maintain interest rates until the April-June quarter, despite a drop in retail inflation to 6.46% in India, thanks to falling food prices and favorable statistical factors. However, core inflation remains at 5.9%, indicating that demand-driven price pressures are still a concern. Industrial growth, based on the Index of Industrial Production (IIP), has rebounded to 4.2% in April, with manufacturing leading the way.

- There are concerns around the El Nino impact on the monsoon, which could impact crop output and food inflation. Despite healthy investment numbers, there are still uneven signals of recovery in domestic consumption.

Topic 13. 2020 MAY BE ANOTHER LOST DECADE FOR GLOBAL ECONOMY

Important for the subject: Economy

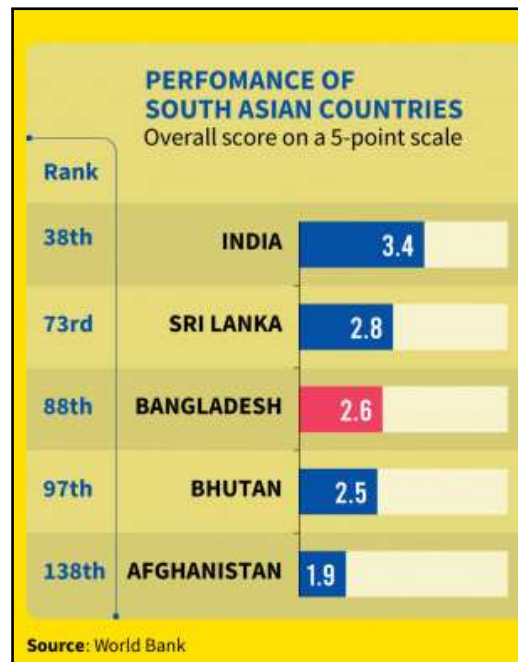
MD Patra, Deputy Governor of RBI, predicts that the 2020s could be another “lost decade” due to recurring financial crises, the pandemic, and the war in Ukraine accentuating the global slowdown.

- A structural slowdown has been spreading across the global economy since growth peaked in 2010, resulting in 10 lost years from 2010.
- About half of this slowdown since 2010 can be attributed to demographic factors such as an ageing population, slowing working-age cohort increases, and declining labour force participation.

- Investment and total factory productivity growth rates are declining, and the engine of trade has weakened significantly.
- The **potential growth rate** of the global economy has **fallen by close to a full percentage point** in 2011-21 relative to 2000-10. (**World Bank report**, ‘Falling Long-term Growth Prospects: Trends, Expectations, and Policies’)
- The global slowdown has pulled down advanced economies and emerging and developing economies alike, but it has imposed a major setback on the latter, pushing back their chances of **catch-up or convergence**.
- Policy uncertainty at the global level has surged, and forces of **de-globalization** and trade and finance disintegration have gained ground.
- EMDEs need to leverage the potential of the services sector to drive productivity growth by investing in ICT infrastructure, securing reduction in trade costs, and supportive business-enabling reforms.

Topic 14. WORLD BANK LOGISTICS PERFORMANCE INDEX (LPI): PORT AND LOGISTICS BOOST

Important for the subject: Economy



World Bank has released the Logistic Performance Index (LPI) Report 2023.

- India has earned **38th** rank in the **overall LPI score** (earlier 44th position in 2018) India's

has earned **22nd** rank in the **International Shipments Category** (from the 44th position in 2018.)

- The improvement in the **port and logistics** performance can be attributed to improvement in parameters such as **Turn Around Time (TAT)** and **dwelling time** (the time a vessel spends at a specific port or terminal), both of which have reduced considerably.
- The improvement is the result of investments made in the ports and upgradation of shipping infrastructure. PPP projects have helped through the increased operational efficiencies.
- There has been fourteen-fold increase in the use of renewable energy in Major Ports over the last eight years. Government **policies in the port and shipping** that have helped enhance 'Ease of Doing Business', and take India towards achievement of objectives laid down in the Maritime India Vision, 2030.

The policies are namely:

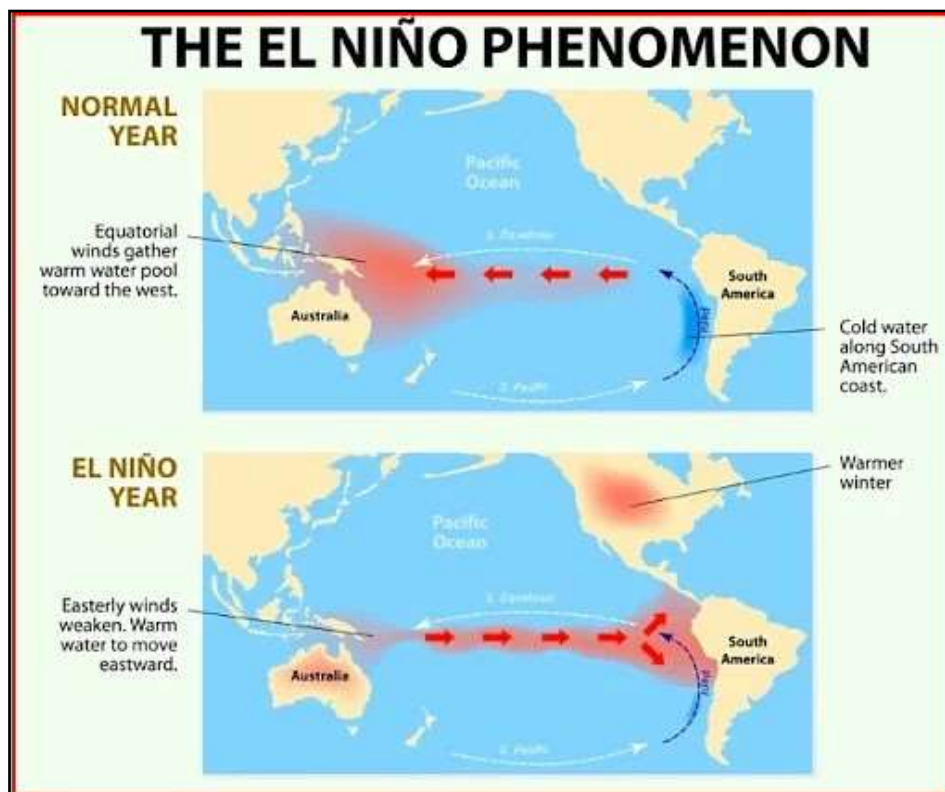
- Sagar Setu – National Logistic Portal – Marine– It is a Single Window Digital Platform for all stakeholders including Cargo Services, Carrier Services, Banking and Financial Services and those related to regulatory and participating Government Agencies.
- Sagar Setu App– The application facilitates seamless movement of goods and services in the Ports Major Port Authorities Act, 2021 which grants greater autonomy to the major Ports thereby enhancing the flexibility in decision making Marine Aids to Navigation Act, 2021 provides for increased safety and efficiency in Vessel Traffic Services, Training and Certification at par with International standards. Similarly, the Indian Vessels Act, 2021 facilitates integrated vessel movement through our waterways, both inland and coastal, by bringing in uniformity in law and having standardised provisions across States.
- NICDC Logistics Data Services (**NLDS**) Limited applies radio frequency identification tags to containers and offers consignees end-to-end tracking of their supply chain.
- NLDS is a joint venture between the Government of India represented by National Industrial Corridor Development and Implementation Trust (**NICDIT**) and **Japanese IT major NEC Corporation**, with 50:50 equity participation.
- Comes under the Department of Industrial Policy and Promotion (DIPP) The Indian Ports Act, 1908 is being considered for repeal and to be replaced by a new act that is aligned with modern day shipping.

Non shipping logistic initiatives that have improved performance:

- **PM Gati Shakti National Master Plan** for multimodal connectivity launched in 2021 to reduce logistics cost and boost the economy
- **National Logistics Policy (NLP)** launched in 2022 to ensure quick last-mile delivery, end transport-related challenges, save time and money of the manufacturing sector and ensure desired speed in the logistics sector.

Topic 15. EL NINO IS HERE, COULD CAUSE MORE DAMAGE DEPENDING ON ITS STRENGTH THIS WINTER: NOAA

Important for the subject :Geography



El Nino refers to the large-scale ocean-atmosphere climate interaction linked to periodic warming in sea surface temperatures across the central and east-central Equatorial Pacific. It is associated with high pressure in the western Pacific. El Nino, the warm phase of a recurring climate pattern associated with the warming of the ocean surface temperatures in the central and eastern tropical Pacific Ocean, has arrived, according to the National Oceanic and Atmospheric Administration (NOAA).

- El Nino occurs every two-seven years. Its impacts can be felt far and wide. The climate pattern is known to cause severe droughts over Australia, Indonesia, and parts of southern Asia and bring rainfall in parts of southern South America, the southern United States, the Horn of Africa and central Asia.
- El Nino adversely impacts the Indian monsoons and hence, agriculture in India. El Nino was expected to strike this year. In May 2023, the World Meteorological Organization predicted that there was a 60 per cent chance of an El Nino during May-July 2023. The likelihood, it added, could further rise to about 70 per cent in June-August and 80 per cent between July and September.
- Also, May 2023 was statistically tied as the second warmest May on record globally. La Nina, a climate pattern associated with the cooling of surface-ocean water along the tropical west coast of South America, ended its three-year-run in 2023.
- El Nino could cause more warming. The hottest year on record was 2016, during a particularly strong El Nino.
- El Nino adds some extra heat to the atmosphere, it's possible that Earth's rising temperature will temporarily exceed the 1.5°C threshold of the Paris agreement sometime after the peak of El Nino in 2024. La Nina, a climate pattern associated with the cooling of surface-ocean water along the tropical west coast of South America, ended its three-year-run in 2023.

Topic 16. CYCLONES COULD'VE BEEN A RARITY IN THE ARABIAN SEA HISTORICALLY; BUT NOT STORMS, SAYS HISTORIANS

Important for the subject :Geography

The Arabian Sea is witnessing **Cyclone Biporjoy**. The **fourth-strongest cyclone** that occurred in June in the Sea, is expected to make landfall around June 14. It follows **Cyclone Vayu (2019)**, **Cyclone Nisarga (2020)** and **Cyclone Tauktae (2021)**, all of which occurred off the west coast of India.

Increased frequency of cyclones in Arabian sea:

- A 2021 study had noted a 52 per cent increase in the frequency of cyclonic storms on the west coast of India.

Tracing the storms through historical literary evidence:

- One simple indicator was to see how many fewer shipwrecks there are in the Arabian Sea compared with the Bay of Bengal. **Ibn Majid**, an Arab navigator, had mentioned several storms in his treatises. Shipwrecks due to storms are mentioned in **Jataka stories**.
- A lot of caves in the **western Deccan** were where **Avalokiteshwara, the Buddhist Bodhisattva**, was worshipped, especially by merchants and sailors because he was believed to protect them from shipwrecks.
- **The Periplus of the Erythraean Sea** and a lot of Arabic accounts are also very careful about the **windows for appropriate travel in the Arabian Sea** because at some points the monsoon blows faster and sometimes slower.
- It was also a time when ships were more delicate than they are now. So obviously sailors would be concerned about any adverse weather activity in the **Arabian Sea** and not just necessarily cyclones.
- **Medieval Warm Period** which began in the **ninth century** and continued till the **12 century** or so. That is when the Indian Ocean was a bit warmer resulting in drier summers and more sustained monsoons. But it was not anywhere near the scale of the global warming being witnessed today.
- That led to an increase in commercial activity across the Indian Ocean by Fatimid Egypt, the Cholas in India and the Song Dynasty in China, on the other side of the ocean. The Songs exchanged embassies with the Cholas.

Topic 17. WHAT IS HAPPENING TO ARCTIC SEA ICE?

Important for the subject: Geography

A recent study says that the **loss of Arctic sea ice** is inevitable in the decades ahead, even if the world somehow gets its act together and sharply reduces carbon emissions.

Why is the Arctic sea ice important?

- It influences the global climate and the rise and fall in Arctic sea temperatures. It reflects more sunlight back to space than liquid water, thus playing a vital role in keeping **polar regions cool and maintaining the earth's energy balance**.
- **Sea ice** also keeps the air cool by forming a barrier between the cold air above and the relatively warmer water below. **As the amount of sea ice decreases, the Arctic region's**

cooling effect is reduced, and this may initiate a **'feedback loop'** whereby ocean warming caused by more absorption of solar energy leads to an even greater loss of sea ice and further warming.

Impact of changes in sea ice:

- **Positive impact:** Presents “commercial and economic opportunities” with the opening up of shipping lanes and increased access to natural resources in the Arctic region.
- **Negative impact:** It can affect biodiversity and impact mammals such as polar bears and walrus, which rely on the presence of sea ice for hunting, breeding, and migrating.
- It also affects the traditional subsistence hunting lifestyle of indigenous Arctic populations such as the Yup'ik, Inupiat, and Inuit

What does the new study say?

- The world will see its first **'sea-ice-free summer'** before 2050. The global emissions will drive temperatures to beyond 4.5°C making the Arctic ice free by 2081-2100.
- There is no scenario under which the Arctic sea ice can be saved in summer. Moreover, if drastic reductions in emissions aren't undertaken, we could very well be seeing the first such summer in the 2030s.

Consequences:

- The diminished sea ice while warming the Arctic also **leads to a weakening of the polar jet streams**, which are currents of air that form when warm and cold air meet.
- This weakening has been **linked to rising temperatures and heat waves in Europe as well as unseasonal showers in northwest India**. While the **ice-free summer** may be inevitable, reducing carbon emissions might mean being better able to adapt to climate **'tipping points.'**

Topic 18. MIZORAM'S CHITE LUI RIVER IS CRYING FOR HELP

Important for the subject: Geography

The ChiteLuiriver is getting polluted due to waste generated from the eateries and garages.

ChiteLui River:



- Situated in an alluvial valley at an altitude of about **1,000 meters**, the river originates from the **Bawngkawn ranges in north Aizawl** and flows for **around 20 km** in eastern Aizawl before joining **River Tuirial** at the southern end of the city.

The river has turned into a dumping ground due to:

- Unplanned urbanization and encroachments Business establishments situated close to the river. The river serves as a dumping ground for several houses and shops located nearby.

Efforts to save ChiteLui:

- Zoram Research Foundation, a non-profit organisation working for traditional water management in Mizoram, began an initiative to save the river in 2007.

• A **plastic road- the first in the state**– was also constructed last year from the polythene waste retrieved from the river at Reiek village.

- In Mann ki Bat, the Prime minister praised the Save ChiteLui action plan to save the river that had been turned into a landfill.

Topic 19. CONSTRUCTION OF TWIN TUNNELS BENEATH SOUTHERN RIDGE: SUPREME COURT COMMITTEE RECOMMENDS APPROVAL

Important for the subject: Geography

The **Central Empowered Committee (CEC)** of the **Supreme Court** has recommended for approval the construction of underground **twin tunnels** beneath the **southern ridge** in **Delhi**, a protected forest area.

Details:

- The project will involve the felling of around **685 trees on non-forest land**, and trees in the ridge area are not expected to be affected, according to the **National Highways Authority of India's (NHAI)** proposal for the tunnels. The **twin tunnels** are expected to be around **4.3 km long**, and around **30 m wide**.
- It will cover an area of **5.82 hectares** under the southern ridge, which is notified as a **reserved forest**, and **one hectare** under what is '**deemed**' forest, or an area that has not been notified but is recorded as forest.
- The tunnels will cover a length of around **2.03 km** under the ridge. The Ridge is an extension of the Aravallis, and parts of it have been notified as a reserved forest.

About Delhi ridge:

- **Delhi Ridge**, sometimes simply called **The Ridge**, is a ridge in the **Northern Aravalli leopard wildlife corridor** in the **National Capital Territory of Delhi in India**. It is a **northern extension** of the **ancient Aravalli Range**, some **1.5 billion years old** (by comparison, the Himalayas are "only" 50 million years old).
- The ridge consists of **quartzite rocks** and extends from the **southeast at Tughlaqabad**, near the **Bhatti mines**, branching out in places and tapering off in the north near Wazirabad on the west bank of the river Yamuna, covering about 35 kilometers.
- The **Ridge** acts as the "**green lungs**" for the city, and **protects Delhi from the hot winds of the deserts of Rajasthan to the west**. It has also enabled Delhi to be the **world's second most bird-rich capital city, after Kenya's Nairobi**.
- Though modest in height, the ridge acts as a **watershed** dividing the Indus Plain to the west from the Gangetic Plain to the east, within the Indo-Gangetic Plain.

Southern ridge:

- **Southern Ridge** sprawls across **6200 hectares** and includes the **Asola Bhatti Wildlife Sanctuary, Bandhwari** and **MangarBani forests**. This is the least urban of the 4 segments of the Ridge, but a lot of it is villageowned or privately owned farmland.

Topic 20. WHERE ARE THE WORLD'S WATER STRESSES?***Important for the subject: Geography***

There is a contentious domestic debate over water supplies. Disruptions to water supply or perceived misuse can cause immediate social unrest, and countries like U.S., Australia, Iran and France have seen violent protests regarding water recently.

Details:

- Constant and affordable access to fresh water is recognized as a basic human right by the UN. Freshwater provides a foundation for life and is also crucial for industry and manufacturing, energy production, agriculture, sanitation, and other essential societal functions.

Threat to water availability:

- Desertification, climate change, man-made water diversion, dam building, pollution, and overuse have seen rivers, lakes, and aquifers dry up.

Poor water management and infrastructure:

- **In Iraq, up to 14.5 per cent** of the country's water is lost to evaporation and two-thirds of its treated water is lost due to leaks and poor infrastructure. Up to 25 to 30 per cent of **South Africa's water** is lost to leaks, while even in many industrialized countries, up to 15 to 20 per cent of water supply is lost.

Water inequality:

- In **South Africa**, 14 per cent of the population has been found to be responsible for more than half of the freshwater use. Across Africa, one in three people already faces water scarcity, where "the availability of natural hygienic water falls below 1,000 m³ per

person per year.”

Water privatization:

- Monetization has even seen countries like **Fiji, the world’s 4th-largest water exporter in 2021**, face water supply shortages over the last few years.

Water contamination:

- Contamination can lead to longer-term damage to public faith in water infrastructure.

Water security:

- The **US** and **Mexico** have historically competed over water rights to both the Colorado River and the Rio Grande. Tension between Iran and Iraq over Tigris and Euphrates rivers and their tributaries. Relations between **Egypt, Sudan, and Ethiopia** have similarly deteriorated since the latter began construction of the **Grand Ethiopian Renaissance Dam (GERD)** in **2011**.

Water desalination:

- A desalination plant turns salt water into water that is fit to drink. **Desalination** is the process of removing salts from water to produce water that meets the quality (salinity) requirements of different human uses.
- The most commonly used technology for the process is **reverse osmosis**. **External pressure** is applied to push solvents from an area of high-solute concentration to an area of low-solute concentration through a semipermeable membrane.
- The microscopic pores in the membranes allow water molecules through but leave salt and most other impurities behind, releasing clean water from the other side.
- These plants are mostly set up in areas that have access to seawater. Although **seawater desalination** remains expensive and energy-intensive, it is becoming more efficient and widespread.
- In **Saudi Arabia**, **50 per cent of the country’s water needs are met by desalination**, while **Egypt** plans to open dozens of new desalination plants in the coming years.
- Currently, **70 per cent of the world’s desalination plants are found in the Middle East**.

Advantages of Desalination Plants:

- It can extend water supplies beyond what is available from the hydrological cycle, providing an “**unlimited**”, **climate-independent** and **steady supply of high quality water**. It can provide drinking water in areas where **no natural supply of potable water exists**.
- As it generally meets or exceeds standards for water quality, water desalination plants can also reduce pressure on freshwater supplies that come from areas (over exploited water resources) that need protection.
- **Disadvantages of Desalination Plants: Costly** to build and operate desalination plants as the plants require huge amounts of energy.
- **Energy costs account for one-third to one-half** of the total cost of producing desalinated water. Because energy is such a large portion of the total cost, the cost is also greatly affected by changes in the price of energy.
- The environmental impact is another disadvantage to water desalination plants. Disposal of the salt removed from the water is a major issue.
- This discharge, known as brine, can change the salinity and lower the amount of oxygen (Hypoxia) in the water at the disposal site, stressing or killing animals not used to the higher levels of salt.
- In addition, the desalination process uses or produces numerous chemicals including chlorine, carbon dioxide, hydrochloric acid and anti-scalents that can be harmful in high concentrations.

Topic 21. CHINA’S RISE AS A SPACE POWER

Important for the subject: Science and Technology

Three astronauts working at China’s space station returned to Earth on Sunday (June 5), state media reported, hailing their six-month-long mission as a “complete success”. The astronauts have been **replaced by the crew of Shenzhou 16 spacecraft**, which was launched on May 29 and docked at the space station the following day.

As per the China Manned Space Agency (CMSA), the returning astronauts — FeiJunlong, Deng Qingming and Zhang Lu — touched down in their Shenzhou 15 spacecraft return capsule at the Dongfeng landing site. They had travelled to China’s new Tiangong space station in November 2022, and carried out four extravehicular activities (EVA), or spacewalks, during their stay, thus becoming the crew to accomplish the most EVAs of all

Chinese crews to date.

Shenzhou 16 Mission

- The **successful completion of the Shenzhou 15 mission and the glitch-free launch of Shenzhou 16 underscore China's rapidly growing space program.**
- This important mission marked the fifth manned mission to the Chinese space outpost since 2021, underscoring China's commitment to advancing its space program.
- The **Shenzhou 16 crew, which includes China's first civilian** who has gone into space, has taken over the operations of the Tiangong space station.
- The astronauts will conduct large-scale in-orbit tests and experiments in various fields, including studies related to quantum phenomena, space time-frequency systems, general relativity, and the origins of life.

How has China's space program evolved?

- The roots of China's space ambitions go back to 1957 when the Soviet Union successfully launched the world's first artificial satellite, Sputnik-1, into space. That year, Chairman Mao Zedong declared China would also launch its own satellite.
- **China's first major milestone came in 1970 when it launched its first artificial satellite, Dong Fang Hong 1,** from the Jiuquan launch centre in the northwestern province of Gansu.
- Although the satellite wasn't technologically sophisticated, it made China the fifth country to send a satellite into orbit after the Soviet Union, the US, France and Japan.
- Buoyed by the success of Dong Fang Hong 1, China announced plans to send two astronauts into space by 1973 — the **program, known as 'Project 714'**, it was officially adopted in 1971. The program, however, had to be cancelled as the political turmoil of the Cultural Revolution (1966-1976) played out.
- By the 1980s, China began launching satellites on a regular basis, and entered the commercial market, offering to send satellites into space for companies and other countries for much cheaper than the US.
- In 1992, **China announced Project 921,** a program to launch and return to Earth a crewed spacecraft.
- This goal was achieved in 2003, when **China became the third country after the US**

and Russia to use its own rocket to send a human into space: astronaut Yang Liwei spent about 21 hours in space aboard the Shenzhou-5 spacecraft.

- **China's Mars rover** China sent its first rover, known as **Zhurong**, to Mars in 2020. However, has been in hibernation since last May due to an “unpredictable accumulation” of dust.
- A string of successes followed. China sent a rover to Mars in 2020, accomplished a soft landing on the far side of the Moon in 2019 and collected and brought back to Earth samples from the lunar surface.
- In **November 2022, China finished the Tiangong space station**, which it had begun building in 2011. The space station currently has three modules, and can support three astronauts, or up to six people during crew rotations.
- It carries several pieces of cutting-edge scientific equipment including, according to the state news agency Xinhua, “the world’s first space-based cold atomic clock system”.
- It is **possible that once the multi-agency International Space Station (ISS) reaches the end of its operations in 2030, Tiangong will be the sole in-orbit outpost for scientific research.**

What space missions has China planned for the future?

- In January 2022, **China published ‘Perspective’, which showcased its major achievements in the space sector since 2016**, and laid out the roadmap for upcoming space missions.
- It said, “In the next five years, **China will integrate space science, technology and applications** while pursuing the new development philosophy, building a new development model and meeting the requirements for high-quality development. It will start a new journey towards a space power.”
- Among several ambitious future projects, the one that stands out is its goal **to land astronauts on the Moon before 2030**. Another important Chinese project involves building a **base on the Moon in collaboration with Russia**.
- **International Lunar Research Station (ILRS) will be constructed “on or close to the South pole of the Moon**, with long-term and short-term crew missions planned for the early 2030s”.
- Other future missions include expanding the Tiangong space station, **sending another**

probe to Mars, and eventually sending probes to Jupiter and Saturn.

Topic 22. UNESCO TO DEVELOP AN ETHICAL FRAMEWORK ON NEUROTECH DEVICES

Important for the subject: Science and Technology

Dimensions	Application examples	Ethics concerns
Goal or Intended Outcome:	A. Prevent epileptic seizure B. Stop Parkinson's tremor	Explainability + Trust Control + Value Fairness Transparency Well-being Accountability
Design	Building and planning for the closed loop device	Fairness Accountability Well-being
Method	A. Predict an imminent seizure and deliver B. Predict or observe the worsening of a tremor or dyskinesia	Transparency Explainability + Trust Well-being Fairness
Patient interaction	Entering and continuing in a clinical trial	Data issues Fairness
Feedback and Impact	Patient: "My symptoms are better, and my quality of life is improved, but I don't feel like myself. It is hard to explain."	Human identity Explainability + Trust Impact on Society Fairness Control + Value Alignment Well-being Accountability

The diagram illustrates a neurotech system. A central box labeled 'Neurotech' is connected to four main components:

- Neurosensing: neurodata is recorded**: A box listing concerns: Mental privacy, Accuracy, Security, Data issues, Fairness, Profiling.
- AI**: A box listing concerns: AI learns neurosignals to: A. predict seizure, or B. identify tremor intensity; Mental privacy, Accuracy, Security, Data issues, Fairness, Profiling.
- Neuromodulation: neurostimulator changes neural signals**: A box listing concerns: Human agency and autonomy, Accuracy, Security, Data issues, Accountability, Fairness, Manipulation.
- Neurotech**: A central box representing the integration of these elements.

 Arrows indicate the flow of data and control between these components and a human head icon with a brain implant.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is all set to host an international conference to develop an ethical framework for the usage of neurotech devices that feed brain-wave data to computers through dry electrodes and implants.

- The **first-of-its-kind conference** hosted by the **UN body** will be held on **July 13, 2023**, at **UNESCO headquarters in Paris, France**.
- The dialogue will invite senior officials, policymakers, academics, civil society organizations and the private sector to address concerns regarding individual freedom of thought and privacy.

- **UNESCO** strives to develop a framework similar to the established **global ethical frameworks on the human genome (1997), human genetic data (2003) and artificial intelligence (2021)**.

Aim of the conference:

- To lay the foundation for a **global ethical framework**. It will be **guided by** a report by **UNESCO's International Bioethics Committee on the "Ethical Issues of Neurotechnology"**.

Objective of the conference:

- To discuss solutions to neurological problems with the help of neurotechnology while simultaneously assessing the threats it poses to human rights and fundamental freedoms.

Neurotechnology:

- **Neurotechnology encompasses** any method or **electronic device** which interfaces with the **nervous system** to monitor or modulate neural activity. **Common design goals** for neuro technologies include using **neural activity readings to control external devices** such as **neuro prosthetics, altering neural activity via neuromodulation to repair or normalize function affected by neurological disorders, or augmenting cognitive abilities**.
- In addition to their therapeutic or commercial uses, neuro technologies also constitute powerful research tools to advance fundamental neuroscience knowledge.
- **Some examples of neuro technologies** include **deep brain stimulation, photo stimulation based on optogenetics and photo pharmacology, transcranial magnetic stimulation, and brain-computer interfaces, such as cochlear implants and retinal implants**.

Major issues associated with neurotechnology:

- Neurotechnology could help solve many health issues, but it could also **access and manipulate people's brains, and produce information about our identities, and our emotions**.
- It could threaten our rights to human dignity, freedom of thought and privacy

Deep brain stimulation (DBS):

- **Deep brain stimulation (DBS)** is approved to treat a number of conditions, such as **Parkinson's disease, essential tremor, dystonia, epilepsy and obsessive-compulsive disorder.**
- **DBS** is also being studied as a potential treatment for major depression, traumatic brain injury, stroke recovery, addiction, chronic pain, cluster headache, dementia, Tourette syndrome, Huntington's disease and multiple sclerosis.

Possible side effects of DBS

- Complications of DBS fall into **three categories:** Surgery complications, hardware (device and wires) complications and stimulation-related complications.

Topic 23. INDIAN ARMY'S AIR DEFENCE WIDENS WINGS*Important for the subject: Science and technology*

The **Indian Army's reorientation** from the **western borders** to the northern borders in the aftermath of the **2020** standoff with China, along with lessons from the ongoing war in Ukraine, are impacting the ongoing transformation of the **Army Air Defence (AAD).**

Army Air Defence (AAD):

- The **Army Air Defence** — called **Air Defence Artillery till 2005** — has been in existence since **1940**, though its ground-based air defences have increasingly moved to the Air Force. The modernisation of the AAD has stagnated post-1996.
- **Army Air Defence (AAD)** has the responsibility of providing Point Air Defence to the national strategic assets like nuclear plants, oil refineries, military airbases, military-industrial complexes, communication nodes, logistic nodes, gun areas, surface-to-surface missiles and so on.

Project Akashteer:

- A range of new systems, mostly indigenous, are being inducted under **Project Akashteer** which will build a comprehensive air defence picture for the monitoring, tracking and shooting of air defence assets.
- This will **link all the radars and control centers of AAD** and consolidate the air defence

picture, removing duplications or overlaps and also integrating all the weapons.

- The air defence requirements on the northern borders are different from the western front; the need is for **lightweight radars** and **weapon systems with mobility** for deployment in the mountains while catering to the infantry's requirements.
- The war in Ukraine has also changed the requirements, forcing the army to factor in new threats to air defence such as **unmanned aerial vehicles or UAVs, loitering munitions, swarm drones and cruise missiles.**

Man-Portable Air Defense System (MANPADS):

- The Ukraine conflict has shown that **Man Portable Air Defence Systems (MANPADS)** are highly effective when in range with night vision enabled.
- **Man-Portable Air-Defence Systems** are **short-range, lightweight and portable surface-to-air missiles** that can be fired by individuals or small groups to destroy aircraft or helicopters.
- They help **shield troops from aerial attacks** and are most effective in targeting **low-flying aircrafts.**
- **MANPATs** or **Man-Portable Anti-Tank Systems** work in a similar manner but are used to destroy or incapacitate military tanks.
- **MANPADS** can be **shoulder-fired**, launched from atop a ground vehicle, fired from a tripod or stand, and from a helicopter or boat.

Features

- Weighing anywhere between **10 to 20 kilograms** and not being longer than **1.8 meters.** They are **fairly lightweight** as compared to other elaborate weapon systems, making them easy to operate by individual soldiers.

Operating MANPADS requires substantially less training.

- **MANPADS** have a **maximum range of 8 kilometers** and can **engage targets at altitudes of 4.5 km.**
- Most **MANPADS** have passive or **'fire and forget' guidance systems**, meaning the operator is not required to guide the missile to its target, enabling them to run and relocate immediately after firing.
- The missile stays locked on to the targeted object, not requiring active guidance from the

soldier.

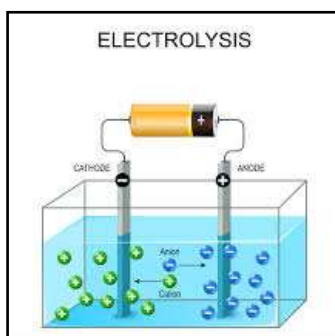
- The missiles are fitted with **Infrared (IR)** seekers that identify and target the airborne vehicle through heat radiation being emitted by the latter.

Akash surface-to-air missile systems

- **Akash** is India's first indigenously produced medium range SAM that can engage **multiple targets** from multiple directions and it can be launched from mobile platforms like battle tanks or wheeled trucks. It has a nearly **90% kill probability**.
- The development of the Akash SAM was started by the DRDO in the late 1980s as part of the **Integrated Guided Missile Development Program**. It is unique in the way that it can simultaneously engage multiple targets in group mode or autonomous mode.
- It has built-in Electronic Counter-Counter Measures (ECCM) features, which means that it has mechanisms on-board that can counter the electronic systems that deceive the detection systems.
- The missile is supported by the indigenously developed **radar** called '**Rajendra**'.
- It can engage targets at a **speed 2.5 times more than the speed of sound** and can detect and destroy targets flying at low, medium and high altitudes. The missile is reportedly cheaper and more accurate than US' Patriot missiles due to its solid-fuel technology and high-tech radars.

Topic 24. ELECTROLYSIS

Important for the subject: Science and technology



Electrolysis is defined as a **process of decomposing ionic compounds into their elements by passing a direct electric current** through the compound in a fluid form.

- The cations are reduced at the cathode, and anions are oxidized at the anode. The main

components that are required to conduct electrolysis are an electrolyte, electrodes, and some form of external power source is also needed.

- Additionally, a partition, such as an ion-exchange membrane or a salt bridge, is also used, but this is optional. They are used mainly to keep the products from diffusing near the opposite electrode. An acidified or salt-containing water can be decomposed by passing an electric current to its original elements, hydrogen and oxygen. Molten sodium chloride can be decomposed into sodium and chlorine atoms.

Electrolysis Process

- Electrolysis is usually done in a vessel named '**electrolytic cell**' containing two electrodes (cathode and anode), connected to a direct current source and an electrolyte which is an ionic compound undergoing decomposition, in either molten form or in a dissolved state in a suitable solvent.
- Generally, **electrodes that are made from metal, graphite and semiconductor materials** are used. However, the choice of a suitable electrode is done based on the chemical reactivity between the electrode and electrolyte as well as the manufacturing cost.

Electrolysis Applications

- Electrolysis, as stated above, is a process of converting the ions of a compound in a liquid state into their reduced or oxidized state by passing an electric current through the compound. Thus, electrolysis finds many applications, both in experimental and industrial products.

Some of the important ones are given below:

- Determination of equivalent weight of substances.
- Metallurgy of alkali and alkaline earth metals.
- Purification of metals.
- Manufacture of pure gases.
- Manufacture of compounds like sodium hydroxide, sodium carbonate, potassium chlorate etc.
- Electroplating for corrosion resistance, ornaments etc.

Topic 25. IN DEFENCE OF THE ANNOYING FRUIT FLY A TEST BED FOR GENETIC RESEARCH

Important for the subject: Science and technology

Thousands of neuroscientists use fruit flies to study learning, memory, sleep, aggression, addiction and neural disorders – not to mention cancer and ageing, processes of development, the gut microbiome, stem cells, muscles and the heart

Diptera

- Flies and mosquitoes both belong to Diptera, the group of insects that have only two wings. The Order Diptera (true flies) includes many common insects such as mosquitoes, midges, sand flies, blowflies and the House Fly.
- Most of the insects we see flying around do so with four wings (two pairs), but dipterans (meaning ‘two wings’) use only one pair. The other pair of wings is reduced to club-like structures known as ‘halteres’ that they use for balance.

Common characteristics of the order include:

- One pair of wings (forewings) Hindwings reduced to club-like halteres A large and moveable head Compound eyes that are often very large Sucking, piercing and sucking or sponge-like mouthparts (all adapted for a liquid diet)
- The mesothorax (middle segment of the thorax or mid-body) is enlarged, with the prothorax and metathorax small Complete metamorphosis, with larvae (maggots) that are always legless, with chewing mouthparts or mouth-hooks, and that often pupate within a hardened case (puparium)

The fruit fly or vinegar fly (*Drosophila melanogaster*)

- The **species *Drosophila*** was first mentioned by German entomologist Johann Meigen in 1830 and has since earned a celebrity status among scientists.
- It has become the best-understood animal organism on the planet and a power house of modern medical research.
- ***Drosophila melanogaster*** has been used as a model organism for over a century. Mutant-based analyses have been used extensively to understand the genetic basis of different

cellular processes, including development, neuronal function and diseases.

Helping science

- Morgan was not the first to work with *Drosophila*. But his idea to harness the fly's cheap husbandry (pieces of banana kept in milk bottles), and rapid reproduction (one generation in about ten days; about 100 eggs per female per day) would make it possible to study evolution in the laboratory.
- His mass-breeding experiments with hundreds of thousands of flies led to the discovery of a single fly with white eyes, instead of the red eyes fruit flies normally have. Morgan and his team's subsequent studies of its white-eyed progeny revealed that genes can mutate and are arranged into orderly and reproducible maps on chromosomes (a long DNA molecule). It led to an **understanding of how genetic disease is inherited**.
- In the 1940s, scientists, including George Beadle and Edward Tatum, established that some gene codes for proteins can facilitate chemical reactions and produce the molecules needed in cells.
- Scientists can study mutant defects, even if the eggs never hatch, which can then inform us about the normal function of the affected gene.
- These kinds of genetic studies of *Drosophila*, combined with emerging technologies, such as gene cloning, helped us understand how gene networks can determine the development of a body and how they can sometimes cause inherited disorders.

A startling likeness

- The common ancestor that founded the evolutionary lines of flies and humans, half a billion years ago, appears to have been equipped with biology so well-designed that many of its aspects are still maintained, such as mechanisms of growth or neuronal function.
- Because we are so alike genetically, many aspects of human biology and disease have been explored first in *Drosophila*. Meanwhile, research on fruit flies is fast, cost-effective and extremely versatile. It's ideal for scientific discoveries.
- It is used by neuroscientists for studying learning, memory, sleep, aggression, addiction and neural disorders. Not to mention cancer and ageing, processes of development, the gut micro biome, stem cells, muscles and the heart.

Topic 26. CHINA COULD HAVE AS MANY ICBMS AS U.S. OR RUSSIA BY TURN OF DECADE: THINK TANK

Important for the subject: Science and technology

The nine nuclear-armed states, including the US, Russia, the UK, France, China, India and Pakistan, continue to modernise their nuclear arsenals, leading Swedish think-tank SIPRI said on Monday.

Several nuclear-armed states deployed new nuclear-armed or nuclear-capable weapon systems in 2022, the **Stockholm International Peace Research Institute (SIPRI)** said in its **yearbook**.

What are ICBMs?

- An **intercontinental ballistic missile (ICBM)** is a missile with a minimum range of **5,500 kilometres** primarily designed for nuclear weapons delivery.
- Conventional, chemical and biological weapons can also be delivered with varying effectiveness, but have never been deployed on ICBMs.

Important International Convention

- ICBMs are differentiated by having greater range and speed than other ballistic missiles.
- The International Code of Conduct against Ballistic Missile Proliferation (ICOC), now known as The Hague Code of Conduct against Ballistic Missile Proliferation (HCOG), is a political initiative aimed at globally curbing ballistic missile proliferation.
- India is a signatory to this convention. Established in April 1987, the voluntary Missile Technology Control Regime (MTCR) aims to limit the spread of ballistic missiles and other unmanned delivery systems that could be used for chemical, biological, and nuclear attacks.

India has joined the MTCR in 2016.

Countries that have ICBMs:

- India, Russia, the United States, North Korea, China, Israel, the United Kingdom, and France.

Topic 27. INDIA AND U.S. REVIEW EXPORT CONTROL REGULATIONS

Important for the subject: International Relations

During the **inaugural India-U.S. Strategic Trade Dialogue (IUSSTD)**, India and the U.S. committed to streamlining their export control systems for critical technologies.

- The talks took place in anticipation of Prime Minister Narendra Modi's visit to Washington, where several high-technology partnerships, including a deal involving GE-414 jet engine sales to India, are expected to be finalized. The meeting focused on ways in which both governments can facilitate the development and trade of technologies in critical domains such as semiconductors, space, telecom, quantum, AI, defence, biotech and others.
- The **dialogue is a key mechanism to take forward the strategic technology and trade collaborations** envisaged under the **India-US initiative on Critical and Emerging Technologies (iCET)**.
- Both sides also reviewed their respective export control regulations with the goal of establishing resilient supply chains for these strategic technologies.

About the U.S.-India initiative on Critical and Emerging Technology (iCET):

- It was launched by the US President and Indian Prime Minister on the sidelines of the Quad summit on May 2022.
- **Goal: To elevate and expand Indo-U.S. strategic technology partnership and defense industrial cooperation** between the governments, businesses, and academic institutions of the two countries.
- The initiative will be **spearheaded by the National Security Council Secretariat in India and the US National Security Council**.
- The initiative would help forge links between the government, academia, and industry in areas such as AI, quantum computing, 5G/6G, biotech, space, and semiconductors.
- Under iCET, the two sides have identified six focus areas of co-development and co-production: strengthening innovation ecosystems; defense innovation and technology cooperation; resilient semiconductor supply chains; space; STEM (science, technology, engineering, and math) talent; next-generation telecom.

Topic 28. MAZAGON DOCK AND GERMAN FIRM STRIKE DEAL ON SUBMARINES

Important for the subject: International Relations

Germany and India are closing in on a deal to build diesel submarines for Indian waters as Russia's prolonged war in Ukraine has pushed the Indian government to expand its sources of military hardware beyond its top supplier, according to a report by Bloomberg.

The preliminary agreement or the memorandum of understanding will be signed in the presence of Defense Minister Boris Pistorius who arrived in New Delhi on June 5 for a two-day visit, according to German and Indian officials.

P-75 India Project:

- The P-75 India project is a significant Make in India program to strengthen the Indian Navy's undersea capabilities.
- Germany expressed enthusiasm for participating in the P-75I competition and building submarines in India.

Bilateral Defense Cooperation:

- Both countries reviewed ongoing defense cooperation and discussed ways to enhance collaboration, particularly in defense industrial partnerships. Germany's participation in P-75I was welcomed by the Indian side.

Strategic Partnership Model:

- The SP model involves indigenous manufacturing of major defense platforms in India with a foreign original equipment manufacturer (OEM).
- German company ThyssenKrupp Marine Systems (TKMS) is in the race to secure the submarine-building contract.

Foreign Participants:

- In January 2020, two Indian shipbuilders (Mazagon Dock Shipbuilders Limited and L&T) and five foreign shipbuilders (including TKMS) were cleared to participate in P-75I.
- France's Naval Group and Russia's Rubin Design Bureau withdrew from the competition,

making TKMS a leading contender.

Timeline and Indigenization:

- P-75I has faced delays, but a memorandum of understanding (MOU) between TKMS and Mazagon Dock Shipbuilders is expected to be concluded during the visit. Submarines built under P-75I will have air independent propulsion (AIP) systems and a minimum of 45% indigenization in the first submarine, increasing to 60% in the sixth.

Future Prospects:

- If a contract is awarded to a contender, the first submarine will be delivered after a decade. India aims to operate a fleet of 18 new conventional submarines and six nuclearpowered submarines.

India-Germany Strategic Partnership:

- The countries have had a strategic partnership since 2000 and have strengthened ties through intergovernmental consultations.
- Defence Minister Singh highlighted opportunities for German investments in India's defense production sector and participation in defense industrial corridors.

Shared Goals and Complementarity:

- Singh emphasized the potential for a symbiotic relationship based on shared goals and complementarity of strengths. Germany expressed openness to selling submarines to India, emphasizing the importance of reducing India's dependence on Russian weapons.

Topic 29. NATO TO PUT UP BIGGEST AIR DEPLOYMENT EXERCISE

Important for the subject: International Relations

Germany is preparing to host the biggest air deployment exercise in NATO's history, a show of force intended to impress allies and potential adversaries such as Russia.

- The Air Defender 23 exercise starting next week will **see 10,000 participants and 250 aircraft from 25 nations respond to a simulated attack on a NATO member country.**
- **The United States alone is sending 2,000 U.S. Air National Guard personnel and about 100 aircraft to take part in the training maneuvers.**

- Germany's military has warned the huge air force drill will have an impact on people using civil airlines in Europe.
- While the exercise was planned for several years, **Russia's invasion of Ukraine in February 2022 has jolted NATO into preparing in earnest for the possibility of an attack on its territory.**
- **Sweden, which is hoping to join the alliance, and Japan are also taking part in the exercise.**

About Air Defender 23 exercise

- The **exercise will be held across Germany**, with some of the training taking place at Ramstein Air Base, which is one of NATO's largest air bases.

The exercise will focus on a variety of air defense and air interoperability topics, including:

- Airspace surveillance and control
- Air interdiction
- Air combat maneuvering
- Air refueling
- Command and control Logistics
- The exercise is being held in response to the increased threat posed by Russia following its invasion of Ukraine. The exercise is designed to demonstrate NATO's readiness to respond to any threat to its airspace.
- **Air Defender 2023 is a major undertaking, and it is a testament to the strength of the NATO alliance.** The exercise will help to ensure that NATO is ready to defend its airspace and its citizens in the event of any threat.

Topic 30. LOGISTICS PERFORMANCE INDEX

Important for the subject: International Relations



The **logistics performance Index** the Logistics Performance Index (LPI), developed by the **World Bank Group**, is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.

It measures the overall efficiency of the trade logistics performance of countries. It combines measurements from two components to arrive at a score:

- **Worldwide survey** of international logistics operators (from other countries)- They give a score based on the **logistics 'friendliness'** of the other country on the following parameters:
 1. Customs
 2. Infrastructure
 3. International shipments
 4. Logistics
 5. Tracking and tracing
 6. Timeliness

Granular high frequency information on maritime shipping and container tracking, postal and air freight activities.

Topic 31. IEA MEMBERSHIP OF INDIA

Important for the subject: International Relations

International Energy Agency (IEA) to review all its membership conditions for India's inclusion. (Comment by IEA Executive Director)

Why important for IEA?

- India's entry into IEA is likely to **boost global energy security** and also increase the IEA's **international leverage** in its dealings with the Organization of Petroleum Exporting Countries (OPEC) IEA has been trying to get **large energy consuming nations**, including India, China and Russia, which are **not OECD members** to act in concert to counter supply disruptions Energy and oil demand will increasingly come from non-OECD countries, leading to a **shift in geo-political interests**, thus making India's participation important.
- The high oil imports India is getting from Russia after the Russia-Ukraine war are a cause of concern for OECD countries like the US| UK.

Significance for India:

- IEA membership will help India present its point of view in international forums. With India's strong economic growth energy demand will also rise.
- Oil price policies have significance for growth of emerging market economies (EMEs) like India.
- US's **Inflation reduction Act** is a challenge for India where IEA could prove an appropriate forum to find a solution. (the subsidies are likely to distort capital allocation, and taxes hurt green transition efforts of other countries)

Why membership is a challenge for India?

- There are **two pre-conditions** for IEA **membership** that India currently does not fulfill.
- First is **membership in the OECD** (Organization for Economic Co-operation and Development), and Maintaining oil stocks equivalent to at least **90 days of net imports** (at present the capacity is around **74 days** of reserves)
- Further there will be expectations from the global energy industry that India will **implement much-needed reforms** in the energy industry in India.

- At present India is a IEA Association country. In 2021 India signed Framework for a Strategic Partnership committing to strengthening collaboration and engagement.

International Energy Agency

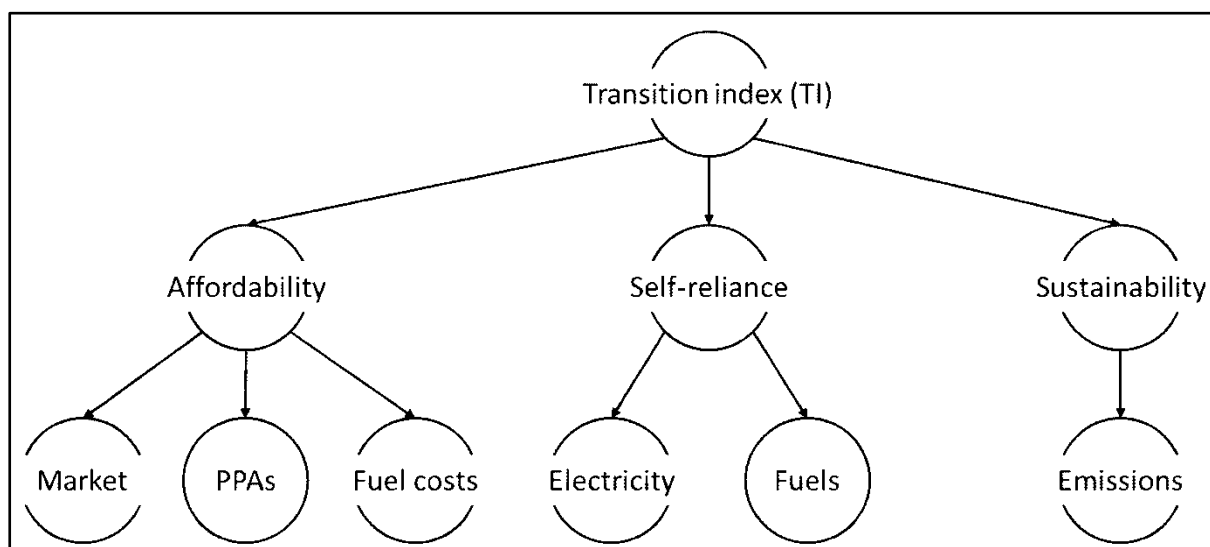
- International Energy Agency is a Paris-based autonomous intergovernmental organization, established in 1974, that provides policy recommendations, analysis and data on the entire global energy sector. The 31 member countries and 11 association countries of the IEA represent

The conditions to join IEA are:

- Being member of OECD.
- Reserves equivalent to 90 days of the previous year's net imports
- Legislation and organization to operate the **Co-ordinated Emergency Response Measures (CERM)** on a national basis;
- Legislation and measures to ensure that all oil companies under its jurisdiction report information upon request; Measures in place to ensure the capability of contributing its share of an **IEA collective action**. (in event of global supply disruption, each member contributes to oil supply in proportion of their consumption share.

Topic 32. HOW CAN WE TRANSITION TO A LOW-CARBON CITY?

Important for the subject: Environment



In the year 2020, an enormous amount of 29 trillion tonnes of carbon dioxide was released into the atmosphere by cities. Considering the substantial influence cities have on the environment, the presence of low-carbon cities becomes essential in order to alleviate the consequences of climate change.

- The process of transitioning towards cities with low carbon emissions, or even achieving net-zero emissions, necessitates the incorporation of mitigation and adaptation strategies across various sectors. This approach, known as the ‘sector-coupling approach’, is vital for reducing carbon footprints in urban systems.

Sector-coupling approach:

- It involves the **integration of different energy sectors, such as electricity, heating and cooling, transportation, and industry, to create a more efficient and sustainable energy system.**
- By coupling these sectors, low-carbon cities can optimize the use of renewable energy sources, such as solar and wind power, and better manage energy demand and supply.
- Energy storage technologies, such as batteries or thermal storage systems, can store excess renewable energy for later use during periods of high demand or when renewable energy generation is low.
- This decentralized approach enhances energy resilience, reduces transmission losses, and minimizes the need for fossil fuel-based backup power. Sector-coupling **emphasizes demand-side management and flexibility** to optimize energy consumption and reduce carbon emissions.

Significance of energy-system transitions:

- An energy-system transition has the potential to significantly decrease urban carbon dioxide emissions, potentially reaching a reduction of around 74%.
- Recent advancements in clean energy technologies, coupled with declining costs, have eliminated economic and technological obstacles, making it feasible to adopt low-carbon solutions. To achieve a successful transition, efforts should be focused on both the demand and supply sides.
- On the supply side, this involves phasing out fossil fuels, increasing the use of renewable energy sources, and implementing carbon capture and storage (CCS) technologies.

- On the demand side, employing the “avoid, shift, improve” framework entails reducing energy and material consumption, substituting fossil fuels with renewables, and addressing remaining emissions through the adoption of carbon dioxide removal (CDR) technologies.

Tailored strategies for different cities:

- The strategies for addressing low-carbon challenges differ based on the unique characteristics of each city, highlighting the need for customized approaches.
- Policymakers shall consider both social and environmental fairness, taking into account factors such as a city’s spatial structure, land use, development level, and degree of urbanization while formulating energy-transition policies.
- Established cities can enhance energy efficiency and encourage sustainable modes of transportation like walking and cycling by retrofitting and repurposing existing infrastructure.
- Rapidly growing cities can optimize their urban planning to reduce transportation energy demand by locating residential areas closer to places of work. These cities also have the opportunity to adopt low-carbon technologies, including renewable and carbon capture and storage, as they develop.

Ensuring equitable energy governance:

- The social and economic impacts of transitioning to renewable energy sources vary across different sectors and economies.
- A one-size-fits-all approach may lead to disproportionate effects on certain groups or communities. Therefore, issues such as energy security, urbanization, land dispossession, poverty concentration, gender disparities, and reliance on fossil fuel exports need to be considered.
- Developing economies heavily dependent on fossil fuel exports, like Nigeria and Venezuela, may face economic hardships during the transition. Developed countries also experience energy poverty and inequity, with high energy costs impacting low-income households’ ability to afford essential amenities.

Laws related to Pollution in India:

- **Article 21:** Environment is directly related with article 21 of Constitution of India which

deals with right to life of individual.

The two main laws that regulate air pollution in India:

- The Air (Prevention and Control of Pollution) Act, 1981 (Air Act) and Environment (Protection) Act, 1986 (EPA).

Government interventions:

- **System of Air Quality and Weather Forecasting and Research (SAFAR) Portal Air Quality Index:** AQI has been developed for eight pollutants viz. PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulphur dioxide, ozone, and carbon monoxide.

Graded Response Action Plan (for Delhi)

For Reducing Vehicular Pollution:

- BS-VI Vehicles, Push for Electric Vehicles (EVs), Odd-Even Policy as an emergency measure (for Delhi) New Commission for Air Quality Management Subsidy to farmers for buying Turbo Happy Seeder (THS) Machine for reducing stubble burning.

National Air Quality Monitoring Program (NAMP):

- Under NAMP, four air pollutants viz. SO₂, NO₂, PM₁₀, and PM_{2.5} have been identified for regular monitoring at all locations.

Topic 33. WORLD STILL OFF-TRACK FROM ACHIEVING UNIVERSAL ENERGY ACCESS TO ALL, SAYS UN REPORT

Important for the subject: Environment



Factors like high inflation, uncertain macroeconomic outlook and debt distress are keeping the world off-track for attaining United Nations-mandated Sustainable Development Goal 7 by 2030, according to a new UN report. **SDG 7 is to “ensure access to affordable, reliable, sustainable and modern energy for all.”**

About the Report:

Tracking SDG7: The Energy Progress Report 2023 was released June 6, 2023.

- This report provides a comprehensive overview of the progress made towards achieving Sustainable Development Goal 7 (SDG7), which aims to ensure access to affordable, reliable, sustainable and modern energy for all by 2030.
- The report also highlights the challenges and opportunities that lie ahead in the pursuit of this goal.
- The **five SDG 7 custodian agencies, International Energy Agency (IEA), International Renewable Energy Agency, United Nations Statistics Division, World**

Bank and the WHO, collaborated to release the document.

Sustainable Development Goals target:

- SDG targets have been set in a wide array of fields and sectors—from economy and employment, to housing, agriculture, land records, sustainable environment and energy.
- **Economy:** The target for the economy is to raise the gross domestic product to nearly \$4 trillion by 2022-23. The economy has largely shrunk during the COVID-19 pandemic, making it even more difficult to meet the deadline.
- **Employment:** The target is to increase the female labour force participation rate to at least 30 per cent by 2022-23; it stood at 17.3 per cent in January-March 2020.
- **Housing:** The targets are to construct 29.5 million housing units under Pradhan Mantri Awas Yojana (PMAY)-Rural and 12 million units under PMAY-Urban; only about 46.8 per cent and 38 per cent respectively of the targets under 'Housing for All' have been achieved.
- **Provision of drinking water:** The target is to provide safe piped drinking water to all by 2022-23; only 45 per cent of the target has been achieved.
- **Agriculture:** The target is to double farmers' income by 2022. While the average monthly income of an agricultural household has increased to Rs 10,218 from Rs 6,426. The share of income from crop production in the average monthly income of an agricultural household has, in fact, dropped — to 37.2 per cent in 2018-19, from 48 per cent in 2012-13.
- **Digitization of land records:** Another target is to digitise all land records by 2022. While states like Madhya Pradesh, West Bengal and Odisha have made good progress, states like Jammu and Kashmir, Ladakh and Sikkim languish at 5 per cent, 2 per cent and 8.8 per cent digitisation of land records, respectively. Overall, 14 states have witnessed deterioration in the quality of land records since 2019-20.
- **Air pollution:** The target is to bring down PM2.5 levels in Indian cities to less than 50 microgram per cubic meter ($\mu\text{g}/\text{m}^3$). In 2020, when vehicular movement was restricted due to the pandemic, 23 of the 121 cities monitored for PM2.5 exceeded 50 $\mu\text{g}/\text{m}^3$.
- **Solid waste management:** The target is to achieve 100 per cent source segregation in all households. The overall progress is 78 per cent; and while states like West Bengal and Delhi are woefully behind. Manual scavenging is targeted for eradication, but India still has 66,692 manual scavengers.

- **Increasing the forest cover:** The target is to increase it to 33.3 per cent of the geographical area, as envisaged in the National Forest Policy, 1988. By 2019, 21.67 per cent of India was under forest cover.
- **Energy:** The target is to achieve 175 GW of renewable energy generation capacity by 2022. Only 56 per cent of this target has been achieved thus far.

Key highlights of State of India's Environment (SOE) 2022 report :

- It has a comprehensive set of infographics and statistical analysis of how India's states are faring in meeting the Sustainable Development Goals (SDGs).
- Uttar Pradesh and Bihar are below the national average in 11 and 14 SDGs, respectively. Kerala, Tamil Nadu and Himachal Pradesh fared best. With respect to SDG 1 (poverty eradication), six of the poorest performers include Bihar, Jharkhand, Odisha, Madhya Pradesh, Uttar Pradesh and Chhattisgarh. Meghalaya, Assam, Gujarat, Maharashtra and West Bengal — also feature in the list of worst performers as far as ending hunger and malnutrition is concerned (SDG 2).
- In water and sanitation (SDG 6), the performance of Delhi, Rajasthan, Assam, Punjab and Arunachal Pradesh is a cause for concern. SDG 7 — related to clean and affordable energy has seen an above average performance, with most states achieving the target.
- In climate action (SDG 13), 13 states and two Union territories score below the national average. Odisha tops the good performance chart, followed by Kerala; Jharkhand and Bihar bring up the rear.

Topic 34. WHY ARE MIGRATORY BIRDS GIVING INDIA A MISS?

Important for the subject : Environment

Harriers, hawk-like birds, are not visiting the grasslands of India as they were used to in the past. The reason is **shrinking grasslands** and the **grasslands being replaced by trees and agriculture**.

Migratory birds:

- Thousands of birds migrate between their breeding and non-breeding grounds twice a year. Some migratory birds are the **Amur falcon, wandering albatross, Arctic terns,** and the **bar-tailed god wits (undertake sea-crossings of more than 11,000 km non-**

stop).

Reason for their migration :

- The reduction in day length and temperatures in temperate regions during winter lowers food availability, making the birds move southwards to the warmer tropical regions for food.
- Another reason is to reduce competition with other related species.

The flyways :

- Long-distance migratory birds have evolved to **use certain flight paths for their journeys: called flyways**, these span continents and oceans. A **flyway** includes not just migratory pathways but also breeding and wintering ranges.
- Broadly, there are **eight migration flyways across the world**. They were initially classified on the basis of the **migration of the waterfowl, which journey in large flocks**, but these paths are also used by other birds ranging from **small songbirds (passerines)** and **tiny warblers to large birds of prey (raptors)**.

There are **three major flyways in Asia** :

- The West Pacific Flyway
- The East Asian Australasian Flyway
- The Central Asian Flyway (CAF)
- **India falls within the CAF**, which is spread across **Eurasia** from the **Arctic Ocean** to the **Indian Ocean**, and geographically spans **30 countries**.
- This flyway is used by at least **400 species of birds**, which breed in the central Asian region and migrate down south to the Indian subcontinent during winter.
- The topography and ecosystem diversity along the flyway include the **high-altitude Himalayan plateau, deserts, lakes and marshes, and steppe/grassland habitats**.

Central Asian Flyways (CAF) :

- According to the **Convention on Migratory Species (CMS)**, a **United Nations** initiative, the **CAF** has the least available information on migratory birds compared with the other major flyways.
- Precise tracking information is available for less than 1 per cent of the bird species using

the CAF.

- **Threats affect the birds on this route:** habitat loss, prevalent practices of hunting, intensive agriculture, and lack of pesticide management.

Bird Count India :

- It is an **informal partnership of organizations and groups** working together to increase the collective knowledge about bird distribution and population, has been instrumental in promoting small-scale monitoring programmes by individual birdwatchers.

A comprehensive study on birds :

- **The State of India's Birds Report (SOIB)**, published in **2020**, was the **first comprehensive study** on the **distribution range, trends in abundance, and conservation status** of most of the bird species that commonly occur in India.
- Based on crowd sourced and citizen science data, uploaded in the **eBird platform**.

Analysis of the report :

- **52 per cent** of the **867 species** assessed are on the decline. This includes long-distance migratory birds and birds associated with open ecosystems such as grasslands.
- **For example**, the species such as pallid harriers, steppe eagles and tawny eagles, all of which migrate to or within India from the central Asian steppes, are getting rarer.

Mapping the migratory patterns :

- **Ringing program** such as **EURING** have run for decades, mapping the migratory routes of more than 100 species of birds along the Eurasian-African flyways.
- **Bird ringing programs** have been going on in **India** for the last five decades.
- Although the program has provided valuable information, the proportion of ring recoveries is very low.

Some information collected are :

- Now we know about the **high-altitude crossing** undertaken by the **bar headed geese** across the **Himalayas**, the **long migratory flights of the Amur falcons**, the **loop migrations across and away from the Himalayas** by the **demoiselle cranes**, the **movement and behavior of threatened species** such as the **great Indian bustard** and

the **lesser florican**, which move within relatively smaller ranges in the arid part of the country.

- Raptors such as **black-eared kites, harriers**, and various **species of vultures** are also being tracked. **Citizen science bird monitoring initiatives** launched in **India** in the last 10 years include the **Common Bird Monitoring Program** of the **Bombay Natural History Society**, **Bird Atlases** in a few States conducted by **Bird Count India**, and the annual **Asian water bird census** that **happens across all major wetlands in India**.
- A study conducted by the **Ashoka Trust for Research in Ecology and the Environment (ATREE)** documented a decline in 28 per cent of the 50 species observed over 10 years.
- **ATREE** has also started species-oriented monitoring initiatives such as the **Harrier Watch program**.

Topic 35. FARMYARD MANURE IN NATURAL FARMING LEADS TO HIGHER YIELDS THAN THE CONVENTIONAL METHOD

Important for the subject : Environment

Natural farming practices alone could not yield as much as **conventional farming**, but supplemented with **farmyard manure (FYM)**, crop yields were invariably higher than those from conventional or chemical farming.

- This was established in a field survey done in **Andhra Pradesh, Karnataka** and **Maharashtra** during February-May 2019 by the **Indian Council of Agricultural Research (ICAR)-National Academy of Agricultural Research Management, Hyderabad**.

Study findings:

- The study has examined the **adoption pattern of different components of natural farming** and estimated the **crop yield and farm income** under these practices as compared to existing farming practices.
- **Intercropping** is a **major recommended practice in natural farming** as it **reduces soil stress by reducing the mining of only specific nutrients from the soil**, as in the case of a solo/mono-crop.
- Only **26 per cent, 45 per cent** and **17 per cent** of farmers who have adopted natural

farming in **Andhra Pradesh, Karnataka and Maharashtra**, respectively, practice inter / mixed crops.

- The **low percentage** was due to the fact that **paddy is the major crop in the study area** and is preferably **cultivated as a single crop. Karnataka (at 45 per cent) had the highest rate of inter / mixed cropping** among the study states.
- Another important component of natural farming- **mulching**– was found to be followed by farmers, depending on the crop and availability of mulching material.
- A **substantial reduction in the input cost of natural farming** as compared to non-natural farming due to the non-use of expensive agrochemicals was found.
- **The study also pointed out several challenges in natural farming adoption.** Natural farming was also perceived to be more labour intensive and regular monitoring by farmers was required. The **farmers also expected higher prices for the natural farming produce**, considering it is **free from chemicals**.
- Hence, the **non-availability of designated markets for natural farming produce** (as in the case of organic produce) has driven reluctance towards natural farming adoption.

Natural Farming:

- It is defined as “**chemical-free farming and livestock based**”. Soundly grounded in **agro-ecology**, it is a **diversified farming system that integrates crops, trees and livestock**, allowing the optimum use of functional biodiversity.
- It holds the promise of **enhancing farmers’ income** while delivering many other benefits, such as **restoration of soil fertility and environmental health**, and **mitigating and/or reducing greenhouse gas emissions**.
- This farming approach was introduced by **Masanobu Fukuoka**, a Japanese farmer and philosopher, in his **1975 book The One-Straw Revolution**. Internationally, **Natural Farming** is considered a **form of regenerative agriculture** —a prominent strategy to save the planet.
- In India, **Natural farming** is promoted as **BhartiyaPrakritikKrishiPaddhati Program (BPKP)** under **ParamparagatKrishiVikasYojana (PKVY)**. **BPKP** is aimed at promoting traditional indigenous practices which reduce externally purchased inputs.

Topic 36. CANADIAN WILDFIRES POSE HUGE HEALTH RISKS

Important for the subject: Environment

Climate change is worsening the scale of wildfires worldwide, as rising temperatures lead to longer and more destructive fire seasons.

- Some of the biggest cities in North America, like Montreal, Toronto and New York, are shrouded in heavy smog with around 400 fires burning in Canada.
- This year has already seen unusually severe wildfires in **Russia, Spain, Kazakhstan, Mongolia** and **Central America**, according to **Copernicus**, the **EU's earth observation monitoring program**.
- New York City's air quality remains in the "very unhealthy" category as more thick smoke poured south from Canada's devastating wildfires.
- Children, pregnant people, older adults and people with heart or lung disease are especially vulnerable to the small particulates generated by these fires and these particles can be carried vast distances. Significant impact on Indigenous Peoples.

Forest fire or Wildfire :

- Forest fires can be defined as any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brushland, or tundra, which consumes the natural fuels and spreads based on environmental conditions.

Fuel, Oxygen, and heat sources help the spreading of wildfires :

- **Fuel** is any **flammable material** surrounding a fire, including trees, grasses, brush, and even homes. The greater an area's fuel load, the more intense the fire. **Air** supplies the **oxygen** a fire needs to burn. **Heat sources** help spark the wildfire and bring fuel to temperatures hot enough to ignite.

Causes of increased wildfire :

- Climate change-induced warming. Land use change and land management practices. High atmospheric temperatures and dryness (low humidity) Extraction of non-wood forest products Industrial development and resettlement.

Impact of wildfire:

- Delay in achieving the SDGs.
- Loss of flora and fauna

Consequences of Wildfires:

- Wildfires **emit billions of tonnes of carbon dioxide** into the atmosphere which causes harm to climate and living organisms. This can also impact the **carbon cycle** due to excess CO₂ and loss of vegetation.

High-intensity forest fires destroy flora and fauna.

- Wildfires can impact the economy as many families and communities depend on the forest for food, fodder, and fuel.
- It burns down the small shrubs and grasses, leading to landslides and soil erosion. It can change the microclimate of the area with unhealthy living conditions Excessive forest fires can also add to the ozone layer depletion process.

UNEP call to prevent wildfire:

- The **United Nations Environment Program (UNEP)** called on global governments to adopt a new **‘Fire Ready Formula,’** as it warned that incidences of wildfires would rise in the future.
- The **UNEP report** also projected that the number of wildfires is likely to increase by up to **14 per cent by 2030.** It is projected to spike by **33 per cent by 2050.** It would **rise by 52 per cent by 2100.**
- **Integrated wildfire management** was key to adapting to current and future changes in global wildfire risk.
- The new **“Fire Ready Formula”** focuses on **planning and prevention** Serial No
Budget item Percentage share of the total on wildfire management recommended
- Planning 1 %
- Prevention 32 %
- Preparedness 13 %
- Response 34 %

- Recovery 20 %

Fire Aid : AI to predict and fight wildfires

- It was launched in **2022** by the **World Economic Forum (WEF)**. It **aims** at using **artificial intelligence** to effectively manage **wildfire**.
- The multi-stakeholder initiative that collaborates resources from governments, civil society and the private sector was formulated by **Koç Holding**, **Turkey's largest industrial conglomerate**, and was joined by **Deloitte**, an international professional services network, that brought on board its own AI technology to develop a '**digital twin**' for fire management.
- The project was made operational in the **South Aegean and West Mediterranean region of Turkey**, since a quarter of the country's wildfires occurred there in 2010- 2021 and accounted for 75 per cent of the total burned area during the period.

Topic 37. DELHI BJP UNIT TO GET NEW OFFICE BUILT IN 'HAMPI TRADITION'

Important for the subject: History

The foundation of the temples in South India was provided by the Pallava rulers but the original Dravida style of temple architecture came to light under the Chola rulers. Later under the Vijayanagar rulers and nayakas, this style of temple architecture was further enriched.

Basic features of the Dravida Style of temple architecture are :

- The tower in Dravida Style is known as 'Vimana' which is a pyramidal structure with sliding sides.
- 'Vimana' is not only created on the 'Garbhagriha' but also on the 'Gopurams'. 'Gopurams' is an entrance gateway.

Boundary wall is a necessary feature.

- Presence of water tank within the premise which is meant for religious ablutions. They like the 'Nagara' style, also follow the 'Panchayatana' style and crucified ground plan.
- At the entrance of 'Garbhagriha' images of 'Dwarapala' are placed to guard the temple, and in some temples images of embracing couples (mithun) are placed.

- The ‘Garbhagriha’ is connected through a very small passage known as ‘Antaral’ to the ‘Mandapa’.
- E.g. Brihadeshwara temple at Thanjavur. Ranganath Swami temple at Srirangam.

There are mainly 2 types of substyles of Dravidian temple architecture, these are:

Vijayanagar style :

- Developed under Vijayanagar rulers, especially under the patronage of Krishna Deva Raya. They created huge ‘Gopurams’ and very high enclosure walls.
- They introduced the concept of ‘Amma’ shrine which is dedicated to the chief wife of the main deity. They also came up with the concept of ‘KalyanaMandapa’ which was meant for marriages.
- One of the interesting structures is a flat stone platform known as ‘*dibba*’, meant for the rituals and sacrifices. E.g. MahanavamiDibba at Hampi. E.g. Thousand pillar temple and Vithalswami temple at Hampi. Lepakshi temple at Lepakshi in Andhra Pradesh.

Nayaka style :

- Nayakas rose after the fall of the Vijayanagara empire and they constructed temples in and around Madurai. They not only created huge ‘Gopurams’ but also increased their numbers.
- Very prominent feature of the Nayaka style is the presence of a huge corridor called ‘Prakaram’ and used to connect all the parts of the temple. E.g. Meenakshi temple at Madurai.

Topic 38. VADNAGAR CITY

Important for the subject : History

New plans for PM Modi’s school in his hometown Vadnagar. Last year, the city has made it to the **tentative list of UNESCO world heritage site**. It has been known by names like **Anartapura, Anandapur, Chamatkarpur** and has often been compared to Varanasi in terms of both claiming to be “**living cities**”.

- The city was **first excavated by archeologists B. Subbarao and RN Mehta in 1953**. This revealed a flourishing **conch shell trade industry**.
- Excavation taken over by ASI from 2014 onwards found over 20,000 artefacts. It was

identified that **5 periods of continuous settlement** at the site from its formative period.

- There were **7 successive cultures** going back to 750 BCE which include: **prerampart phase (in 2nd C BCE), Rampart phase (2nd C BCE – 1st C CE), Kshatrapa phase (1st – 4th C CE), post- Kshatrapa phase (5th– 9th/10th C CE), Solanki phase (10th – 13th C CE), Sultanate Mughal phase (14th – 17th C CE), and Gaekwad phase (17th/18th – 19th CE)**
- Most of the excavations like the **fortification, Buddhist monastery, votive stupas, house-complexes, lanes/streets, industrial hearth** are from pre 2nd C BCE to Gaekwad period.

Vadnagar as a living city :

- **Extensive water management system** continuously evolving historic **urban landscape/area** that played a role in hinterland **trade network**
- **Important center of Sammitiya Buddhists** or Little Vehicle in 10 monasteries, a sect which Chinese traveler Hiuen Tsang also supported **Located at the intersection of 2 major trade routes** – central India to Sindh and NW, Gujarat to Rajasthan and N.India. One of the important **land ports (SthalPattan)** of Gujarat. A **mound** that rises gently and the highest point in the middle of the settlement is 25 meters high, called
- **Evidence of Buddhism: Hieun Tsang or Xuanzang visited Vadnagar** around 641 CE and called it o-nan-to-pu-lo (Anandpur); a **red sandstone image of a Bodhisattva** or a deity-like revered figure in Buddhism; **an inscription on the pedestal of the image** brought for the Chaitya of Sammatiya; **elliptical structure or a circular stupa**, along with a square memorial stupa of 2×2 meter and 130 cm in height with a wall enclosure.
- **AbulFazl's Ain-e-Akbari** from the 16th century makes a note of **Vadnagar or Barnagar**, as a “**large and ancient city containing 3,000 pagodas**, near each of which is a **tank**” and “**chiefly inhabited by Brahmans.**”
- The ASI claims a “**Roman connection**” in the finding of an intaglio in clay – a coin mould of Greco-Indian king Apollodotus II (80-65 BC) – and a sealing with impression of a Roman coin belonging to Valentinian-I (364-367 CE).

Present Structure :

- **L-shaped town**, with the **Sharmishtha Lake** located on its north eastern edge. surrounded by the remains of a **fortification wall**, punctured by a series of **gates** that

mark the entry and exit points of the town most gates are medieval, the **Ghanskol and Pithori gates** are of the 11th- 12th century CE. Other prominent gates are **Nadiol Gate, Amtol Gate, Amarthol Gate and Arjun Bari Gate** (protected by the ASI).

Historic buildings :

- **Ambaji Mata Temple** dates back to 10th-11th century CE **Hatkeshwar temple** is located outside Nadiol gate
- **Two identical glory gates** outside the fortification wall to the north of the town are the **KirtiTorans** (built in yellow sandstone without mortar or any other cementing material).

Topic 39. AURANGAZEB

Important for the subject : History

Tension in Maharashtra's Ashti Over 14-Year-Old Boy's Social Media Status Message 'Praising' Aurangzeb.

About Aurangzeb:

- Aurangzeb, the **third son of Shah Jahan** and the **6th ruler of Mughal empire**, was born in 1618, at Dohad, on the frontier of Gujarat and Rajputana.
- An **able administrator, a fearless soldier and a skilful general** who learnt all the tactics of diplomacy because of the hostile influence at court of his brother Dara.
- As an emperor (1658-1707), he **ruled more of India than any previous monarch**, but in a court and he lived a **life of austere piety**. He was known for his **devotion to the Muslim religion** and thereby appointed censors of public morals in all important cities to enforce Islamic law, and he tried to **put down** such practices as **drinking, gambling, narcotics and prostitution**.
- In 1664, he issued his first edict **forbidding sati** or the self-immolation of women on funeral pyres.
- In the economic sphere, he **abolished the inland transport duty**, which amounted to ten percent of the value of goods, and the **octroi** on all articles of food and drink brought into the cities for sale.
- In 1668, he **forbade music at his court** with the exception of the royal band and the **ceremony of darshan**, or the public appearance of the emperor to the people, was

abandoned in 1679 along with **reimposition of Jizya**.

- In sharp contrast to Aurangzeb's image of a **temple destroyer** in history books and **tried to convert all Hindus to Islam**, an Allahabad-based historian has claimed that he had **offered lavish grants and land to the ancient SomeshwarMahadev temple on the banks of Sangam in Arail**.
- His Conquests: Earliest were in the **Eastern parts** of the empire including Hindu rulers of Cooch Behar and Assam, followed by **NW frontier**, then with the **Sikhs (The ninth guru, TeghBahadur was put to death by Aurangazeb in 1675)**, the **Marathas** and the **Muslim South Kingdoms** like Bijapur and Golconda.
- Aurangzeb ordered the **seizure of the Surat factory established by the East India Company** because of the English control of the pilgrim trade in the Arabian Sea. Later, he levied a fine of one and a half lakhs of rupees and allowed them to return to their factories; and for the next fifty years, the English merchants refrained from any further attempts to establish themselves as a territorial power.
- Some of his failures include: **Lack of hardy soldiers** and resourceful improvisers, **treachery** was rampant in the Mughal army, **stringent religious policy**, remission of some eighty taxes led to the **financial burden** and mostly he was **inspired by high motives, but the policy created many problems**.

Topic 40. TEARFUL ADIEU TO VELUR AGITATION LEADER DEVAKI NAMBISAN

Important for the subject : History

Devaki Nambeesan and the Velur Temple Protest

In 1956, a group of 23 women aged between 16-35, scared and anxious but determined to make history, marched to the Manimalarkavu Devi Temple. Of the women present, **DevakiNambeesan, an activist who worked with Dalit women in Velur and other parts of Thrissur, spearheaded the movement**, giving confidence to others to stand by her.

- They marched towards the Manimalarkavu Devi Temple, wearing mundumneriyatum with striking red blouses and holding thaalams to perform the big **kuthira vela** ritual in
- This may seem like a simple act, but at that time, women who performed rituals were not allowed to wear blouses or cover their breasts. Additionally, only women from the

dominant Nair caste were permitted to perform these rituals.

- Though not documented enough, this **movement is known as the Velur Temple Protest or the Velurmaarumarakkal today.**

About the movement

- During the Velur Temple Protest, DevakiNambeesan and the 22 women were accompanied by community leaders who tried to speak to the temple committee.
- But it was of no avail since the committee consisted of people from the Namboodiri and Nair castes. Despite the opposition, these women stood strong and fought the big fight – abolishing caste discrimination in the temple and wearing blouses. And they won.
- The **movement succeeded when temple authorities started allowing Dalit women to perform rituals and ended the discriminatory practice of barring women from wearing blouses during these rituals.**
- The changes were implemented, and women could fully participate in the rituals without any restrictions, all thanks to the efforts of DevakiNambeesan and the women who stood by her.

Topic 41. COMPETITION PANEL TO ADJUDICATE CASES OF ANTI PROFITEERING

Important for the subject: Polity

After over six months of handing over the erstwhile National Anti-profiteering Authority (NAA) mandate to the Competition Commission of India (CCI), the fair trade regulator is set to resume adjudication of anti-profiteering cases

- NAA is the **anti-profiteering watchdog of GST**. Its term ends in November, and no extension has been planned, per the report. **NAA came into existence in 2017** and has received two extensions since then. NAA is a **statutory body** comes under the **Finance Ministry and was established under Section 171 of CGST Act**. It started working with effect from December 1, 2017.
- It was **intended as a transitional arrangement** with a specific time limit in view of the sudden changes in tax levels due to the introduction of GST, which was followed by periodic rationalization.
- The law empowers NAA to determine whether reduction in rate of input tax credit (ITC)

has been passed on to the consumers or not, by lowering prices. If not, then the Authority may ask for reduction of prices, levy penalty and in extreme cases can even order cancellation of registration.

- NAA consists of a **chairman and four technical members**. The authority needs a **quorum of Chairman and three technical members**. The orders of the NAA can be **appealed against only in the high court**.

Implementation :

- NAA's **investigation arm** will continue to function in **some form under CCI**. The move will reduce the **multiplicity of regulators** as CCI can handle cases independently.
- The implementation of **anti-profiteering provisions in GST law** has faced several challenges.
- NAA's role is to make sure that the **benefit of tax rate reduction reaches the consumer**. This has been the role of NAA primarily because the GST council has been rejigging the rates in the last five years. **NAA has little to do when rates go up**.
- Authorities are still receiving several complaints about the early years of GST, saying that the **benefit of the input tax credit** has not been fully passed on to consumers.
- Sectors like *eateries, cinemas, real estate, fast-moving consumer goods*, etc., have faced NAA's scrutiny the most.
- In many cases, the regulator ordered the business to return the allegedly over charged amounts to the consumer.

Topic 42. INDIA LOOKS AT DEVISING OWN STANDARDS TO ASSESS SOCIO-ECONOMIC PROGRESS

Important for the subject : Government Schemes

Release of a working paper titled "Re-examining the estimates of India's development indicators by international organizations" by the Economic Advisory Council to the Prime Minister.

Introduction:

- The Union Government has **discarded the one-size-fits-all international data parameters** used to measure the socioeconomic progress of the country. It has proposed

to devise its own strategy.

- However, health activists are divided on this move of the Government. One group favours international norms as aspirational standards. While others support the government's decision.
- India is redrawing its assessment approach to accommodate its national diversity and local anthropometric measurements. In March 2023, the Union Health Ministry released its own mechanism for estimating the tuberculosis burden in India.
- India has also questioned the WHO's mathematical modelling for COVID-19 deaths estimation and called it "unscientific". India has dropped questions relating to anaemia and disability from the National Family Health Survey-6 (NFHS).
- It is suggested that the three widely used development indicators (child stunting, female labour force participation rate, and life expectancy at birth) often present a misleading picture of overall development.
- Experts highlight that improper adjustments using modelling procedures end up skewing data for India. For example, the United Nations Population Division sharply reduced the estimates for calculating life expectancy at birth for India from 70.19 in 2019 to 67.24 in 2021.
- It is also said that the growing use of environmental, social, and governance (ESG) norms in investment and trade decisions increases the need for accurate data.
- It is pointed out that the issue of misappropriation is well-known in the medical field and countries like the U.S., U.K., and Indonesia have developed their own growth chart for reference by medical practitioners.
- There is a growing concern about the universal applicability of these standards leading some countries to adopt their own country-specific growth benchmarks. It is suggested by some health experts that utilizing the WHO 2006 standards results in overestimating stunting and wasting cases in India.
- Currently, using these standards would translate into approximately 10 million and 12 million more children being classified as stunted and wasted.
- The overall data from 21 developing countries demonstrated that the prevalence of severe wasting in infants under six months increased by 3.5 times, whereas severe child wasting increased by 1.7 times after applying the WHO standard.

Social Progress Index

- The Social Progress Index is **published by a non-profit entity called Social Progress Imperative**, which is based out of the United States of America (USA). Social Progress Index ranks the social **performance of 149 countries over 51 different indicators**.
- In this Index, the social performance of a country is assessed independently of economic factors. The index is primarily based on social and environmental indicators capturing 3 major dimensions of social progress. The 3 dimensions are listed below.
- Opportunity Foundations of Well Being Basic Human Needs India scored 56.80 out of 100 in Social Progress Index 2020; with a rank of 117 among 163 nations.