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Economics

India Inaugurates Its First Small-Scale Liquefied Natural Gas (SSLNG) Unit - A Boost Towards Greener Energy

Introduction and About:

- The first small-scale liquefied natural gas (SSLNG) unit of India was recently inaugurated at GAIL (India) Ltd's Vijaipur complex in Madhya Pradesh by the Union Minister for Petroleum and Natural Gas.
- This initiative is part of the Government's larger plan to promote the use of natural gas across various sectors, with the aim of increasing its share in the country's primary energy mix to 15% by 2030.

Why in the news or what's new:

- The newly introduced SSLNG unit in India marks the beginning of a significant shift towards the use of natural gas, a cleaner and relatively cheaper alternative to conventional hydrocarbons like coal and oil.
- The successful implementation of SSLNG can potentially decrease India's dependency on gas imports, thereby resulting in substantive foreign exchange savings.
- It aligns with India's overall goal of transitioning to more sustainable fuel sources.

Understanding LNG and SSLNG:

- Liquefied natural gas (LNG) is natural gas converted into a liquid form for easy and safe storage and transportation.
- Typical constituents of natural gas include 70-90% methane.
- Small-Scale LNG (SSLNG) facilitates the liquefaction and transport of natural gas on a smaller scale, essentially meant for areas lacking pipeline connections.

- SSLNG can supply LNG directly to consumers either in the form of liquid or regasified versions via cryogenic road tankers or small vessels.

Major Applications of LNG and SSLNG:

- LNG, due to its lower emissions, is increasingly leveraged as fuel for marine vessels and heavy-duty road transport vehicles such as trucks and buses.
- LNG also finds significant application in gas-fired industrial power plants for electricity generation.
- SSLNG intersects with renewable energy sources by acting as a useful backup resource when renewable energy production is insufficient or not available.

The Challenges Ahead:

- The production and transportation of LNG involve high costs due to expensive infrastructure and specialised cryogenic carriers.
- Despite being cleaner, LNG production has environmental impacts such as methane emissions which have strong planetary warming effects.
- Safety concerns surround the handling of LNG due to its highly flammable nature.

The Role of Compressed Natural Gas (CNG) and BioCNG:

- CNG is natural gas compressed under high pressure, making it occupy a smaller volume in fuel tanks.
- It consists primarily of 80-90% methane and is physically different from LNG since CNG exists in the gaseous state.
- BioCNG, a renewable, clean-burning fuel, is made from organic waste and serves to upgrade biogas to natural gas quality.

The Way Forward:

- Strategic investment in expanding LNG import terminals, regasification facilities, and a robust SSLNG infrastructure will be critical.

- There's a need for market development through awareness campaigns and incentives for the adoption of LNG-powered vehicles and equipment.
- Regulators must shape clear frameworks and standards for LNG and SSLNG operations ensuring safety, environmental compliance, and quality control.
- Encouraging innovation and R&D in LNG technologies can improve efficiency and mitigate costs.
- International collaboration surrounding LNG trade, infrastructure development, and policy harmonisation can strengthen India's foothold in the global LNG market.

GK Part:

- Natural gas accounts for about a quarter of global electricity generation as per the IEA.
- The share of natural gas in India's energy basket is currently 6.7%.
- Leading natural gas producing nations include the United States, Russia, and Iran.
- China has successfully integrated LNG in commercial vehicles, posing a remarkable model for India to possibly follow.
- Protections against environmental impairment and safety are pivotal while handling flammable substances like LPG and natural gas.
- At COP28, the United Nations Framework Convention on Climate Change hinted at transitions to fuels like natural gas for enhanced energy security.

In conclusion, the inauguration of India's first SSLNG unit is a progressive step towards promoting cleaner energy. However, economic, environmental, and safety considerations must be proactively managed as India transcends towards adopting such greener alternatives.

Energy Efficiency in India's Construction Sector - A Boon to Environmental Sustainability

1: Understanding the Importance of Addressing Energy Inefficiency in India's Construction Sector

India's construction sector is currently experiencing a major boom, erecting over 300000 housing units annually. This growth brings:

- A surge in economic opportunities and improved living standards
- A handful of significant environmental challenges
- Over 33% contribution to India's electricity consumption, thereby contributing to environmental degradation and climate change.
- A predicted eightfold increase in cooling demand by 2037 as per the India Cooling Action Plan.

Globally, the buildings sector contributes approximately 37% to energy-related CO2 emissions and over 34% of global energy demand. Thus, energy-efficient construction can significantly reduce greenhouse gas emissions while improving indoor air quality, thermal comfort, and natural lighting leading to improved well-being.

2: Unveiling India's Initiatives to Promote Energy-Efficient Construction

Numerous initiatives have been introduced in India to promote energy-efficient construction. These include:

- Eco-Niwas Samhita (ENS): Launched in 2018 to promote energy efficiency in residential building design and construction.
- Energy Conservation Building Code (ECBC): Implemented in 2007 to set minimum energy

standards for commercial buildings. Updated in 2017 to prioritise renewable energy integration.

- Energy Conservation (Amendment) Act, 2022: Provides for transitioning ECBC into the Energy Conservation and Sustainability Building Code and makes ECO Niwas Samhita mandatory.

- NEERMAN Awards: Recognizes buildings compliant with ECBC 2017.

- BEE Star Rating for Buildings: Assesses the status of energy efficiency in commercial buildings.

- Green Rating for Integrated Habitat Assessment (GRIHA): National rating system for green buildings.

- Indian Green Building Council (IGBC): Formed in 2001 to make India a global leader in sustainable built environments.

3: A Blueprint to Energy Efficiency in the Construction Sector

Implementation of technologies and innovative building materials can lead to sustainable energy-efficient solutions:

- Autoclaved Aerated Concrete (AAC) Blocks: AAC blocks offer superior thermal efficiency across various climatic conditions and thus, hold potential for energy efficiency.

- Innovative Building Materials: Interdisciplinary collaborations can lead to the optimisation of energy-efficient building design strategies.

- Addressing Sustainability Concerns: Resolving sustainability concerns can ensure energy-efficient and sustainable constructions.

- Promoting Sustainable Practices: Re-imagining construction practices to improve energy efficiency and environmental sustainability.

- Adoption of Smart Building Systems: The inclusion of smart building systems, AI, 3D printing, and IoT in construction projects can help optimise energy consumption.

In conclusion, addressing energy inefficiency in India's construction sector is of utmost importance given the environmental challenges posed. With various government initiatives in place and a

myriad of technologies and materials available, the sector is geared towards achieving significant energy efficiency.

Recent Trends in Wealth and Inequality: An Analysis of India in the Light of Hurun Global Rich List 2024 and World Inequality Lab Report 2022-23

I: Unveiling the Hurun Global Rich List 2024

- The Hurun Global Rich List 2024 was recently released by the Hurun Research Institute, marking the 13th year of this notable global ranking.

- Various significant points were covered in the report offering unique insights into the world's wealthiest individuals.

II: Mumbai, The New Billionaire Capital

- One of the key revelations is the rapid ascendance of Mumbai as the fastest-growing billionaire city in the world, boasting 92 billionaires.

- Mumbai dethroned Beijing thereby becoming Asia's billionaire capital; a testament to its booming wealth and solidifying its position on the global wealth map.

- In comparison to the previous year, the city added 26 more billionaires, earning it a notable third rank globally.

III: India's Billionaire Boom

- The report brought to the fore the tremendous growth in the number of billionaires in India, with a whopping addition of 94 billionaires in the year 2023. This figure is second only to the United States.

- The total count of Indian individuals with a net worth of at least USD 1 billion stands at 271.
- India's booming billionaire count underpins its growing economic clout, with these billionaires contributing to 7% of the total global billionaire wealth. Cumulatively, their wealth amounted to USD 1 trillion.
- The list highlighted various sectors responsible for this enrichment with pharmaceuticals (comprising 39 individuals), automobile & auto components (27 individuals) and chemicals (24 individuals) leading the pack.

IV: World Inequality Lab Report 2022-23 and its Implications

- A contrast to the Hurun report, a recently released working paper by the Paris-based World Inequality Lab indicated India's alarming surge in economic inequality since the early 2000s.
- The report, "Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj", states that current inequality in India has surpassed the levels of the British Raj era indicating a sharp skew in wealth distribution.
- The top 1% in India hold income and wealth shares of 22.6% and 40.1% respectively, hitting their highest historical levels in 2022-23.
- The income of the richest 1% in India is higher than those in South Africa, Brazil, and the US. The average wealth relative to the median income of this elite group is 40 times the country's average income level.

This information is extremely relevant from a GK point of view given the insights it provides into global wealth distribution and economic inequality.

India's First Commercial Crude Oil Strategic Storage: Towards Energy Security

1: Introduction and Overview of the Initiative

- India aims to construct its first commercial crude oil strategic storage to enhance its reserves as a preventive measure against potential supply interruptions.
- In this regard, Indian Strategic Petroleum Reserves Limited (ISPRL), a subsidiary of the Oil Industry Development Board (OIDB), has invited bids for construction of 2.5 million tonnes of underground storage at Padur in Karnataka.

2: Strategic Petroleum Reserves (SPR) Programme

- The SPR programme is part of India's energy security strategy to tackle supply interruptions.
- The storage facilities under this programme are constructed in the form of underground rock caverns in India's East and West coasts, which are the safest means for storing hydrocarbons.

3: Role of Indian Strategic Petroleum Reserves Limited (ISPRL)

- ISPRL, an entity under the Ministry of Petroleum & Natural Gas, oversees the administration of strategic crude oil storage facilities.
- Engineers India Limited (EIL) acts as the project management consultant for ISPRL, supervising storage operations and coordinating stock release in case of supply disruptions through a Government Empowered Committee.

4: Geography and Importance of Padur Storage

- Padur in Karnataka has been strategically chosen for the construction of this strategic crude oil storage facility.
- Being a coastal state, Karnataka offers the added advantage of accessibility and ease of transportation of crude oil.

- The facility at Padur will significantly contribute to building up India's strategic petroleum reserves, ensuring national energy security.

GK:

- India's first commercial crude oil strategic storage initiative is in line with India's pursuit of energy security.
- The initiative is being led by ISPRL, which is a subsidiary of the Oil Industry Development Board (OIDB) under the Ministry of Petroleum and Natural Gas.
- The storage under the SPR programme is constructed in the form of underground rock caverns.
- The new 2.5 million tonnes underground storage facility is set to be built at Padur in Karnataka; a strategically important location due to its coastal proximity.

Celebrating the 90-year Legacy: Reserve Bank of India

Introduction and Historical Background

- The Prime Minister recently marked the commemoration of 90 years of the Reserve Bank of India (RBI) with his address at the opening ceremony of the RBI@90 event held in Mumbai.
- The RBI was instituted based on the recommendations of the Royal Commission on Indian Currency, 1926, more commonly known as the Hilton Young Commission. The establishment of RBI was further reiterated by the Indian Central Banking Enquiry Committee in 1931.
- The RBI was established in 1935 under the Reserve Bank of India Act, 1934. Sir Osborne Smith had the honour of being the first Governor of RBI.

- In a significant turn of events, the RBI was nationalised in 1949, transforming its institutional history.

Evolution and Advances over the Years

- The RBI has evolved and expanded significantly over the past nine decades, adapting itself to the changes in the country's economic and financial landscape.
- The bank has successfully positioned itself as an inflation-targeting central bank, prioritising price stability and sustainable growth.
- It has also accumulated a formidable reserve of foreign exchange reserves to safeguard the nation's economy against external financial shocks.
- Striving for macroeconomic stability has been another cornerstone of RBI's operations.
- A marked reduction in Non-Performing Assets (NPAs) and the incorporation of technology in payment systems are notable outcomes of the RBI's strategic actions.
- The RBI has also ventured into launching its central bank digital currency, reflecting its progressive approach.

Current Challenges and Future Roadmap

- Despite its remarkable strides, the RBI is confronted with a number of challenges.
- These include strengthening the banking regulation and supervision mechanisms, enhancing transparency with regulated entities, and keeping pace with regulating new-age fintech firms.
- The RBI also has limited powers over Public Sector Banks, a challenge that merits attention.
- Additionally, the growing potential for fiscal dominance of monetary policy is another issue that RBI needs to address.

In conclusion, as the RBI celebrates this milestone, it stands as a robust institution,

continuously evolving with the times, and playing a crucial role in the stability and development of India's economy. Gearing up for future challenges and opportunities, the central bank continues to commit itself to excellence and progress.

Digging Deeper into India's Anti-Dumping Investigation against China and Japan

1: Introduction to the Investigation

- In recent events, India has taken the initiative to launch an anti-dumping investigation against the import of insoluble sulphur, mainly used in the rubber industry, from China and Japan.
- This investigation has been initiated by the Directorate General of Trade Remedies (DGTR), a government organisation that primarily deals with enhancing trade relations and resolving trade disputes.

2: Understanding "Dumping" and its Impact

- Dumping involves exporting goods to a foreign country at a price lower than the price it is sold at in the home market.
- This practice can cause damage to local industries as it undercuts their prices and introduces unfair competition.

3: Anti-Dumping Measures and their Importance

- Anti-dumping strategies include imposing duties or taxes on imports to compensate for the price difference between the export price and its normal value. This is to prevent any potential harm to producers of competitive products in the importing country.

- The World Trade Organization (WTO) regulations include these anti-dumping measures to ensure a level playing field for domestic producers against foreign competitors.

4: The Current Scenario

- The present anti-dumping probe is centred on imports of 'insoluble sulphur' from China and Japan.
- Insoluble sulphur is an amorphous form of sulphur that does not dissolve in carbon disulphide and plays a vital role in the rubber industry.
- This special chemical serves as an important additive in rubber products like tyres and shoes to enhance their quality. It is also a vulcanization accelerator, facilitating the hardening of rubber through cross-linking of molecules with other substances.

5: Anti-dumping in the Global Context

- Anti-dumping is a protective measure adopted by governments to shield domestic industries against foreign imports sold cheaper than home market prices.
- The WTO permits the exercise of anti-dumping measures to counter trade distortions caused by unfair dumping.
- Through this, the investigation will help ensure the establishment of competitive, balanced, and protected domestic industries in India.

6: GK Insights

- This event informs about significant matters affecting international commerce and local industries.
 - It sheds light on the role of organisations like DGTR and WTO in handling trade disputes and promoting fair trade practices.
 - It demonstrates how domestic industries like the rubber industry can be protected through government initiatives.
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Warning by World Bank: Unutilized Demographic Dividend in South Asia

1: Introduction and Overview of the Issue

- The World Bank, according to the "Jobs for Resilience, South Asia Development Update" report, has raised concern that South Asia, inclusive of India, is not effectively exploiting its demographic dividend.
- Demographic dividend refers to the economic growth potential resulting from a change in a population's age structure. It is especially pertinent when the majority of a population is working-age individuals.
- India is projected to reap this demographic dividend for 37 years, from 2018 to 2055, provided appropriate harnessing of this human capital potential.

2: Issues in Harnessing Demographic Dividends

- Jobless Growth: South Asian countries are grappling with jobless growth, with an employment ratio of just 59% in 2023.
- Low Private Investment: Economic growth driven primarily by public investment, with private investment on the decline, holds back sustainable economic development and job creation.
- Global Growth Slowdown: Slowing global growth presents challenges due to potential trade, investment, and economic repercussions.
- Risks: Geopolitical tensions, climate change, and pandemics pose additional hurdles to effectively utilising the demographic dividend.

3: Challenges Specific to India

- Poor Skill Development: India struggles with low employability among graduates, with a mere

20-30% of engineers securing jobs suited to their skill-set.

- Low Human Development Index: Lower life expectancy and education levels put India at disadvantage on the UNDP Human Development Index.
- Sizeable Informal Economy: A whopping 216 million Indians are part of the informal economy, dealing with low wages, limited social security, and irregular employment.
- Regional Disparity in Demography: Surge in the working-age population is concentrated in some of India's poorest states, so employment opportunities generated should be meaningful.
- Shrinking Female Labor Force: India faces a hurdle with a declining female labour force participation rate, hindering the country's ability to fully utilise its workforce.
- Psycho-social Issues: India ranks high for suicide rates and drug abuse amongst youth, potentially contributing to overall societal instability.

4: World Bank's Proposed Measures to Improve Utilization of Demographic Dividend

- Enhance Trade Openness: Reducing barriers to global trade could encourage economic growth and job creation.
- Adopt Flexible Labour Laws and Efficient Land Markets: This could augment business competitiveness, attract investment, and boost job growth.
- Investing in Infrastructure: Investment in sectors like transportation and agriculture could bolster productivity, competitiveness, and job opportunities.
- Encourage Female Labor Force Participation: Wage subsidies, tax benefits, and work-life balance initiatives could boost female labour participation.
- Improve Human Capital: Skill development programs may facilitate the transition of workers from agriculture to non-agriculture sectors,

boosting productivity and economic diversification.

5: Additional Measures to Boost Demographic Dividend

- Increase Healthcare Investments: A healthy workforce contributes to a productive workforce.
- Reform Informal Sector: Streamlining regulations, providing credit access could contribute to sector reforms.
- Invest in Latest Technology: Supporting R&D in emerging fields could harness the potential of demographic transition.
- Manage Urbanisation: Young people moving into urban areas necessitates planning for amenities and services.
- Enhance Social Security: A mere 4% of Indians are under any form of social protection, lagging behind even Bangladesh, indicating the need for effectively broadening the social security net.

Crop Diversification in India: A Promising Agricultural Shift

1: Embracing Crop Diversification in West Bengal

Key Highlights:

- West Bengal's agricultural landscape is showing tremendous transformation towards crop diversification, notably in districts alongside Bangladesh.
- The shift involves farmers transitioning from traditional wheat farming to alternative crops such as bananas, lentils, maize, among others.

2: Driving Factors for Crop Diversification

Significant Points:

- Wheat blast disease, a fungal infection primarily affecting wheat crops, led to a ban on wheat cultivation in West Bengal border areas, propelling farmers towards alternate crop cultivation.
- Economic viability and demand from poultry and food processing industries have played crucial roles in this transformation, making crops like maize and bananas more enticing.
- The need for higher output crops, concern over water consumption, and stagnation in wheat prices have also influenced this shift.

3: Understanding the Importance of Crop Diversification in India

Crucial Facts:

- Crop diversification refers to the practice of cultivating varied crops on a farm rather than solely focusing on one crop.
- Despite the Green Revolution's drive in India to increase food output by introducing high-yielding rice and wheat varieties, the resultant monoculture led to a decline in traditional, region-specific strains and loss of genetic diversity.
- Crop diversification promotes sustainable agriculture and can mitigate risks such as drought, maintain soil health, provide market opportunities, manage pests and diseases, and potentially offer new income via production of biofuels.

4: Concerns Linked with Crop Diversification

Major Concerns:

- Market risks and limited demand for diversified crops pose potential income loss for farmers.
- There are financial constraints linked to crop diversification, including initial investments in

seeds, equipment, and acquiring new knowledge about cultivation practices.

- There is a lack of infrastructure and storage facilities, dietary habits could clash, and market dynamics could disrupt, especially in regions where rice and wheat are staple crops.

5: Government Initiatives for Crop Diversification in India

Crucial Steps taken by the Government:

- The Crop Diversification Program (CDP) under Department of Agriculture & Farmers Welfare (DA&FW), targeted at Original Green Revolution States, aims to shift from water-intensive paddy cultivation to alternative crops.

- The "Mission for Integrated Development of Horticulture (MIDH)" seeks holistic growth of the horticulture sector.

- The Cabinet Committee on Economic Affairs (CCEA) has approved an increase in the Minimum Support Prices (MSP) for all mandated Kharif crops.

- "Mera Pani-Meri Virasat Scheme" in Haryana supports farmers transitioning from paddy cultivation to water-saving alternatives.

6: Future Course of Action

Potential Strategies:

- Agri-Tourism and 'U-Pick' Farms: Tourism experiences like a 'Pick-your-own' harvest could provide additional income for farmers, and promote an appreciation for diverse crops.

- Biofortification through Gene Editing: Techniques like CRISPR can develop crops with high nutritional value, potentially solving malnutrition issues and opening markets for biofortified crops.

- Regenerative Agriculture for Sustainable Diversification: Sustainable practices like cover cropping, composting, and no-till farming blended with crop rotations could create a resilient

agricultural system that benefits long-term crop yields and mitigates climate change.

Food Safety and Standards Authority of India's (FSSAI) directive to E-commerce Food Business Operators

1: FSSAI's Instructions to E-commerce FBOs

- The Food Safety and Standards Authority of India (FSSAI) has recently directed e-commerce food business operators (FBOs) to accurately label the food products on their platforms.

- FSSAI highlighted that certain licensed "proprietary foods," such as dairy-based, cereal-based, and malt-based beverage mixes were being incorrectly marketed and sold as health or energy drinks on e-commerce platforms.

- These food products are regarded as proprietary food if they don't have set standards in the FSSAI regulations.

- FSSAI asserted that the term "Health Drink" is not yet standardised or defined under the Food Safety and Standards Act, 2006.

- The organisation has thus advised FBOs to rectify such misclassification by placing such products in the appropriate category as per the legal requirements.

- FSSAI further announced that the label 'energy drinks' should only be used for products specifically licensed under that food category system.

2: Understanding the Food Safety and Standards Authority of India

- The Food Safety and Standards Authority of India (FSSAI) is an autonomous statutory body created under the Food Safety and Standards Act, 2006.

- The 2006 Act consolidates various previous laws related to food, such as the Prevention of Food Adulteration Act, 1954, the Fruit Products Order, 1955, the Meat Food Products Order, 1973, which were separately governed by different departments and ministries.
- The Act aims to create a single point of reference for all matters relating to food safety and standards, transitioning from multi-level, multi-departmental control to a unified line of command.
- FSSAI, operating under the Ministry of Health & Family Welfare, is entrusted with the task of protecting and promoting public health by regulating and supervising food safety and quality throughout India.
- FSSAI's headquarters are located in New Delhi and it has regional offices in eight zones across the country.
- The Chairperson and the Chief Executive Officer of FSSAI are appointed by the central government. The position of the Chairperson is equivalent to the rank of Secretary to the Government of India.

Title: Analysing the Current Exports Issue and Challenges Facing the Indian Onion Industry

1: Introduction -

- The Indian government has introduced regulations that allow limited exportation of onions to the United Arab Emirates (UAE) in an attempt to alleviate a domestic surplus.
- The decision has sparked controversy due to allegations of unfair practices and a significant disparity between the selling price in UAE markets and the global prices.

2: What Sparked the Ongoing Controversy?

- In December 2023, the government prohibited onion exports to avert potential domestic shortages while allowing exports to specific nations, including the UAE, in response to diplomatic demands.
- Indian farmers have raised concerns about the significant discrepancy between the price they receive for exports and the inflated prices in UAE markets. For instance, onion prices in UAE markets recently escalated to \$1500 per tonne, while India's recent shipments were recorded at about \$500 to \$550 per tonne.

3: Issues Raised by Exporters and Farmers

- Exporters have criticised the lack of transparency in the export processes, which includes setting export prices and the selection of importers and exporters. They also claim that some UAE importers profiteered unfairly at the expense of Indian farmers.
- Farmers have voiced concerns about the absence of Minimum Support Price (MSP) benefits, the significant price differences with international markets, frequently imposed export bans, and unseasonal heavy rains damaging their harvests.

4: Solution Proposals

- Fair Pricing mechanism: Unequivocal calls have been made for the implementation of a fair and more transparent pricing system.
- Market reforms: Enhancement of the agricultural marketing system to reduce middleman interference and ensure adequate prices for farmers is necessary.
- Export policy audits: A review of India's export policy alignment with the General Agreement on Tariffs and Trade regulations is essential.

- Innovative solutions: Suggestions have been made to introduce mobile, solar-powered dehydration units at village levels, which could help farmers deal with surplus production and help prevent spoilage.

5: Related International Policies

- The WTO Agreement on Agriculture, Sanitary and Phytosanitary Measures and the International Plant Protection Convention are treaties associated with the import and export of agro-products. India is a signatory to all these agreements and thus needs to comply with their terms.

6: Onion Trivia

- India is the world's second-largest onion producer, cultivated prominently in Maharashtra, Karnataka, Orissa, Uttar Pradesh, Gujarat, Andhra Pradesh and Tamil Nadu.
- The major states of onion export from India are Bangladesh, Malaysia, United Arab Emirates, Sri Lanka and Nepal.
- Onion, a member of the lily family, is a crucial horticultural product that has wide-ranging culinary and medicinal applications.

Review of Liquidity Coverage Ratio Framework: A Move towards Better Liquidity Risk Management

1: Introduction of Liquidity Coverage Ratio (LCR)

- The Liquidity Coverage Ratio (LCR) is a banking parameter introduced as a part of the Basel III reforms in response to the 2008 global financial crisis.

- The primary aim of the LCR is to ensure that banks maintain a sufficient level of high-quality liquid assets (HQLA) that can be immediately converted into cash in case of any financial stress.
- The LCR was introduced as an important preventive measure to protect banks during financial crises.

2: Composition and Function of LCR

- The LCR is determined by dividing the high-quality liquid assets (HQLA) of a bank by its total net cash flow amount.
- HQLA refers to liquid assets that can be readily sold or converted into cash without significant loss of value. For example, cash, short-term bonds, and other cash equivalents.
- Apart from these, HQLA also includes assets under Statutory Liquidity Ratio (SLR), Marginal Standing Facility (MSF) assets and the Facility to Avail Liquidity for Liquidity Coverage Ratio (FALLCR).
- Banks are required to maintain HQLA to cover 30 days' net outflow under stressed conditions. Since January 1, 2019, the minimum LCR should be 100%.

3: Recent Proposal of RBI to Review LCR

- In light of the recent experiences of quick fund withdrawals in Silicon Valley and Signature Bank in the US through digital banking channels during challenging times, RBI has proposed a review of the LCR framework.
- This review is deemed necessary to ensure better management of liquidity risk by banks, involving potential updates or modifications to the existing structure.

4: Current Status and Limitations of LCR

- At present, the scheduled commercial banks maintain an LCR of 131.4%, which is significantly above the minimum requirement of 100%.
- One of the potential drawbacks of LCR implementation could be that banks may end up holding more cash and issuing fewer loans, which can potentially slow down economic growth.

5: General Knowledge Points and Importance

- The LCR was first brought into effect following the 2008 global financial crisis, under the Basel III reforms.
- The primary objective behind its introduction was to mitigate the risk of sudden financial stress, protect the financial stability of banks and safeguard the economy from the domino effect of a financial crisis.
- In a world transitioning towards digital banking, updates to the LCR mechanism can help banks in better managing potential risks associated with quick fund withdrawals.
- The review of the LCR by RBI indicates its proactive approach towards maintaining financial stability in the banking sector.

A Comprehensive Overview of the Real Estate (Regulation and Development) Act, 2016

Introduction and Importance of the Real Estate (Regulation and Development) Act, 2016

- The Real Estate (Regulation and Development) Act, often referred to as the RERA, was introduced by the Government of India in 2016.
- The primary objective of this legislation is to regulate the real estate sector and foster transparency, accountability, and efficiency in the various transactions involved.

- RERA was established with an intent to safeguard the interests of homebuyers while encouraging fair practices within the industry.
- To ensure transparency and accountability across the sector, the Parliament passed the RERA Act.

Key Objectives of RERA

- Providing transparency in the sale of properties including flats, apartments, plots, buildings, or any form of real estate project.
- Establishment of an adjudication mechanism to expedite dispute resolution.
- Ensuring the rights and interests of buyers and allottees within the real estate sector.
- Bridging the trust gap between buyers and promoters, involving the regulatory authority as an intermediary.
- As part of its functions, the Real Estate Regulatory Authorities, established under the Act, are required to maintain a web portal with comprehensive details of all registered real estate projects for public viewing.

Reasons Behind the Introduction of RERA

- RERA was introduced in response to a series of challenges that plagued the Indian real estate sector post-2012, such as unemployment, recession, low rental yield, inventory pile-up, and unclear taxation and arbitration procedures.

Scope and Impact of RERA

- RERA applies to both commercial and residential projects, including plotted development.
- It also applies to projects measuring over 500 sq. metres or those with more than 8 units.
- Additionally, it covers projects that lack a Completion Certificate prior to the commencement of the Act.

Advantages and Disadvantages of RERA

- RERA has been instrumental in building uniformity concerning carpet area, common areas preventing malpractices in layout alterations, agreement changes, and misleading information about brokers, architects and contractors.
- It stipulates timely delivery of booked office spaces or homes by the developers, failing which they are liable to strict compensation and imprisonment.
- The major disadvantages include non-application of rules to ongoing projects or those held up due to clearance issues.
- Government agency delays in approval and clearance can obstruct timely delivery.
- Small developers with projects less than 500 sq.m. are exempted from this Act and registration with the regulator is not mandatory for them.

Rights and Provisions for Home Buyers and Builders under the Insolvency and Bankruptcy Code (IBC)

- Under the IBC, home buyers are classified as Financial Creditors. Any money advanced by a homebuyer to a real estate project is considered a financial debt, making them a creditor under the IBC.
- The homebuyers have the right to initiate insolvency proceedings against a defaulting builder company under IBC, with certain conditions involved.
- In the liquidation stage, homebuyers are treated as unsecured financial creditors, putting them at the fourth position under the waterfall mechanism of Section 53 of the IBC.

Note: Understanding the functioning of the Real Estate (Regulation and Development) Act, 2016 (RERA) is essential for government exams such as the Civil Services Exam. This comprehensive guide provides you with detailed information about RERA, its objectives, the reasons behind its introduction, its scope and coverage,

advantages and disadvantages, and the rights and provisions for homebuyers and builders under the IBC.

Unchanged Repo Rate and Monetary Policy in India: Implications and Outcomes

1: Understanding Repo and Reverse Repo Rates

- Repo rate refers to the rate at which the central bank of India, the Reserve Bank of India (RBI), lends money to commercial banks in a situation of fund shortfall.
 - Additionally, the RBI purchases the security.
- Reverse repo rate signifies the interest rate paid by the RBI to commercial banks when these banks park their added "liquidity" or money with the RBI.
- Therefore, the reverse repo rate is the exact opposite of the repo rate.

2: Current Monetary Policy Stance of the RBI

- As of the recent Monetary Policy Committee (MPC) meeting, the central bank decided to keep interest rates unchanged with the repo rate standing at 6.5%.
- The accommodative policy, implying expansion of money supply for enhancing economic growth is also being gradually withdrawn.
- This process of accommodating withdrawal is aimed at tightening the money supply within the financial system thereby curbing inflation.

3: Implications of the Recent MPC Meeting

- In this recent meeting, the RBI remained fixed on the GDP growth forecast at 7% for FY25 as compared to the 7.6% growth projected by the National Statistical Office (NSO).
- The RBI will continue to align inflation with the 4% target within a band of +/- 2% while also supporting the growth objective.

4: Why were the Interest Rates Unchanged?

- Food inflation, which influences headline inflation despite overall moderation, and the uncertainties with food prices pose unique challenges.
- Factors such as the festive season catalysing market liquidity, uncertainty surrounding crude oil prices, and resilient economic activity also influenced this decision.
- Previous repo rate hikes influence the economy and managing inflation risks also contributed to retaining the rates.

5: Inflation Targeting in India

- Inflation targeting is a monetary policy framework adopted by the RBI in 2016 that targets a specific inflation rate using monetary policy institutions.
- The primary objective of RBI is to maintain a 4% inflation target with a +/- 2% comfort zone.
- However, this framework faces limitations with structural constraints, exchange rate volatility, socio-economic impacts, and issues with data availability.

By emphasising both the economic growth and inflation targets, the RBI maintains a fine balance between monetary supply and interest rates. As such, changes in the repo rate influence the overall financial health and economic resilience of the country. The current stance reflects the confidence in the resilience of India's economy amidst broad global uncertainties.

India's Goods Export Touches New High in March 2024

1. Introduction: Skyrocketing Exports despite Global Challenges

- India's merchandise exports reached an all-time high of USD 41.68 billion in March 2024, compared to the fiscal year 2022-23.
- This growth is impressive, especially considering a slight decline of 0.67% from the previous year's numbers.

2. Highlights For March 2024: Insightful Data Points

- Imports witnessed a decline of 6% to USD 57.3 billion during the same period.
- Commodity trade deficit contracted to USD 15.6 billion, marking its lowest point in 11 months.
- Sharp decline in gold imports by 53.6% and non-oil, non-gold imports were key contributors.
- Interestingly, silver imports experienced a surge, standing at USD 816.6 million.

3. Performance Overview: FY 2023-24

- The average goods export was USD 35.4 billion in the first ten months; however, a surge in the final two months elevated the overall export figure to USD 437.1 billion.
- This figure is still 3.1% below the record USD 451.1 billion hit in the previous year.

4. FY 2023-24 Projections: Forging Ahead Amidst Global Challenges

- Despite global crises, predictions show that overall exports should surpass the last year's record.
- India's overall exports, including services, are projected to hit USD 776.68 billion; a growth of 0.04% from the previous fiscal year.

5. Key Catalysts Driving Export Growth:

- Electronic Goods saw a rise of 23.64% resulting in export earnings of USD 29.12 billion.
- Drugs and Pharmaceuticals rose by 9.67% to USD 27.85 billion.
- Engineering Goods grew by 2.13% bringing in USD 109.32 billion.

6. Agricultural Sector Performance: Green Signals

- Various agricultural commodities like tobacco, fruits, dairy products, spices, and oil seeds showed positive export growth in FY 2023-24.

7. Making Strides in Trade Deficit:

- The overall trade deficit significantly improved by 35.77% in FY 2023-24, reducing to USD 78.12 billion.
- The merchandise trade deficit saw an improvement of 9.33% to USD 240.17 billion in FY 2023-24.

8. Current Account Balance Outlook: Positive Predictions

- The contraction of the goods trade deficit in March 2024 is expected to create a positive impact on the current account balance in the final quarter of FY 2023-24.

9. Strategies for Export Enhancement: Key Suggestions

- Urgent interventions are required to address cost-related challenges in land acquisition, power tariffs, and capital availability.
- Infrastructure improvement and labour law flexibility are key to increasing competitiveness.
- India should focus on negotiating and signing trade agreements with key trading partners.
- A strong marketing plan is necessary to promote "Brand India" on the global stage.
- Encouraging multinational companies to diversify their manufacturing base away from China can boost India's export opportunities.

- With the proper implementation of these strategies, India can sustain its export growth, break previous records, and contribute significantly to global trade dynamics.

Title: Simplification of Payment Mechanism for Pulse Importers: The Role of Special Rupee Vostro Account

1. Introduction to Nostro/Vostro Account and its Relation to Recent News

- Recently, the government has simplified the payment mechanism for traders importing pulses from Myanmar.
- The importers have now been asked to utilise the Rupee/Kyat direct payment system through a Special Rupee Vostro Account (SRVA) facilitated by Punjab National Bank.

2. Understanding What Nostro/Vostro Accounts Are

- Nostro and Vostro are types of accounts maintained by banks for facilitating international transactions.
- A Nostro account is an account held by a bank in another bank, mostly in cases where a bank has no branches in a foreign country. The term Nostro comes from a Latin word that means "ours".
- On the other hand, a Vostro account is a correspondent account that a bank holds on behalf of another bank. The term Vostro is a Latin word which translates to "your".
- Both Nostro and Vostro accounts are held in foreign denominations, enabling transactions in currencies other than the bank's native currency.

3. Significance and Uses of Vostro Account

- Vostro accounts play a pivotal role in enabling domestic banks to provide international banking services to clients with global banking needs.
- Such accounts allow banks to perform various services, including executing wire transfers, performing foreign exchange transactions, enabling deposits and withdrawals, and expediting international trade.

4. Recent Changes to Import Payment Mechanism

- In the new directive for pulse importers, the government has asked them to use the Special Rupee Vostro Account (SRVA).
- This move is intended to simplify and streamline the payment process for importers, making the business more smooth and efficient.

5. Country Specific Relevance for Exam Preparations

- From a geography and international relations perspective, this is an important development in India-Myanmar economic relations.
- On the financial front, the knowledge of Nostro and Vostro accounts, their benefits and uses, forms an integral part of banking and economic modules of various competitive exams.

All in all, this recent development is quite comprehensive and touches upon several spheres, including international relations, banking, foreign trade, and economics, making it quite a germane topic to follow for various competitive exams.

Science and Technology

Decoding the Role of Artificial Intelligence in Elections: Opportunities, Challenges, and Regulations

Introduction and Overview

- India is witnessing a paradigm shift in its election process with the rising integration of Artificial Intelligence (AI).
- AI's transformative impact resonates worldwide, and the political landscape is no different.
- AI in elections is redefining campaign strategies and facilitating a targeted voter engagement approach.

AI in Elections: The Good Side

- Campaign Strategies: Harnessing AI's ability to process vast data amounts can help identify key issues, predict voter preferences, and create specific campaign messages.
- Monitoring Misinformation: AI can identify patterns and signal probable misinformation, thereby becoming instrumental in tracking fake news on social media platforms during elections.
- Voter Registration & Identification: From easing the voter registration process to ensuring rightful voting, AI plays a vital role.
- Preventing Election Meddling: AI entities, such as OpenAI, showcase commitment towards creating tools that can detect and act upon deceptive AI-generated content.
- Regulatory Measures: The Union Ministry of IT directs AI companies to ensure their services do not promote illegal activities as per Indian laws or disrupt the electoral process's integrity.

- Collaboration with Tech Platforms: Coordination between the Election Commission of India and big tech firms can help control misinformation.

Election Integrity Defined

- Election Integrity refers to the impartiality and fairness of conducting the election process, an essential aspect of democratic governance.
- The Election Commission of India shoulders the responsibility of maintaining the electoral process's integrity.
- The Supreme Court of India underscores that free and fair elections form a part of India's Constitution's basic structure.

AI in Elections: The Dark Side

- Spread of Disinformation: Growing concerns revolve around how the rapid evolution of generative AI could influence elections by disseminating false information or creating deep fakes.
- Lack of Transparency: The inscrutability of AI models' functioning obscures understanding of their decision-making process leading to issues of accountability and fairness.
- Undermining Democracy: AI misuse can manipulate public sentiment, engender fake news, and impact election results, thus undermining democratic procedures.
- Privacy & Data Security: The enormous data collection by AI induces concerns regarding its utilisation and access.
- Regulatory Challenges: The Indian government's advisories for generative AI companies emphasise that AI systems should not compromise Indian laws' credibility or the electoral process.
- Ethical Considerations: It is critical that AI applications do not exacerbate existing biases.
- Misuse & Accountability: Misuse of AI technology can convince people not to vote, and accountability is questioned when tech companies do not specify a timeline to meet their commitments.

Regulating AI: The Road Map

- The Indian government has recognized AI's potential misuse and mandates that AI-generated responses must adhere to Indian laws without hampering electoral integrity.
- Companies offering untested or unreliable AI systems in India must obtain government pre-approval.
- Global tech giants have pledged to adopt precautions to prevent AI tools from disturbing democratic elections internationally, focusing on creating awareness and actioning against misleading AI-generated information.

In essence, the integration of AI in elections is a double-edged sword. While its potential to streamline electoral processes is encouraging, its misuse can undermine democratic ethos. Therefore, regulating AI in elections becomes a priority to secure data privacy and ensure lawful and credible usage of AI technology.

Havana Syndrome: Unravelling the Covert Weapon of International Espionage

I. Inputs about Havana Syndrome

A. Introduction and Overview

- Havana Syndrome is a condition reportedly experienced by US intelligence and embassy officials worldwide.
- The term 'syndrome' typically denotes a collection of symptoms.

B. Tracing the Origin and Symptoms

- The syndrome first came to light in 2016 when U.S. diplomats in Havana, Cuba complained of mysterious illnesses and hearing shrill sounds during night time.

- Symptoms of Havana Syndrome include bloody noses, headaches, vision problems, among others.

- Even though it was initially named for the incidents in Havana, investigations now suggest that the earliest cases may have occurred in Germany even earlier.

II. Unriddling the Causes and Implications

A. Initial Assumptions and Later Discoveries

- Following the Havana incident, initial suspicions pointed towards a "sonic attack" orchestrated by Cuba, given the two countries' strained relations over the past fifty years.

- On further examination, experts conjectured that victims might have undergone exposure to intense microwaves capable of interfering with or harming the nervous system.

B. Microwaves In The World of Espionage

- Both Russia and the US are known to have experimented with microwaves as a counterintelligence strategy since the Cold War, an example of attempts to weaponise such technology.

III. Global Presence and Impact

A. Prevalence Across Borders

- Reports reveal over 130 such incidents involving U.S. officials worldwide in locations such as Russia, Poland, Taiwan, Colombia, among many others.

- By early 2018, similar claims started pouring in from US diplomats stationed in China.

B. Emergence in India

- The first incident in India was reported in 2021 when a US intelligence officer accompanying CIA director William Burns to New Delhi manifested symptoms of the syndrome.

IV. Latest Discoveries and Reactions

A. Key Findings of Recent Investigation

- A recent year-long investigation has unveiled evidence insinuating that Havana syndrome could be connected with the use of directed energy weapons by the Russian GRU Unit 29155.

- This unit is associated with foreign operations, and has been implicated in multiple international incidents, including the 2018 poisoning attempt of defector Sergei Skripal in Britain.

B. Russia's Denial

- Despite these heavy accusations, Russia has vehemently rejected the allegations, labelling them as "groundless" due to lack of convincing evidence.

This case study of Havana Syndrome provides insightful knowledge for various Government Examinations, enlightening candidates about global geopolitical dynamics and covert intelligence methods, while offering an intriguing glimpse into the ongoing secret games in the world of international relations.

Ozone Discovery on Callisto - A Leap Towards Understanding Habitability Beyond Earth

An Overview of the Discovery and Its Importance

- Researchers have discovered strong evidence of ozone presence on Jupiter's moon Callisto.
- This discovery expands the understanding of the chemical processes taking place on icy celestial bodies in our Solar System.
- The study outlines the chemical evolution of "SO₂ astrochemical ice" - ice primarily composed

of sulphur dioxide (SO₂) in the presence of ultraviolet irradiation.

- Researchers analysed the UV absorption spectra of the irradiated ice samples to identify a distinct signature indicating the formation of ozone.
- The surface of Callisto is considered to be stable, potentially preserving any subsurface ocean or habitats beneath its icy crust.

Callisto and Its Unique Environment

- Jupiter's moon, Callisto, following Ganymede and Titan, is the third-largest moon in the Solar System.
- Unlike some of Jupiter's other moons such as Io and Europa, Callisto lacks extensive seismic activity.
- The moon's composition includes water ice, rocky materials, sulphur dioxide, and organic compounds, which makes it a potential candidate for supporting alien life.
- It is heavily cratered, indicating a long history of being struck by asteroids and comets.

Historical Knowledge and Key Features About Callisto

- Callisto was discovered in 1610, by Italian scientist Galileo Galilei along with Jupiter's three other largest moons: Ganymede, Europa and Io.
- As per NASA, Jupiter, with 95 moons, boasts the second highest number of moons in the Solar System, just after Saturn with 146 moons.
- Callisto's lack of extensive seismic activity and its stable surface could be critical in preserving potential habitats, enhancing its interest for researchers.

Why The Study Is Significant

- The discovery of ozone on Callisto indicates the presence of oxygen - a fundamental ingredient required for life's complex molecules such as amino acids.

- Potential existence of similar conditions on other icy moons of our Solar System could enhance the understanding of habitable conditions beyond Earth.

The Importance of Ozone

- Composed of three oxygen atoms bonded together, ozone plays a crucial role for life on Earth.
- Found in the lower part of Earth's stratosphere, 15-35 km above the ground, the ozone layer serves as a shield.
- It protects us from the harmful ultraviolet-B and ultraviolet-C radiations of the Sun, which can cause mutations and increase the risk of skin cancer and cataracts in humans.
- In addition to the risk to humans, high levels of these ultraviolet radiations can disrupt growth of plants and have detrimental effects on various organisms.

Conclusions and Essential Notes

- The study of celestial bodies showing signs of ozone can advance understanding of stable atmospheric conditions, and by extension, their potential for hosting life.
- Researchers created laboratory conditions similar to Callisto's surface and exposed them to vacuum-ultraviolet photons. The absorption spectrum showed ozone formation similar to what was observed on Callisto in 1997.
- An essential takeaway from the discovery is that the presence of ozone suggests the presence of oxygen, which is vital for life to exist.

India's Synchronised Atomic Clocks: Enhancing Accuracy, Reducing Dependence & Bolstering National Security

1. Introduction:

- India is strategically establishing atomic clocks throughout the nation aimed at synchronising digital devices with the Indian Standard Time (IST).
- The journey of this initiative dates back to over two decades post the Kargil war, intended to safeguard accuracy and uniformity in nationwide timekeeping.

2. What Are Atomic Clocks?

- Atomic clocks are high-precision timepieces that utilise atomic vibrations to quantify time with remarkable precision.
- These devices primarily use caesium or rubidium atoms, serving as stable standards of timekeeping.
- Atomic clocks can sustain accuracy up to a few billionths of a second per day.
- Invented by Louis Essen in 1955, India currently operates atomic clocks in Ahmedabad and Faridabad.

3. Working principle of Atomic Clocks:

- Atomic clocks employ caesium atoms, renowned for their remarkable stability and unique electron oscillation frequency.
- A microwave cavity introduces a microwave signal in the chamber carrying caesium vapour, initiating the atoms to vibrate.
- The atoms, while vibrating, emit radiation of a specific frequency, which is then compared with a standard frequency to regulate the clock's accuracy.

4. Diverse Types of Atomic Clocks

- Cesium Atomic Clocks: Most commonly utilised, they function using the caesium-133 atom's transitions.
- Rubidium Atomic Clocks: A more economical and portable choice, these clocks use rubidium atoms as their reference.
- Hydrogen Maser Clocks: Exhibiting superior accuracy, these clocks are widely used in

scientific research, space missions, and satellite navigation systems.

- Optical Atomic Clocks: More precise than conventional atomic clocks, these clocks operate at optical frequencies. They hold potential in redefining the second with greater precision.

5. India's Decision for Atomic Clocks: The Underlying Rationale

- Following constraints on Global Positioning System (GPS) information during the Kargil War, India endeavoured to develop atomic clocks.
- Self-reliance on critical infrastructure like the Indian Regional Navigation Satellite System (NavIC) reduces dependency on foreign atomic clocks, crucial for national security and defence.
- The enhanced accuracy offered by atomic clocks allows all Indian digital devices to be synched with the IST, assuring a highly precise time reference.

6. Impact on Various Sectors

- Telecommunications: Accurate timing ensures error-less data transfer.
 - Financial Systems: High-frequency transactions can be time stamped with extreme precision to prevent fraud.
 - Navigation Services: The accuracy of domestic atomic clocks can guarantee reliable data in navigation systems like NavIC.
 - Cybersecurity: Atomic clocks confirm accurate timestamps, preventing fraud and strengthening cybersecurity measures.
 - National Integration: A network of atomic clocks can promote a sense of national unity under the banner of "One Nation, One Time".
 - Critical Infrastructure: Atomic clocks are pivotal in synchronising important infrastructures including power grids and emergency services.
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Pioneering Breakthrough: Successful Test Firing of Vikram-1's Stage-2 by Skyroot Aerospace

1. Introduction and Foreground of Skyroot Aerospace's Milestone

Skyroot Aerospace, one of India's premier space-tech enterprises, recently set a significant record with the successful test firing of Stage-2 of Vikram-1 spacecraft, named as Kalam-250. The operation was performed at the Indian Space Research Organisation (ISRO)'s propulsion testbed based out at Sriharikota, Andhra Pradesh. This achievement marks a significant advancement in the Indian space industry, depicting the growing capabilities of the nation in space technology and exploration.

2. Importance of Stage-2 in a Spacecraft's Launch

- Stage-2 of a space launch vehicle serves a vital role in propelling the vehicle from the atmospheric phase into the profound vacuum of outer space.
- It is responsible for steering the vehicle towards its target with utmost precision and efficiency.

3. Unfolding Technological Advancements – Kalam-250 and its Key Features

Kalam-250, Stage-2 of Vikram-1, is devised with a high-strength carbon composite rocket motor and make use of solid fuel. It has an exceptional Ethylene-Propylene-Diene terpolymers (EPDM) Thermal Protection System (TPS). Another remarkable feature includes a carbon ablative flex nozzle that enables precise thrust vector control.

4. The Journey from Vikram-S to Vikram-1

Vikram-1 trails the suborbital space launch of Vikram-S that took place in November 2022, marking India's first private orbital rocket launch.

5. Significance for the Indian Space Industry

- The successful test launch of Vikram-1's Stage-2 is a historic achievement for the Indian space industry.
- It represents the largest propulsion system ever designed and manufactured by the Indian private sector, indicating the rising prowess of the nation in the space arena.
- Vikram-1's test also denotes the first-ever testing of a carbon-composite-built motor at the reputable Indian Space Research Organisation.

6. Contribution to General Knowledge:

- Understanding the process and significance of the different stages of a space launch vehicle.
- Familiarity with the technological advancements made in the Indian space industry.
- Awareness about the major players in the Indian private space industry, like Skyroot Aerospace.

This accomplishment by Skyroot Aerospace indicates a significant leap towards strengthening India's foothold in the global space industry.

Rising Crisis of Solar Waste in India: Challenges and Recommendations

1: Current State of Solar Waste Management in India

- India's current solar waste crisis has been highlighted in a study conducted by the Ministry of

New and Renewable Energy (MNRE) and the Council on Energy, Environment and Water.

- The report titled 'Enabling a Circular Economy in India's Solar Industry – Assessing the Solar Waste Quantum' reveals startling figures about India's growing solar waste.
- The existing solar capacity has generated about 100 kilotonnes (kt) of cumulative waste, likely to surge to 340 kt by 2030.
- By 2050, the cumulative waste is projected to increase 32 times, with approximately 77% of it being due to new capacities.

2: The Top Contributors

- Rajasthan, Gujarat, Karnataka, Tamil Nadu, and Andhra Pradesh are expected to produce around 67% of the projected waste by 2030.
- While Rajasthan will account for 24% of the waste generated by 2030, Gujarat and Karnataka are projected to contribute 16% and 12% respectively.

3: Discarded Solar Modules and Essential Minerals

- The report indicates that discarded solar modules contain significant quantities of critical minerals like silicon, copper, tellurium, and cadmium, which are indispensable for India's economic growth and national security.
- The estimated 340 kt of waste by 2030 will include 10 kt of silicon, 12-18 tonnes of silver, and 16 tonnes of cadmium and tellurium.

4: Recommendations for Sustainable Solar Waste Management

- Implementing a database for accurate mapping of possible waste generation centres, periodic updates, and monitoring by MNRE.
- Development of guidelines for collecting and storing solar waste by the Ministry of Environment, Forest, and Climate Change.

- Promotion of safe and efficient processing of the waste stored.
- Setting up waste collection and storage centres by solar cell and module producers in compliance with the Electronic Waste Management Rules 2022.

5: Understanding Solar Waste and Its Recyclability

- Solar waste is any waste generated during the manufacturing of solar modules, from discarded modules, or scrap from manufacturing processes.
- Almost 80% of solar panel components are recyclable, according to the International Renewable Energy Agency (IRENA).
- The recycling process can help recover materials like glass, aluminium, copper, silicon, and silver.

6: Challenges of Solar Waste Recycling in India

- Lack of specific laws governing solar waste management leading to inconsistency in recycling efforts.
- Complexity in separating numerous materials in solar panels for effective recycling.
- The involvement of informal recyclers without the necessary safety measures can lead to harmful practices.
- Limited demand for recycled materials hampers the economic feasibility of recycling efforts.

7: India's Initiatives Related to Solar Energy

- Launch of schemes like National Solar Mission, Solar Park Scheme, Rooftop Solar Scheme, PM-KUSUM scheme, and PM-Surya Ghar Muft Bijli Yojna.
- Formation of the International Solar Alliance to promote solar energy on a global platform.

8: Strategies for Effective Solar Waste Management

- Creation of a stringent regulatory framework for collection, recycling, and recovery targets.
- Formalisation of informal recyclers through training and equipment provision.
- Establishment of facilities for refurbishing solar panels and providing them with a second life.
- Fostering solar-waste entrepreneurship with incentives for creating sustainable products using recycled solar materials.

9: Electronic Waste Management Rules 2022

- Mandates management of E-Waste, including solar PV modules, panels, and cells.
- Prescribes targets for producers through the Extended Producer Responsibility (EPR) system.
- Guidelines for storing waste generated from solar PV modules and cells up to 2034-35.
- Ensuring that Electrical and Electronic Equipment (EEE) and their components do not contain hazardous substances beyond the prescribed concentration.

Introduction of Coordinated Lunar Time - A leap towards standardising timekeeping on the Moon

1: Defining Timekeeping on the Moon

- The European Space Agency recently announced its plan for a unified timekeeping system on the Moon - Coordinated Lunar Time (LTC). This development holds significance due to

the increasing interest in lunar exploration and prospective habitation.

- Akin to Earth, the Moon also observes day and night cycles, though one lunar day amounts to about 29.5 Earth days.
- Currently, the time on the Moon is tracked by Universal Time Coordination (UTC), the same standard used on Earth.
- The proposed LTC will require at least three atomic clocks on the lunar surface for accurate timekeeping, which would be adjusted to the Moon's natural pace.

2: Necessity and Benefits of Coordinated Lunar Time

- The introduction of LTC would provide a precise benchmark for lunar spacecraft and satellites, significantly improving the efficiency and accuracy of their missions.
- A unified lunar time standard would aid robust and synchronised communication between lunar orbit satellites, astronauts, bases, and Earth.
- LTC would also help lunar settlers organise their day-to-day activities, given the long duration of a lunar day.
- Having a standard lunar time zone would optimise researchers' ability to conduct experiments and collect data.
- Usage of separate timekeeping systems for the Earth and the Moon could lead to confusion and errors, making LTC an efficient solution for this issue.

3: Challenges Ahead

- To implement the timekeeping system, the scientific intricacies of timekeeping would need to be unanimously agreed upon worldwide.

4: Glimpse of Universal Time Coordinated (UTC)

- UTC, based on International Atomic Time (TAI) and maintained by atomic clocks worldwide, aims to keep global time consistent.
- UTC utilises a 24-hour clock and functions with a time offset from Coordinated Universal Time.
- UTC is periodically adjusted by inserting leap seconds to match changes in Earth's rotation.

5: Insight into Atomic Clocks

- Atomic clocks, known for their exceptional accuracy, utilise specific resonance frequencies of atoms like cesium or rubidium.
- In atomic time, one second aligns with 9,192,631,770 vibrations of a caesium atom.
- Atomic clocks would play a vital role in establishing LTC on the Moon, as their extreme precision levels would facilitate highly accurate timekeeping.
- In India, Ahmedabad and Faridabad are currently housing functional atomic clocks.

Geography

The Afar Depression: A Potential Ocean in the Making

1: Understanding the Afar Depression

- The Afar Depression, often referred to as the Afar Triangle, is a geological depression located in the Horn of Africa.
- Comprising a peculiar convergence of three tectonic plates—the Nubian, Somali, and Arabian plates—this region is a part of the larger East African Rift system.

- The phenomenon of these plates drifting apart—a process also known as rifting—has been underway for millions of years.
- This slow continental drift could lead to monumental geographical changes over time.

2: Notable Transformation in 2005

- A significant event occurred in 2005 when a 35-mile-long rift emerged in the Ethiopian desert.
- This rift is the manifestation of deep tectonic forces at work, specifically the Somali plate's movement away from the Nubian plate.
- As a consequence of this plate movement, the Earth's crust is being stretched and thinned.

3: Anticipated Formation of a New Ocean

- The continuous tectonic movement could potentially split the African continent into two parts in approximately 5 to 10 million years, as per geologists' predictions.
- This cataclysmic event would lead to the creation of a new ocean basin.
- It would take place as a consequence of the Red Sea and the Gulf of Aden flooding over into the Afar region and the East African Rift Valley.
- This natural event will potentially convert this part of East Africa into its own separate continent.

4: Geographical Significance and Future Implications

- The geological transformation of the Afar Depression carries substantial significance since it showcases the dynamic nature of our Earth's crust.
- The changes in tectonic plates might open up novel areas of research and exploration, adding to our understanding of the Earth's evolution over time.
- Studying these changes could also yield valuable insights that might aid in predicting future geological activities.

- The emergence of a new ocean and a distinct landmass could have significant implications for the region's climate, ecosystem, and biodiversity.
- Consideration of such future possibilities is crucial for long-term environmental planning and adaptive strategies.

Conclusion: The Afar Depression, while a remote and understudied region currently, is slowly coming to the forefront of scientific investigations due to its potential for drastic geographical changes. Its study is a testament to the constantly changing and evolving nature of our planet.

The Forecast of La Nina Phenomenon in India: A Gateway to Bountiful Monsoons and Agricultural Productivity

Understanding the La Nina Phenomenon and Its Antithesis, El Nino

- La Nina and El Nino are the two opposite phases of an ocean-atmosphere phenomenon known as ENSO (El Nino Southern Oscillation).
- El Nino marks the warming of seawater in the central-east Equatorial Pacific which occurs every few years, leading to weakening of trade winds and rising surface temperatures.
 - The impact of El Nino varies globally - While it induces warm, dry winters in Northern U.S. and Canada, it brings about drought conditions in Australia and Indonesia.
 - In India, El Nino is synonymous with warmer temperatures and reduced rainfall, triggering droughts, affecting agricultural productivity, and disrupting water resources and ecosystems. Statistically, the El Nino phenomenon led to a 1.4% decrease in food grain production during the 2023-24 crop year.

- Contrarily, La Nina signifies a period with cooler than average sea surface temperatures in the equatorial Pacific region along with stronger trade winds.

- The impact of La Nina also differs globally - Southern U.S. experiences drier weather conditions, while Canada and Australia contend with abundant rainfall and possible floods.

Influence of La Nina on Indian Monsoon

- The impact of La Nina on India predominantly revolves around heightened rainfall in specific regions, resulting from cooler sea surface temperatures. This escalated precipitation paves the way for numerous advantages.

Perks of La Nina Phenomenon for India

- Enhanced Water Resource Management: Higher rainfall during La Nina events facilitates better water availability, which is indispensable for irrigation purposes in India.
- Increased Agricultural Productivity: The above-average rainfall assured by La Nina during the monsoon season plays a critical role in bolstering India's agricultural sector.
- Reduced Food Prices: The upturn in crop yields owing to the favourable weather conditions during La Nina can surge food supplies in the market, indirectly contributing to a decline in food prices.
- Boost to Power Generation: Hydropower contributes significantly to India's energy landscape. The amplification in rainfall during La Nina episodes augments water levels in reservoirs, enhancing hydropower generation capacity.

Significance for Geography and GK

- Knowledge about these interrelated ocean-atmosphere phenomena is essential as

these control the climatic balance across the globe.

- Understanding their implications specifically on Indian monsoon and agriculture is vital, given the agrarian nature of the country's economy.
- The occurrence and implications of El Nino and La Nina can become potential questions in the Geography and Current Affairs sections of various competitive exams.

The Asia-Pacific Economic Cooperation (APEC) Climate Center's forecast of La Nina's return could indeed be a silver lining for India, especially when the country is grappling with various climatic and agricultural challenges.

Himalayan Glacial Lakes on the Surge: Satellite Projections & Environmental Impacts

1. Introduction to Glacial Lakes

- Glacial Lakes, formed through the process of glacier retreat and thinning, are bodies of water in the Himalayan region that have been rapidly escalating since the Industrial Revolution.
- The categorization of these lakes is based on the method of their formation: Moraine-dammed, Ice-dammed, Erosion and other glacial lakes.
- Of the known expanding lakes, most are Moraine-dammed, followed by Erosion, other types, and least being the Ice-dammed.
- These lakes serve as crucial freshwater sources to the rivers in the Himalayas.

2. The 'Third Pole' and its Glacial Sensitivity

- The Himalayan Mountains, known as the Third Pole due to their vast glaciers and snow cover, are considerably susceptible to global climate changes.

- The implications of these changes extend beyond physical characteristics and bear profound societal impacts.

3. Associated Risks of Glacial Lakes

- Glacial lakes pose significant threats, particularly in the form of Glacial Lake Outburst Floods (GLOFs), causing devastating impacts on downstream communities.
- Such outbursts occur when massive meltwater volumes are released due to the collapse of natural dams made of moraine or ice, leading to catastrophic downstream flooding.
- These collapses can be initiated due to various factors such as ice or rock avalanches, extreme weather events, and other environmental factors.

4. Monitoring of Glacial Lakes

- Studying and monitoring the expansion and occurrences of these lakes pose challenges due to the impaired accessibility and rough terrain of the Himalayan region.

5. Recent Study Findings

- ISRO's long-term satellite imaginations covering the Indian Himalayan river basin's catchments from 1984 to 2023 depict significant changes in glacial lakes.
- According to ISRO, out of the 2,431 lakes larger than 10 hectares identified in 2016-17, 676 have notably expanded since 1984.

6. Significance of Recent Study

- Satellite remote sensing technology serves as a potent tool for inventory and monitoring due to its broad coverage and revisit capability.
- Assessing long-term changes in glacial lakes is vital to understand glacier retreat rates, evaluate GLOF risks, and gain insights into climate change impacts.
- The study also aids in formulating strategies for GLOF risk management and climate change adaptation in glacial environments by providing valuable insights into glacial lake dynamics.

Magnetic Fossils Unearthed in Bay of Bengal: A New Discovery and Perspectives

Unearthing of a 50,000-Year-Old Magnetofossil: Brief Background

- Scientists from the CSIR-National Institute of Oceanography have recently discovered an enormous magnetofossil deep in the Bay of Bengal.
- This finding is significant as it is dated at approximately 50,000 years old, making it one of the youngest discoveries of its kind so far.

Key Findings of the Study: Implications for Climate and Ancient Environments

- The analysis of sediment samples indicates fluctuations in monsoon strength during the last Glacial Maximum-Holocene period. Such changes influence weathering and sedimentation.
- Warming events aren't necessary for magnetofossil formation. Rather, an optimal balance of iron, organic carbon, and under-oxygenated conditions are crucial.
- Magnetofossils hold encoded information about past environmental conditions, including nutrient availability, oxygen levels, and water stratification.
- Rivers such as the Godavari, Mahanadi, Ganga-Brahmaputra, Cauvery, and Penner have played a pivotal role. They contributed to magnetofossil formation by supplying nutrient-rich sediment and reactive iron into the Bay of Bengal.

Introducing Magneto Fossils and Magnetotactic Bacteria

- Magnetofossils refer to the fossilised remains of magnetotactic bacteria, which contain magnetic minerals and leave fossilised magnetic particles in geological records.
- Discovered by Salvatore Bellini in 1963, magnetotactic bacteria arrange themselves along the earth's magnetic field to reach places with optimal oxygen concentration. This is facilitated by iron-rich crystals within their cells.
- These bacteria create magnetite or greigite crystals to navigate changing oxygen levels and sediment saturation. These crystals are arranged in a chain configuration through magnetotaxis.
- Rare giant magnetofossils, produced more likely by eukaryotes than bacteria, are less common than conventional magnetic fossils.

The Origin of Magnetofossils: Historical Context

- Most existing giant magnetofossils have been found in sediments dating to the Paleocene-Eocene Thermal Maximum and Middle Eocene Climatic Optimum- periods of global warming.
- The discovered magnetofossils in the Bay of Bengal, however, date back to the late Quaternary period, around 50,000 years ago.
- This discovery challenges the theory that magnetofossils formed only during periods of extreme warming.

Understanding Prokaryotes and Eukaryotes

- Prokaryotes are simple organisms lacking a true nucleus. Their genetic material, typically a circular

DNA molecule, is present in the cytoplasm without a nuclear membrane.

- Eukaryotes are organisms possessing cells containing a well-defined nucleus enclosed within a membrane. They have various membrane-bound organelles and include animals, plants, and fungi.

Acute Water Crisis in South India: Issues, Implications and Government Initiatives.

1: The Current Scenario of the Water Crisis

- Karnataka, Tamil Nadu, Andhra Pradesh, and Telangana are currently faced with a severe water shortage. Major reservoirs in these states are filled to only 25% of their capacity or even less.

- Notable dams such as Tungabhadra, Nagarjuna Sagar, Mettur, and Srisailem have abysmal water levels—a stark contrast to the situation in Kerala which has most of its major dams filled to at least 50% of their capacities.

- Compared to other regional reservoir levels in India, the South is significantly more affected, hinting towards a crisis more than a temporary situation.

2: Causes of the Southern Water Crisis

- El Niño events causing lower rainfall have led to prolonged dry periods in the region, triggering a drought-like condition.

- The post-monsoon periodic rainfall deficiency further depletes water levels in reservoirs.

- The entire situation is intensified due to rising temperatures caused by global warming, which

accelerates evaporation rates and increases the overall water demand.

- Excessive groundwater extraction for irrigation, water bodies' contamination from industrial discharge, and inefficient water management practices have collectively led to the present crisis.

3: Implications of the Water Crisis in India

- The crisis has serious health, ecological, agricultural, and economic implications. Lack of access to safe drinking water can lead to severe health issues.

- The crisis also poses a major threat to wildlife, natural habitats, and India's biodiversity, leading to potential human-animal conflicts.

- The agricultural sector that heavily relies on water resources could be significantly impacted leading to reduced crop yields and increased farmer poverty.

- Water scarcity can severely affect the country's economy in terms of industrial production, energy generation, tourism, trade, and social welfare.

4: Government Initiatives to Tackle the Water Crisis

- To combat this issue, the government has launched various water-related policies and initiatives like MGNREGA for water conservation, Jal Kranti Abhiyan, National Water Mission, Atal Bhujal Yojana (ABHY), Jal Jeevan Mission (JJM) and National Mission for Clean Ganga (NMCG).

5: A Way Forward

- To address this acute problem, efforts towards promoting sustainability in water management, awareness campaigns, conservation measures, and investment in water storage and distribution infrastructure are needed.

- The "One Water Approach" or Integrated Water Resources Management (IWRM) can provide a holistic solution.
- Encouraging farmers to adopt water-efficient techniques like drip irrigation, precision agriculture, and crop rotation could help as well.
- Mitigating impacts of water scarcity and promoting sustainable water resource management for future generations require concerted and coordinated actions at the national, state, and local levels.

Understanding the Phenomenon of Solar Eclipse - Varying Types and Occurrence Frequency

Introduction and About:

- A solar eclipse is a celestial event that occurs when the Moon positions itself between the Earth and the Sun, obstructing the Sun's light either entirely or partially.
- This celestial alignment produces a substantial shadow that will be cast upon different regions across Earth, depending on the phase of the eclipse.
- A total solar eclipse darkens the sky; individuals within the path of totality are presented with a remarkable view of the Sun's corona.

The Different Faces of Solar Eclipses

- Total Solar Eclipse: This type of eclipse takes place when the Moon aligns directly between the Earth and the Sun, completely covering the Sun's disk. This unveils the Sun's outer atmosphere or corona, bright stars, and visible planets in the sky. Total solar eclipses are quite uncommon and are widely anticipated events.
- Annual Solar Eclipse: Also known as an annular eclipse, it occurs when the moon aligns directly between the Earth and the Sun but is unable to completely cover the Sun's disk. This results in a

visible ring of sunlight around the edges of the Moon, creating a stunning "ring of fire" pattern.

- Partial Solar Eclipse: This occurs when the Moon partially obscures the Sun's disk as viewed from Earth. Only a portion of the Sun is obscured, resulting in a noticeable darkening or crescent shape on the Sun's disk.
- Hybrid Solar Eclipse: A rare eclipse where the phenomenon transitions between an annular and total solar eclipse along its path.

The Frequency of Solar Eclipses

- Solar eclipses are witnessed only during the new moon phase, approximately every 29.5 days, aligning with the Moon's orbit around the Earth.
- On average, solar eclipses take place two to five times per year, primarily due to the Moon's tilted orbit in relation to the Earth. This means its shadow is often cast too high or too low to be noticeable on Earth.

The Magnitude of Solar Eclipses

- Magnitude of an eclipse refers to the portion of the Sun's diameter covered by the Moon. This ratio of diameters should not be confused with eclipse obscuration, which measures the Sun's surface area covered by the Moon.
- The magnitude of an eclipse can be expressed either as a percentage or a decimal fraction. Its value is traditionally given at the moment of greatest eclipse.

Current Event

- Recently, a total solar eclipse trailed across North America, passing through Mexico, the United States, and Canada. The return of a total solar eclipse to the same location on Earth is suggested by Royal Museums Greenwich to take approximately 400 years.

Significance and Conclusion

- Comprehending the phenomenon of solar eclipses aids in understanding the intricate workings of our solar system. It also extrapolates essential information about the Moon's topography and the Sun's corona.

- Tracking solar eclipses and understanding their patterns and frequencies is beneficial in predicting future occurrences due to their significant impact on Earth's natural environment and human-made systems. It's also an opportunity for scientific studies and public engagement in science.

The Recent Supreme Court Directive on Mullaperiyar Dam

1: Introduction and Background of the Mullaperiyar Dam

- The Mullaperiyar Dam is situated after the confluence of the Mullayar and Periyar rivers, hence its name.
- The construction of the dam started in 1887 and got completed in 1895.
- Despite being located in Kerala, the dam is operated by the Tamil Nadu Government based on the Periyar Lake Lease Agreement from the British rule of 1886.
- The dam's primary purpose is to divert the waters of the River Periyar eastwards to the arid regions of the Theni, Madurai, Sivaganga, and Ramanathapuram districts in Tamil Nadu.
- The dam fulfilled the water needs of the temple town of Madurai in Tamil Nadu.
- The construction led to the creation of an artificial lake at the Center of the Reserve, covered by the Periyar Tiger Reserve.

2: Mullaperiyar Dam in Current News

- The Supreme Court has recently instructed the Survey of India to inspect if a proposed mega car park by Kerala near the Mullaperiyar dam infringes the regulations dictated by the Periyar Lake Lease Agreement of October 1886.

3: Significance and Agreement of Mullaperiyar Dam

- As per the Periyar Lake Lease Agreement, Tamil Nadu was granted the exclusive right and liberty to use the particular land at the Mullayar and Periyar rivers' confluence.
- The agreement also provided Tamil Nadu 100 acres for constructing the dam.
- The Periyar Lease Agreement permitted Tamil Nadu to divert water from the Mullaperiyar river basin in Kerala to Theni to provide irrigation to five arid districts.
- The agreement also granted the right to the neighbouring state, Tamil Nadu, to use water from the dam for agricultural purposes.

Overall, the Mullaperiyar Dam is a historical and infrastructural marvel of India, and the recent Supreme Court directive brings it back into the national spotlight. The dam continues to serve as an essential provider of water to several Tamil Nadu districts, marking a crucial episode in inter-state water sharing in India.

Significant Developments: Amendment in Green Credit Program and Massive Floods in Dubai

1: The Green Credit Program: Advancements and Modifications

1. Introduction to the Green Credit Program:

- Originally launched in 2023, the Green Credit Program (GCP) is an innovative mechanism designed to encourage and reward voluntary environmental actions across various sectors, including individuals, communities, private industries, and companies.

2. What are Green Credits and their Administration:

- Green Credits (GCs) symbolise positive environmental deeds issued to entities who participate in tree plantation initiatives under the GCP.

- Two years after a tree is planted and it passes an evaluation by the Indian Council of Forestry Research and Education (ICFRE), it can earn one 'green credit'.

- The Forest department, as an implementing agency, ensures that the plantation is completed within two years.

- The GCP's governance is backed by an inter-ministerial Steering Committee, and ICFRE functions as the program's Administrator taking care of its implementation, management, monitoring, and operation.

3. Process to Obtain Green Credits:

- Individuals and entities can register their activities via a government app/website dedicated to green credit.

- The GCP Administrator, along with a designated agency, verifies the registered activities, with self-verification allowed for small projects.

- Once the verification process concludes, the Administrator awards a Green Credit certificate which can be traded on the green credit platform.

2: Unusual Weather Phenomenon: The Dubai Floods

1. The Incident and its Causes:

- Recently, a storm hit Oman and UAE leading to UAE experiencing heaviest rainfall in 75 years, leading to questions about the role of cloud seeding in the event.

- Several factors contributed, including a strong low-pressure system, heavy thunderstorm, climate change effects, a mesoscale convective system, and rapid urbanisation making the city more susceptible to flooding.

- Although there were speculations about cloud seeding contributing to the event, it was clarified that no cloud-seeding operations were conducted before or during the storm.

2. What is Cloud Seeding:

- Introduced in 1946 in the USA, cloud seeding is a weather modification technique that enhances a cloud's ability to produce rain or snow.

- In the UAE, which experiences less than 100 mm of annual rainfall, cloud seeding is adopted to combat this shortage.

- The working mechanism involves introducing tiny ice nuclei into certain types of subfreezing clouds, assisting in the formation of snowflakes that eventually fall as precipitation.

3. Consequences of The Dubai Floods:

- The city of Al Ain recorded 10 inches of rainfall in a 24-hour period, highest since 1949.

- The unprecedented heavy downpours caused flooding, power outages, and triggered emergency responses. Dubai Airport, the world's second busiest, was temporarily paralyzed due to the rainfall.

- Additionally, the floods caused substantial damage to infrastructure including collapsing roads and flooding in residential communities.

Report Review: Asia Against the Deluge - A Dive into the 'State of the Climate in Asia 2023'

1: Revisiting the Downpour: Overview of the 'State of the Climate in Asia 2023' Report

• As per the 'State of the Climate in Asia 2023' by the World Meteorological Organisation (WMO), Asia topped the chart with the highest number of disasters worldwide in 2023.

- Nearly 79 events pertaining to extreme weather, climate, and water-related hazards directly affected over 9 million people and claimed more than 2,000 lives.
- Despite a slight drop in the disaster count compared to 2022, the severity of impacts remained significant.
- The average temperature in Asia was 0.91°C higher than the 1991–2020 reference period, marking it as the second-highest on record.

2: Dance of the Elements: Climate Aberrations and Natural Events

- Notable climatic anomalies included extreme heat events across the continent, with Japan witnessing its hottest summer ever.
- Glaciers in High-Mountain Asia have lost substantial mass over the past four decades, accelerated by record-breaking temperatures and dry conditions in the Eastern Himalayas and Tien Shan in 2023.
- Coastal regions faced the brunt of increasing sea-surface temperature anomalies- the highest on record in the northwest Pacific Ocean.
- Numerous areas suffered the consequences of meteorological hazards like drought in south-west China due to abnormally low precipitation and widespread flooding in Yemen due to heavy rainfall.

3: India on the Climate Spectrum: Impact of Extreme Weather

- India felt the weight of climate extremes with several severe weather events inducing devastating effects.
- Devastating heatwaves took about 110 lives, majorly older individuals with existing health conditions, predominantly in Uttar Pradesh.
- Torrential rainfall led to flooding in August 2023 damaging infrastructure, claiming 25 lives in Himachal Pradesh and Uttarakhand.
- Six tropical cyclones formed in the North Indian Ocean, slightly above the average annual frequency.

- Additional climatic upheaval included a major glacial lake outburst at South Lhonak Lake in Sikkim that killed over 40 people.

4: Preparing for the Climate Future: Approaches and Strategies

- The report accentuates the glaring gap in climate projection and tailored products necessary for long-term interventions such as climate change adaptation and mitigation.
- Presently, under 50% of WMO Members provide tailored products, underpinning inadequacy, given Asia's high vulnerability to climate-related disasters.
- By 2030, annual losses in Asia due to extreme weather events are expected to exceed USD 160 billion, equivalent to approximately 0.6% of the region's GDP.
- The urgency to bolster efforts and provide more tailored support products for effective medium and short-term activities and interventions for disaster risk mitigation are accentuated.

International Relations

Enhancing Infrastructure and Connectivity at the Line of Actual Control in Arunachal Pradesh

Introduction:

Arunachal Pradesh, the Indian Union's 24th state, recently made the news due to heightened efforts aimed at improving its infrastructure and connectivity along the Line of Actual Control (LAC) with China. Situated in Northeast India, the

state – flanked by Bhutan, Myanmar, and China, and bordered by Assam's plains – plays a strategically vital role, accentuating the significance of the updated infrastructure.

Enhancements in Infrastructure and Connectivity:

I. Boosting Connectivity at the LAC:

- Indian Army has played a critical role in linking remote parts of Arunachal Pradesh and speeding up infrastructure upgrades along the contentious LAC.

- The nearly 2,400-km-long Trans Arunachal Highway and the ongoing trans-frontier initiative aim to better travel times for both the military and civilians in eastern Arunachal Pradesh.

- Additionally, the enclave will gain year-round access to Tawang, with the completion of the under-construction Nechipu and Sela tunnels on the Balipara-Chariduar-Tawang Road.

II. Border Roads Organisation (BRO):

- Founded in 1960, the BRO operates under the Ministry of Defence, focusing on the development of an adequate road network in the North and North-Eastern border regions.

- Its essential functions involve the development and sustenance of infrastructure to aid armed forces, achieve international standards in construction activity, and optimise potential through diversified projects.

III. Enhancing Surveillance and Infrastructure:

- The last few years have seen an upgrade of firepower and infrastructure in the Tawang sector of Arunachal Pradesh.

- Other improvements include road infrastructure, bridges, tunnels, housing and storage facilities, aviation facilities, and upgrades in communications and surveillance.

Challenges in Development:

I. Geographical and Educational Hurdles:

- High-altitude terrain and sparse population along the LAC contribute to the challenges of infrastructure development.

- The residents of these remote locations also have limited access to quality education, affecting their quality of life.

II. Financial Constraints and Security Concerns:

- The complex terrain leads to spiralling infrastructure development costs, posing significant resource allocation and management challenges.

- The proximity to the contested Chinese border adds a layer of complexity, necessitating secure infrastructure development.

III. Limited Last-Mile Connectivity:

- The most significant hurdle lies in providing comprehensive connectivity to the farthest posts.

Government Initiatives:

I. Inter-state Border Areas Development Programme (ISBADP) & Border Areas Development Department (BADP):

- These programs focus on meeting the developmental needs and wellbeing of residents in remote border regions.

II. Ministry of Home Affairs Initiatives:

- The initiatives include fence constructions, floodlighting, roads, Border Out Posts (BOPs), Company Operating Bases (COBs), and the deployment of technological solutions along India's borders.

III. Vibrant Villages Programme:

- This initiative focuses on the development of remote Arunachal Pradesh villages, improving living standards in the state.

In conclusion, India has significantly stepped up its efforts to enhance infrastructure and connectivity along its northeastern border. This acceleration addresses multiple challenges such

as geographical constraints and lack of quality education. Additionally, several government initiatives are further aiming to improve socio-economic conditions and ensure sustainable living along the border.

Navigating Maritime Disputes: India Bolsters Support for Philippines in South China Sea Contention

I. Introduction & Geographic Significance of South China Sea

- India's Ministry of External Affairs recently declared strong backing for the Philippines in upholding its national sovereignty amid ongoing tensions with China over the South China Sea.

- Diplomatic ties between India and the Philippines are on the brink of their 75-year anniversary in 2024, signifying a transformative alliance between the countries.

- The South China Sea holds strategic importance due to its location, with several countries including China, Taiwan, and nations from the Indo-Chinese peninsula surrounding it.

- Trade wise, it serves as a significant passageway for one-third of all global shipping, including over 64% of China's maritime trade and 55% of India's trade.

- It also serves as a vital resource for fishing, providing livelihood and food security to millions in the region.

II. The South China Sea Dispute

- The heart of the dispute lies in contentious claims over land features such as islands, reefs, and adjacent waters by China, Brunei, Taiwan, the Philippines, Vietnam, and Malaysia.

- China's contentious "nine-dash line" claim encompasses nearly 90% of the sea, leading to rising tension as it expands islands and

constructs military edifices to consolidate control, mainly in the Paracel and Spratly Islands.

III. Salami Slicing Technique: A Strategy in Maritime Disputes

- This technique focuses on countries gradually establishing control over maritime regions through small, steady actions over time, aiming to harness influence and create irreversible circumstances in contested waters.

- China, for example, has been alleged of utilising this strategy in the South China Sea via actions such as constructing artificial islands, conducting resource exploration, and imposing fishing prohibitions.

IV. India-Philippines Relations: An Overview of Cooperation Areas

- India and the Philippines' diplomatic ties were formalised on November 26th, 1949, and further diversified with the Act East Policy introduced in 2014.

- Bilateral trade reached a record high with a value just above \$3 billion for the first time in 2022-23.

- The health and medical sector also saw significant collaboration, with the Philippines being the first ASEAN member to approve Bharat Biotech's Covaxin, consequently accounting for about 20% of India's pharmaceutical exports to ASEAN.

- Furthermore, the nations signed a Bilateral Programme of Cooperation in Science and Technology in October 2019.

V. India's Strengthening Defence Capabilities

- In January 2022, India inked an agreement with the Philippines to supply a shore-based, anti-ship version of the supersonic BrahMos cruise missile, highlighting the global demand for India's advanced defence capabilities.

This stance of India supporting the Philippines and the increased cooperation with the ASEAN

community reinforce India's commitment to maintaining peace and stability and ensuring freedom of navigation and overflight in the South China Sea region. These developments also highlight the importance of upholding international law, particularly the United Nations Convention on the Law of the Sea in the resolution of disputes.

The Expansion of AUKUS Alliance: Analysis and Implications for India

I. Introduction and About AUKUS Alliance

- The AUKUS Alliance is a trilateral security agreement between Australia, the UK, and the US, aimed at strengthening security and defence interests particularly in the Indo-Pacific region.
- The alliance, officially formed in 2021, is notably recognized for the sharing of US nuclear submarine technology with Australia.
- This coalition was developed primarily as a measure to counter China's increasing influence and aggressive actions in the South China Sea.
- The alliance facilitates advanced cooperation and information exchange in the fields of emerging technologies such as applied AI, quantum technologies, and undersea capabilities.

II. Expansion of AUKUS Alliance

- Recently, the spectre of the expansion of the AUKUS Alliance has been the focus in international news.
- The alliance is poised to enter discussions regarding the inclusion of new members,

potentially adding more strength and resources to its enhancements.

- India, albeit not a formal member currently, has been informally engaging with the AUKUS block, mainly on issues related to emerging technologies. Formal discussions have however not been initiated.

III. Strategic Consequences for India

A. Strengthening ties with Australia

- Enhanced scientific and technical capabilities in Australia provide an opportunity for India to deepen its ties in these fields significantly.
- Such cooperation could advance India's technological capabilities while promoting regional peace and security.

B. Recognizing Britain's Continuing Global Strategic Significance

- The AUKUS deal might encourage a re-evaluation of the frequently neglected strategic importance of the UK, potentially leading to greater cooperation on Asia-Pacific security matters.

C. Embracing the "Anglosphere"

- Despite some historical friction with the Anglosphere, the AUKUS deal has highlighted the lasting geopolitical bonds between the US, UK, Australia, Canada, and New Zealand.
- Entering this English-speaking world can win India opportunities especially in technology and defence.

D. Unique Arrangements with the US and Allies

- The shift in US policy to strengthen the strategic capabilities of its Indo-Pacific allies and partners

can offer India the chance to establish its unique arrangements.

- This new set-up can involve closer military cooperation, shared training activities, and intelligence sharing, further solidifying India's strategic position in the region.

The expansion of the AUKUS alliance inherently proposes a multitude of opportunities for India to enhance its defence, technology collaborations, and geo-strategic relations. By leveraging these prospects effectively, India can amplify its influence and security in the Indo-Pacific region.

Proactive India Develops Early Warning Systems in Partner Nations

1: Introduction and Context

- The Indian government is actively aiding neighbouring countries and small island nations in developing early warning mechanisms to counter extreme weather developments.
- These measures are directed to reduce both loss of life and property, aligning with the global initiative of the United Nations titled 'Early Warnings for All'.

2: India's Intervention Plan

- Various nations, especially those considered underprivileged, underdeveloped, or comprising small-island territories like Seychelles and Maldives, tend to lack the resources to build effective early warning systems.
- Countries benefiting from India's initiative include Nepal, Maldives, Sri Lanka, Bangladesh, and Mauritius.
- To help these nations, India offers technical know-how and financial support, predominantly

through a system of public-private partnerships, along with other potential contributors.

3: India's Role in the Development of Early Warning Systems

- India plans to set up meteorological observatories in partner nations and provide them with access to India's numerical models to improve weather forecasting capabilities.
- Assisting in generating decision support systems for timely navigation of extreme weather happens to be another crucial part of the plan.
- Ministries of communication in the respective nations will work collectively to establish data interchange and expand warning dispersion systems.

4: Global Weather Incidences and Consequent Repercussions

- A report published by the World Meteorological Organization (WMO) states that natural disasters increased by a shocking five times between 1970-2019, with water-linked disasters emerging predominant.
- Asia has been deeply affected, with over 146,000 fatalities, and more than 911 million people directly subject to calamities from 2013-2022.
- Economic damages in 2022 alone were above USD 36 billion, a majority resulting from floods and violent storms.

5: Elaboration of Human and Economic Losses

- A total of 12,000 weather, climate, or water-related disasters were observed between 1970 to 2021 causing over two million deaths, and economic losses crossing USD 4.3 trillion.

6: Climate Change Impact

- Drastic Climate change has led to an enhanced frequency and ferocity of disasters, making them increasingly unpredictable and complex to manage.

7: Predictions for the future

- By 2030, the world could witness around 560 medium to large-scale disasters every year.

8: India's Significant Role

- India's commitment to reinforcing early warning mechanisms emphasises the necessity of global cooperation in combating the escalating risk of natural disasters and climate change.

9: India Meteorological Department (IMD)

- Established in 1875, IMD is an entity of the Ministry of Earth Sciences.
- Its primary responsibility involves meteorological observations, weather predictions, and seismology.

10: 'Early Warnings for All' Initiatives

- This initiative is spearheaded by WMO and the United Nations Office for Disaster Risk Reduction (UNDRR), along with other collaborators.
- The initiative is structured on four key pillars for outstanding yet inclusive multi-hazard early warning systems, which are disaster risk understanding and management, observation and analysis, warning dispersion and communication, and readiness and response capabilities.

Conclusion: India, with its leading initiatives and technical expertise, is noticeably contributing to strengthening the resilience of vulnerable nations against volatile weather conditions. This effort reflects India's strategic role in global disaster management and climate change mitigation.

NATO Turning 75: Achievements, Criticisms, and the Road Ahead

I. Introduction and History of NATO

A. The North Atlantic Treaty Organisation (NATO) commemorates its 75th anniversary, marking the day of its creation on April 4, 1949, with the primary mission of providing collective defence against potential aggression.

B. NATO was formed in Washington, D.C. by 12 founding member countries from Europe and North America with a focus on maintaining democracy, freedom, and the rule of law.

C. Throughout its existence, NATO has continued to evolve, expanding its focus to confront a range of security challenges beyond its original mandate.

II. The Structure and Role of NATO

A. NATO's primary mission revolves around collective defence, as expressed in Article 5 of the North Atlantic Treaty.

B. NATO also undertakes activities in crisis management, conflict prevention, and cooperative security.

C. The North Atlantic Council (NAC) acts as NATO's chief political decision-making body, incorporating ambassadors from all its member countries.

III. Expanding Membership of NATO

A. From the original 12 members, NATO has expanded over time and now comprises 32 member countries.

B. The combined contributions of these member countries allow NATO to maintain integrated military forces for collective defence initiatives.

IV. Contemporary Challenges to NATO's Function

- A. Despite its defensive mission, NATO has often been observed taking offensive action internationally.
- B. The body has faced criticisms for its involvement in numerous military conflicts & interventions, including Iraq, Libya, and Syria.
- C. Its role in exacerbating the Russia-Ukraine War has been deemed contentious.
- D. The expansions, specifically towards the post-Soviet space and Eurasia, have fueled concerns about NATO's true intentions.
- E. NATO's interest in the Indo-Pacific region also raises suspicions about its expansionist tendencies.

V. NATO's Successes and Failures

- A. Successes include maintaining peace during the Cold War, offering modern-day protection to its members, and providing aid to conflict-affected regions such as Ukraine.
- B. Failures include inability to ensure consistent investment by member nations in defence spending, an unsuccessful peace solution in Afghanistan, inability to tamp down the rise of right-wing nationalism in Europe, and fanning the flames of Russian aggression through further expansion.

VI. Necessary Reforms for NATO's Efficiency

- A. Reforms should aim to improve organisational cohesion, enhance the quality and timeliness of advice, expand NATO's non-military dimension, and retain the Alliance's unique character while fostering unity amongst its member nations.
- B. NATO operations should be more inclusive, often incorporating non-NATO nations.
- C. The focus must shift more towards non-traditional threats like cyber attacks and disinformation campaigns, without undermining its core mission of collective defence.

VII. Conclusion

- A. Throughout its 75-year existence, NATO has fulfilled its core mission of securing the freedom and safety of its members.
 - B. In the wake of evolving global security threats and complex challenges, NATO needs to continue its adaptation and reform process, focussing more on emerging areas such as defence capabilities, streamlined decision-making processes, cyber, space, and technological superiority.
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Polity

Supreme Court Empowers the Directorate of Enforcement (ED): Roles, Responsibilities, and Challenges

I. Introduction and About

- The Directorate of Enforcement (ED) has been accorded sweeping powers by the Supreme Court, allowing it to call upon anyone for any information. This decision received coverage in the context of the Tamil Nadu government and Collectors expressing inability to attend ED in person due to General Elections.

II. About the Directorate of Enforcement (ED)

- Established in 1956 under the Department of Economic Affairs, the ED was formed as an 'Enforcement Unit' to handle violations under the Foreign Exchange Regulation Act, 1947. Gradually, in 1957, it was named the Enforcement Directorate.

- Primarily, the directorate investigates offences in money laundering and foreign exchange law violations.

III. Key Enforced Acts by ED

A. Prevention of Money Laundering Act, 2002 (PMLA):

- ED enforces PMLA provisions by investigating, identifying assets derived from crime proceeds, pursuing provisional attachment of properties, and ensuring prosecution and property confiscation.

B. Foreign Exchange Management Act, 1999 (FEMA):

- Under FEMA, ED investigates suspected contraventions of foreign exchange laws, adjudicates and imposes penalties on proven offenders.

C. Fugitive Economic Offenders Act, 2018 (FEOA):

- ED is mandated to attach properties of economic offenders evading Indian courts and help confiscate their assets for the Central Government under FEOA.

IV. Powers Granted to the ED

- Apart from investigation powers, the ED can summon any individual deemed necessary during the investigation or proceedings either to produce any records or to give evidence.

V. Existing Challenges in ED's Functioning

A. Overburdened and Lengthy Investigations:

- ED's investigations are often lengthy due to complex financial transactions, legal barriers, and the need for inter-agency coordination.

B. Political Interference:

- ED's functioning is at times scrutinised for alleged political interference, especially in high-profile cases.

C. Lack of Coordination:

- The efficiency of the ED can be compromised due to inadequate coordination with other law enforcement agencies including CBI, SEBI, and state police forces.

D. Legal and International Challenges:

- Legal challenges like delays in court proceedings, interpretation of legal provisions, and limitations in the legal framework can hamper ED's efforts. Additionally, differences in international legal systems, jurisdiction issues, and diplomatic complexities can hinder effective global cooperation.

VI. Enhancing the ED's Effectiveness

- Addressing these challenges requires a multi-pronged approach like strengthening ED's institutional capacity, improving coordination with other agencies, ensuring its autonomy and independence, providing adequate resources and training to its personnel.

- Legal reforms and enhancements in international cooperation mechanisms can further help improve ED's fight against financial crimes and promote financial integrity.

Addressing LGBTQIA+ Rights in India: Progress and Challenges

I. Introduction and About:

• LGBTQIA+ is an acronym representing lesbian, gay, bisexual, transgender, queer, intersex, and asexual individuals with the "+" symbolising the continuous evolution and inclusion of several other identities.

II. Why in News?

- Recently, the Supreme Court of India cautioned against using court-ordered counselling to attempt to change the identity and sexual orientation of LGBTQIA+ individuals against their will

- This advisory is particularly significant in cases where distressed LGBTQIA+ individuals are forcibly separated from their partners by their families.

III. History and Legal Status of LGBTQIA+ Recognition in India:

- The journey of LGBTQIA+ recognition in India traverses through a challenging path since colonial times to recent landmark judicial verdicts

- Key milestones include the decriminalisation of same-sex relationships in 2018 (Navtej Singh Johar v. Union of India) and legal recognition and prohibition of discrimination against transgender individuals in 2019 (Transgender Persons (Protection of Rights) Act).

- Despite numerous advancements, there are still legal challenges for LGBTQIA+ community especially regarding the legalisation of same-sex marriages, as the Supreme Court in 2023 shied away from interfering in the Special Marriage Act (SMA), leaving it to the legislative bodies to enact necessary laws.

IV. Contemporary Challenges Facing LGBTQIA+ in India:

- Despite significant legal recognition, the community still faces social stigma, family rejection and inadequate access to healthcare.

- Their struggle intensifies with intersectional challenges, as individuals belonging to marginalised communities face compounded discrimination.

- Manipulative counselling practices, including conversion therapy, contribute to the issues faced by the LGBTQIA+ individuals, validating harmful stereotypes and contributing to internalised psychological conflicts.

V. Mapping the Way Forward:

- Legal reforms such as enacting separate legislation for recognizing LGBTQIA+ rights are crucial. For instance, amendments made in the Hindu Marriage Act by Tamil Nadu, allowing 'Suyamariyathai' marriages can serve as a model.

- Strategies for economic empowerment like encouraging entrepreneurship within the LGBTQIA+ community and promoting LGBTQIA+-friendly workplaces, can ensure financial independence and job security.

- Facilitating access to LGBTQIA+-friendly healthcare services, including mental health support, can mitigate health-related challenges faced by this community.

- Utilising sports as a platform to break stereotypes can aid in the mental well-being and community bonding among LGBTQIA+ individuals.

In conclusion, while India has made substantial strides in recognizing LGBTQIA+ rights, a comprehensive approach to address multifaceted challenges inclusive of legal reforms, socio-economic empowerment, broader healthcare access, and use of platforms like sports for breaking stereotypes can ensure holistic progress in this sector.

Dealing with the Conundrum of Fake News and Disinformation: A Glance at the Indian Scenario

1: Introduction and Understanding Fake News and Disinformation

- Fake News: Fabricated stories with no credible facts or sources, designed to either mislead readers or attract traffic to websites.
- Disinformation: Deliberately misleading information shared with knowledge of its falsehood.
- Misinformation: Incorrect information passed by individuals who believe it to be true.

2: The Deluge of Fake News and Disinformation: Its Impact

- Threat to Democratic Processes: Manipulation of public opinion and potential interference in election cycles and triggering violence.
- Affects Social and Communal Harmony: Inciting violence, spreading extremist ideologies, and altering public opinions.
- Use of Technology: AI and digital technology aiding in the rapid spread of this menace.
- Shaking Trust and Social Cohesion: Increasing political polarisation and decreasing trust in public institutions.

3: Challenges in Rein in on Fake News

- Lack of standard definition and ineffective self-regulation of mainstream media.
- Efforts to control fake news are often interpreted as an attack on media freedom and the freedom of expression as protected under Article 19 of the Indian Constitution.
- Difficulty in tracing the origin of fake news due to the sheer vastness of internet and social media users.

4: Legal Counter-Measures against Fake News and Disinformation

- The institution of bodies like Indian Broadcast Foundation (IBF) and Press Council of India.
- IPC Sections 153A and 295: Legal action against hate speech.
- The Information Technology (IT) Act empowers takedown notices by law enforcement agencies.
- Contempt of Court Laws and defamation suits to counter false stories about judicial proceedings and legislative bodies.

5: Suggestive Measures for Effective Control

- Deployment of AI capabilities in detecting fake news and spreading correct information.
- Tech Giants like Google introducing features intelligently designed to fight misinformation.
- Homeland Security Advisory Council's report on disinformation best practices.
- India specific measures like AI-enabled COVID-19 Helpdesk, MyGov Saathi and the Fact Check Unit (FCU).

As India navigates the Information Age, the challenge to curtail the widespread dissemination of fake news and disinformation is multifaceted and requires collective responsibility. This includes regulatory bodies, tech giants, government, and citizens alike to promote accuracy, responsibility, and the spirit of truth as indispensable virtues of democracy.

Extension of AFSPA in Nagaland and Arunachal: A Deep Dive into Controversial Act's Background, Impact, and Ongoing Debate

1. Introduction & Recent Developments:

- The Union Ministry of Home Affairs (MHA) recently extended the implementation of the Armed Forces (Special Powers) Act (AFSPA), 1958 for an additional six months in parts of Nagaland and Arunachal Pradesh.
- This extension covers eight districts and 21 police stations in Nagaland, along with specific regions in Arunachal Pradesh.

2. Historical Overview of AFSPA:

- Originated during British rule in 1942, the Armed Forces Special Powers Ordinance was first instigated to suppress the Quit India Movement.
- It later served as the basis for four ordinances, including one enacted in 1947 for the "Assam disturbed areas", a response to the internal security challenges triggered by Partition.
- The AFSPA, as it is known today, evolved from the Armed Forces (Assam and Manipur) Special Powers Act, 1958, which was implemented to manage rising insurgencies in Naga Hills and neighbouring areas.
- The original Act was replaced by AFSPA in 1958 to have a wider application. A unique version of the Act was passed for Jammu and Kashmir in 1990.

3. What is the AFSPA and Its Purpose?

- Instituted on September 11, 1958, after obtaining presidential approval, the AFSPA emerged in response to escalating violence in North-eastern states, which local governments struggled to contain.
- This Act grants sweeping powers to armed forces and Central Armed Police Forces in the so-called "disturbed areas", offering them legal protection and the authority to kill, arrest, and search without a warrant.

4. Definition and Description of 'Disturbed Areas':

- 'Disturbed areas' under AFSPA are those that receive notification under Section 3, marking territories requiring the aid of armed forces to maintain civil order.
- These areas can be designated as disturbed due to disagreements or conflicts among different demographic groups - religious, racial, linguistic, or regional.
- After being declared 'disturbed', an area remains as such for three consecutive months under the Disturbed Areas (Special Courts) Act, 1976.
- Currently, Union Home Ministry's "disturbed area" notifications to extend AFSPA are applicable only for Nagaland and Arunachal Pradesh.

5. Controversy Surrounding AFSPA: Potent Arguments 'For' and 'Against' the Act:

5.1 Arguments in Favour:

- Persistent Security Threats
- Empowering Security Forces
- Legal Protections for Personnel
- Morale Boost

5.2 Arguments Against:

- Violation of State's Autonomy
- Excessive Use of Force
- Violation of Civil Liberties
- Lack of Accountability and Transparency
- Evidence of Abuse by Security Forces

6. Supreme Court's Guidelines on AFSPA:

- In 1998, the Supreme Court vouched for AFSPA's constitutionality in the case of Naga People's Movement of Human Rights v. Union of India, and issued a series of conclusions and guidelines pertaining to the Act.

7. AFSPA Review Committees and Their Recommendations:

7.1 Jeevan Reddy Committee (2004):

- Repeal AFSPA and insert appropriate provisions in the Unlawful Activities (Prevention) Act, 1967.

- Set up grievance cells in all districts.

7.2 Second Administrative Reforms Commission:

- Recommended the repeal of AFSPA.

7.3 Santosh Hegde Commission:

- Regular six-month reviews of AFSPA.
 - Alterations to the Unlawful Activities (Prevention) Act to tackle terrorism.
 - Investigations into armed forces' suspected overreaches even in "disturbed areas".

AFSPA continues to remain a contentious issue in Indian governance and public discourse, with its complex legacy of maintaining security and alleged human rights abuses continue to fuel debates regarding its validity, necessity, and potential for reform.

The Utility, Controversy, and Recent Supreme Court Verdict on Preventive Detention

1: Understanding the Concept of Preventive Detention

- Originated during the British colonial rule in India since 1818, preventive detention authorises the detention of a person without trial to prevent potential criminal offences.

- The Defence of India Acts of 1915 and during the Second World War introduced the provisions of preventive detention.

- Advisory boards review detention orders and must approve any detention exceeding three months.

- Grounds for preventive detention include state security, public order, and foreign affairs.

- Preventive detention implies detaining a person on the suspicion of criminal intent, while punitive detention serves as punishment for an actual criminal offence.

- Article 22 of the Indian Constitution affords protection to arrested or detained persons and requires the formation of advisory boards for reviewing preventive detention laws.

2: Legal Protections and Associated Laws

- Detained individuals have the right to challenge their detention and must be informed of their detention grounds unless it's considered detrimental to public interest.

- Public Safety Act, Narcotics Drug and Psychotropic Substance Act, 1985, and the National Security Act are among the relative preventive laws.

- There's been a significant reduction in preventive detentions under the National Security Act, from 741 in 2020 to 483 in 2021.

3: Criticisms and Misuse of Preventive Detention

- Point of contention in democracies worldwide with India incorporating it as an integral part of the Constitution.

- Potential misuse by governments to exert extrajudicial authority and facilitate arbitrary detentions.

- Misuse of laws like the Unlawful Activities (Prevention) Act, 1967 for preventive detentions.

- Manipulation of preventive detentions by district magistrates and police to control law and order, even without threats of public disorder.

4: Supreme Court Rulings on Preventive Detention

- Ameena Begum Case, 2023: Supreme Court highlighted that preventive detention should be an exceptional measure limited to emergency situations and not as a routine practice.
- Anukul Chandra Pradhan Case, 1997: Emphasised preventive detention's goal of preventing harm to state security over punitive measures.

5: Distinction Between Public Order and Law & Order

- Public order maintains peace and stability within society while curbing activities disrupting the public safety or community well-being.
- The Indian Constitution authorises the Parliament to make laws for preventive detention relating to defence, foreign affairs, or security under Entry 9 of List I (Union List).
- Both the Parliament and State Legislature can enact such laws under Entry 3 of List III (Concurrent List) in relation to public order maintenance and essential community supplies or services.
- The Supreme Court distinguishes between 'public order' and 'law and order' based on the degree and extent of their impact on the society or individual groups.

6: The Way Forward

- The National Commission to Review the Working of the Constitution recommended limiting detention under Article 22 to six months and mandating the advisory board's composition to include serving High Court judges.
 - The Supreme Court stressed in July 2022 that the exceptional powers of preventive detention implicating individual liberties should be sparingly and judiciously used.
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Introduction and Discussion on Voter Verified Paper Audit Trail (VVPAT) Machines

Introduction to VVPAT Machines

- Voter Verified Paper Audit Trail (VVPAT) machines were recently brought into focus as the Supreme Court decided to address petitions for 100% verification of VVPAT slips in anticipation of the first phase of voting on 19th April 2024.
- VVPAT machines are attached to the Electronic Voting Machine (EVM) ballot unit and offer visual verification of each vote.
- The machine prints a slip with the details of the candidate chosen by the voter, and this slip is visible behind a glass window for 7 seconds before it drops into a compartment.
- Voters cannot take the VVPAT slip home; instead, it is used to verify votes in five randomly selected polling booths.
- The system aims to foster trust in the electoral process by providing a physical verification method for electronically cast votes.

History and Implementation of VVPAT System

- The idea for the VVPAT machine was proposed in 2010 during a meeting between the Election Commission of India (ECI) and political parties to increase transparency in the EVM-based voting process.
- Prototype design and field trials were conducted in locations including Ladakh, Thiruvananthapuram, Cherrapunjee, East Delhi, and Jaisalmer in July 2011.
- The VVPAT system was approved by an expert committee of the ECI in February 2013.
- In 2013, the Conduct of Elections Rules, 1961, were amended to include provisions for attaching a printer with a drop box to the EVM.
- VVPATs were first used in 2013 in the Noksen Assembly constituency of Nagaland, leading to 100% adoption by June 2017.

Views and Judgments Related to VVPAT

- The Supreme Court mandated the use of VVPATs in Subramanian Swamy vs Election Commission of India Case, 2013, stating the need for their use in conducting transparent elections.
- In 2019, a petition asking for a minimum 50% randomised VVPAT slips count was brought up, although it faced concerns from the ECI regarding issues such as a potential delay in declaring election results.
- However, in 2019, the Supreme Court ruled that VVPAT slips of five EVMs in every electoral constituency should be counted for utmost accuracy in the voting process.

Statistics Related to VVPAT Slips

- The Election Commission would originally match VVPAT paper slips from 4,125 EVMs under the 'one EVM per assembly segment' rule.
- In 2018, the Election Commission asked the Indian Statistical Institute (ISI) to determine a statistically sound and robust sample size for auditing VVPAT slips with EVM results.
- After meticulous calculations by ISI, they suggested counting slips from 479 random VVPATs across the country for over 99% accuracy.
- But with the Supreme Court ruling in 2019, the ECI had to count VVPAT slips of 20,625 EVMs instead.

Brief About ISI

- The Indian Statistical Institute (ISI) was established in 1932 and is an institute of national importance as accepted by the Indian parliament in 1959.
- The institute is involved in vast research work and collaborates with government and industrial sectors.
- It is supervised by the Ministry of Statistics and Program Implementation in India.

Supreme Court Upholds Right to Privacy for Election Candidates in Asset Disclosure

1: The Judgement and Its Backstory

- The Supreme Court of India ruled that election candidates need not reveal all movable assets they own, acknowledging the Right to Privacy of candidates.
- An MLA from Arunachal Pradesh filed a petition challenging a 2023 Guwahati High Court judgement that nullified his election because of not revealing three vehicles as assets in his electoral affidavit.
- The claim was that this omission was a "corrupt practice" under Section 123 of the Representation of People Act (RPA), 1951.
- The Supreme Court ruled that withholding privacy on matters irrelevant to voters or unrelated to public office candidate did not constitute a "corrupt practice" or a "defect of a substantial nature" under the laws.

2: Understanding the Right to Privacy

- The Supreme Court, in its landmark decision in K.S. Puttaswamy vs Union of India (2017), identified the right to privacy as a fundamental right.
- This right protects individuals from interference by the State and non-state actors, allowing them to make autonomous life decisions.
- The right to privacy, an aspect of the right to life and personal liberty, is protected under Article 21.

3: Representation of People Act (RPA) 1951 – An Overview and Its Significance

- The RPA 1951 regulates the conduct of elections and the qualifications and disqualifications of elected representatives.
- Its provisions include regulating election conduct, specifying qualifications and disqualifications for parliament and legislative

houses membership, curbing corrupt practices and other offences, and outlining procedures for resolving election-related disputes.

- 'Corrupt practices' under Section 123 of the act include bribery, undue influence, spreading false information, and fostering feelings of enmity or hatred between citizens.

- In the 2017 *Abhiram Singh versus C. D. In The Commachen Case*, the court ruled that candidates cannot appeal for votes based on their own or voters' religion.

- Importance of RPA 1951:

- It bars persons with criminal backgrounds from entering representative bodies, thus aiming to decriminalise Indian politics.

- It mandates every candidate to disclose assets, liabilities and account of election expenses, promoting accountability and transparency.

- It discourages corrupt practices like booth capturing, bribery or promoting enmity, thereby ensuring free and fair elections.

- It allows only political parties registered under section 29A of the RPA Act to receive electoral bonds, aiding transparency in electoral funding.

4: Implications of the Judgment

- Every candidate retains their privacy rights and need not publicise every asset they possess.

- The decision maintains that disclosure should be limited to information essential for voters to make an informed choice.

- This judgement opens the door for more balanced legal interpretations of privacy rights of public figures.

Exclusive Examination of the Curative Petition and Its Practical Ramifications

1: Comprehensive Overview of the Curative Petition

- A curative petition is a legal resort accessible after a review plea against a final conviction has been dismissed.
- It is a rare judicial mechanism designed to rectify gross miscarriages of justice and prevent manipulation of the legal process.
- Curative petitions typically are decided by judges in chambers and are rooted in the principles established by the Supreme Court in the case of *Rupa Ashok Hurra Vs Ashok Hurra & another Case*, 2002.

2: Criteria and Guidelines for Filing a Curative Petition

- There must be evidence of a breach of natural justice principles or potential bias in the judgement.
- The petition should be accompanied by a senior advocate's certification, pointing out substantial grounds.
- Curative petitions are first circulated among the three senior-most judges and judges who determined the original judgement for initial review.
- Exemplary costs might be levied on the petitioner if the petition is found lacking in merit and is considered vexatious.

3: Case Reference – Delhi Metro Rail Corporation Ltd. v Delhi Airport Metro Express Pvt. Ltd. Case, 2024

- The Delhi Metro Rail Corporation (DMRC) and Delhi Airport Metro Express Private Limited (DAMEPL) entered into a public-private partnership which was terminated due to disagreements.
- An arbitration panel favoured DAMEPL requiring DMRC to pay nearly Rs 8,000 crore, but the Delhi High Court directed DMRC to deposit 75% of the amount in an escrow account.

- The Supreme Court overturned its original judgement in favour of DMRC showcasing the profound role of curative petitions in upholding justice.

4: Other Significant Cases Involving Curative Petitions

- Union of India v Union Carbide Case: A curative petition was filed seeking more compensation for Bhopal Gas Tragedy victims but was rejected, reinforcing the prerequisite of gross miscarriage of justice for entertaining curative petitions.
- Navneet Kaur v State of NCT of Delhi Case, 2014: The Supreme Court accepted a curative petition, marking a shift in capital punishment cases. The petitioner's death sentence was commuted to life imprisonment because of an inordinately long wait for mercy plea and mental illness.

5: Special Powers of the Supreme Court of India

- Article 131 gives the Supreme Court exclusive jurisdiction to resolve disputes between the Government of India and the States, or between states.
- Article 136 bestows discretionary jurisdiction to grant special leave to appeal from any judgement, decree, or order in India.
- Under Article 143, the Supreme Court has advisory jurisdiction, enabling the President to refer queries to the Court for its advisory opinion.
- The Supreme Court has the authority to punish contempt of court through Articles 129 and 142.
- Article 145 empowers the Supreme Court to make rules for regulating the practice and procedure of the Court, including rules for reviewing judgments and entertaining appeals.

Overall, curative petitions serve as an essential part of the Indian legal system, empowering the Supreme Court to correct its judgement in cases of serious miscarriage of justice. Such petitions are sparingly used and reviewed with immense

caution. By doing so, the judicial system affirms its commitment to justice and rectification of errors, even after the final verdict.

Art and Culture

Historical Significance and Impact of Vaikom Satyagraha Centenary

1: Understanding the Vaikom Satyagraha: A Pioneering Movement for Social Justice

- The Vaikom Satyagraha was the first temple entry movement in India, marking an important milestone in the fight against the deeply ingrained, unjust caste system.
- The Satyagraha started on March 30, 1924, and lasted for 20 months till November 23, 1925.

2: The Backdrop of Vaikom Satyagraha

- Vaikom, a temple town in the Travancore princely state, was chosen as ground zero due to the prevalent untouchability issues in the region.
- The marginalised castes were not only forbidden to enter temples but were also denied access to the roads circling them based on the idea of caste pollution.
- The issue was first raised by Ezhava leader T K Madhavan in a 1917 editorial in his paper Deshabhimani.
- Realising the gravity of the issue, the Kerala Provincial Congress Committee passed a resolution to combat untouchability in the 1923 session of the Indian National Congress (INC) in Kakinada.

3: The Torchbearers of Vaikom Satyagraha

- Renowned leaders such as T K Madhavan, E.V. Ramasamy 'Periyar', M K Gandhi, and Narayana Guru spearheaded the movement.

4: Impact of Vaikom Satyagraha on India's Socio-Political Landscape

- The movement was a crucial testing ground for Mahatma Gandhi's principles of Satyagraha.

- The intervention of Gandhi prompted Travancore's Police Commissioner, W.H. Pitt, to mediate a settlement.

- Following the movement, the Maharaja of Travancore enacted the historic Temple Entry Proclamation in November 1936, bringing an end to the ban on temple entry for marginalised castes.

- The success of the Vaikom Satyagraha helped the INC establish a strong foothold in Kerala, stimulating its growth in the region.

- Observing the change in societal structure, the Sree Narayana Dharma Paripalana Yogam (SNDP), an organisation promoting social reform, opened temples for all castes, which was a significant step towards caste equality.

5: Celebrating Centenary of Vaikom Satyagraha: Remembrance and Recognition

- As the centenary of the Vaikom Satyagraha approaches in 2024, it is still considered a beacon of social reform and human rights in India.

- The Kerala government, in 2014, announced the establishment of the Vaikom Satyagraha Memorial Museum and a statue of Mahatma Gandhi at Vaikom, to honour the leaders and participants of this historic movement.

- The Vaikom Satyagraha remains an integral part of India's socio-political history, arousing the national consciousness towards the need for social reform during the pre-independence era.

Surge in Demand for Traditional Assamese Gamosa Honors the Advent of Bohag Bihu

Celebrating Assamese New Year and the Onset of Spring

• About Bohag Bihu:

-Bihu is a set of three significant Assamese festivals that represent the integral aspect of Assam's cultural heritage.

-It showcases the amity, and enthusiasm of the people of Assam harbour.

• Tripartite Bihu Festivities:

-Bohag Bihu is a lively festival signifying the Assamese New Year taking place during the 'Bohag' (mid-April). It announces the arrival of the spring season.

-Celebrated in 'Magh' (mid-January), Magh Bihu signifies the end of the harvest season. Known as Bhogali Bihu as well, it is quintessentially a food-centric festival.

-Kati Bihu occurs in 'Kati' (mid-October) and is referred to as Kongali Bihu. Unembellished compared to the other Bihu festivals, ceremonies happen at a more solemn pace. A unique aspect involves lighting an earthen lamp near a Tulsi plant, also known as 'Tulsi Bheti'.

The Cultural and Agricultural Ramification of Bihu

-The Bihu festivals align with specific stages of the agricultural cycle, reflecting the profound connection between Assamese culture and farming livelihood.

- Bohag Bihu marks the New Year and the onset of the sowing period.

- Kati Bihu signifies the end of sowing and the start of the rice transplantation phase.

-Magh Bihu marks the culmination of the harvesting season.

Recent Trends - Surge in Demand for Traditional Assamese Gamosa

-As the Bohag Bihu approaches, there is a rising demand for the traditional Assamese Gamosa, a rectangular piece of cloth integral to Assam's culture.

-The Gamosa represents a quintessential token of Assamese respect and love and is of great significance during the Bihu festivals.

Conclusion:

The Bihu festivals collectively symbolise Assam's socio-cultural blueprint yoked to the agrarian way of life. The prevalent enthusiasm for embracing indigenous traditions like the use of Gamosa exemplifies the cultural perpetuity in the midst of evolving times. Festivals like Bihu serve an important role in unifying and preserving the multifaceted cultural motifs in Indian society.

The Largest Awarding of Geographical Indications in India: A Milestone for Trademark Protection

I. Exploring Geographical Indication

A. Definition and Context

- Geographical Indication (GI) is a tag conferred on products tightly tied to a specific geographical origin, demonstrating certain qualities or reputation linked to this origin.

- As of now, about 635 Indian products have earned this tag, with the notable first product being the celebrated Darjeeling Tea, awarded two decades ago.

B. International and National Recognition

- The GI is globally acknowledged under various international conventions like the Paris Convention and is classified under Intellectual Property Rights (IPRs).

- The GI registration in India is administered by the Registrar of Geographical Indications (RGI) through the Geographical Indications of Goods (Registration and Protection) Act of 1999.

C. Importance and Benefits of GI Tags

- Friends GI registration in India for a term of ten years (extendable) to agricultural, natural or manufactured products.

- It offers protection against unauthorised usage, helps in export promotion, and ensures quality control and distinctiveness of the products.

II. 60 New GI Tagged Products in India: The Largest Batch

Recently, more than 60 Indian products have been honourably conferred the GI tags, marking the largest batch of GI tags ever awarded at a single instance.

A. The Rich Heritage of Assam

- Six traditional crafts of Assam, including Asharikandi terracotta craft and Sarthebari metal craft, have received the tag.

- Bodo Dokhona, the traditional attire of Bodo women; Bodo Eri silk, also known as the fabric of peace; and several other musical instruments and clothing items from Bodo culture have also been included.

B. The Unique Offerings of Banaras

- Banaras, renowned for its spiritual and historical importance, has received recognition for several products.
- These include Banaras Thandai, a nutritious blend of milk, nuts, seeds, and spices; Banaras Tabla, a classic Indian instrument; and Banaras Shehnai among other products.

C. Recognition for Assam, Tripura, and Meghalaya

- Assam's traditional fabric, Asharikandi terracotta craft, renowned for its unique weather-dependent production process; has also gained the GI tag.
- Tripura, gaining acknowledgment for Pachra-Rignai, its traditional dress, and Matabari Peda, a sweet delight, has emerged on the cultural panorama of India.
- Furthermore, Meghalaya has secured the GI tags for its Garo Textile, Lyrnai Pottery, and Chubitchi, significant to the state's socio-cultural and religious structure.

Thus, the recent awarding of GI tags to these diverse array of products, apart from promoting local industries and protecting cultural heritage, promises to boost the rural economy, and enable promotion of local craft and tradition on a global platform. It's indeed a significant achievement in the realm of trademark protection in India.

Discovery of Ikshvaku Period Coins and Artefacts in Phanigiri, Telangana

1: Archaeological Findings in Phanigiri

- A significant collection of 3730 lead coins from the Ikshvaku period (3rd-4th century CE) was discovered in an earthen pot by Telangana's Department of Heritage at Phanigiri.
- In addition to the coins, various other valuable cultural antiquities were also unearthed, including beads of stone and glass, shell bangle fragments, stucco motifs, iron nails and pottery, broken limestone sculptures, and toy cartwheels.
- Earlier excavations at Phanigiri have revealed a range of structures and artifacts including a Mahastupa, Votive stupas, a circular chaitya, a 24-pillared mandapa, and Brahmi label inscriptions.

2: The Significance of Phanigiri Village

- Phanigiri Village holds cultural and historical significance as one of the important Buddhist monasteries situated on an ancient trade route and has a vibrant history dating from 1000 BCE to the late 18th century CE.
- The village's name derives from the shape of a nearby hillock, resembling a snake hood (Phani meaning snake and Giri meaning hillock).

- The monastery at Phanigiri surpasses the monasteries at Amaravathi and Vijayapuri in Andhra Pradesh.

- Several other Buddhist sites are in proximity to Phanigiri, hinting at the extensive nature of Buddhist influence in the region.

3: Key Features of Ikshvaku Period

- The Ikshvaku dynasty, also known as the Ikshvakus, emerged in the Krishna-Guntur region after the decline of the Satavahana power.

- This dynasty's name is attributed to the legendary King Ikshvaku and lasted from 300 CE till 400 CE.
- The Ikshvakus expanded their territory significantly under King Kanha, encompassing regions of Andhra Pradesh, Telangana, and Maharashtra.
- The dynasty is known for its active patronage of Buddhism, contributing to the construction of stupas and monasteries and the issuance of coins adorned with Buddhist symbols and regional deities.

Note: The discovery of such archaeological treasures helps scholars piece together the past and understand how these ancient kingdoms functioned and impacted their societies. It also provides invaluable insights into the economic, political, and cultural landscape of that era. Thus, making such findings integral to the subject of history, archaeology, and culture, significant for General Knowledge and current affairs.

- Common symptoms include coughs with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
- It's an airborne infection that spreads through close contact with the infected.
- Despite being preventable and curable, it remains as the world's top infectious killer with 1.5 million people dying from TB each year.
- TB is the leading cause of death among HIV patients and a major contributor to antimicrobial resistance.
- Majority of TB-infected people live in low and middle-income countries with about half the patients found in 8 countries including Bangladesh, China, India, Indonesia, Nigeria, Pakistan, Philippines, and South Africa.

Detailed Dive into the 2024 India TB Report

- The TB Report 2024 highlights that the TB mortality rate in India declined from 28 per lakh population in 2015 to 23 per lakh population in 2022.
- The Report states that the majority of TB cases in India are reported by the government health centres.
- It details an increase in TB notifications by the private sector with 33% of the total cases reported in 2023 coming from it.
- Despite setting ambitious goals, India faces challenges in meeting these TB elimination targets, including high prevalence of undernourishment, HIV, diabetes, alcohol use, and smoking.

Ranks and Reports

Analysing India's Tuberculosis Scenario: A Review of the India TB Report 2024

Understanding Tuberculosis

- Tuberculosis, caused by Mycobacterium tuberculosis, is a bacterial infection that can affect practically any organ of the body.

Underlying Factors Affecting TB Incidence and Treatment Outcomes

- Seven out of ten TB patients were found to be undernourished which has led the government to provide monthly support to nearly one crore beneficiaries.
- People with HIV were 20 times more likely to develop TB symptoms than the normal population.
- There is a strong correlation between TB contraction and diabetes, alcohol and tobacco

use, all of which weaken the immune system thus increasing vulnerability to the disease.

- To remedy this, initiatives like the Ni-kshay Mitra programme have been created to provide nutritional support.

TB Treatment and Associated Challenges

- TB is treated using a standard course of 4 antimicrobial drugs under professional supervision.

- Anti-TB medicines used over decades have led to rise of resistant strains known as Multidrug-Resistant Tuberculosis (MDR-TB) and Extensively Drug-resistant TB (XDR-TB), who do not respond to first and second-line anti-TB drugs, respectively.

- Drugs like Isoniazid and Rifampicin form the basis of TB treatment, while newer drugs like Delamanid are used in treating MDR-TB.

Global and National Initiatives to Combat TB

- The Global Plan to End TB is a blueprint that outlines priority actions and required resources to end TB, with an aim to eliminate TB by 2030.

- The WHO has teamed up with the Global Fund and Stop TB Partnership to launch the "Find. Treat. All. #EndTB" initiative.

- India's efforts towards eliminating TB include schemes like the Pradhan Mantri TB Mukh Bharat Abhiyan, National Strategic Plan for Tuberculosis Elimination, TB Harega Desh Jeetega Campaign and Nikshay Poshan Yojna.

- Further, Regional Prospective Observational Research for Tuberculosis (RePORT India) is an Indo-US initiative aiming at addressing the TB threat in India.

Revealing the Global Food Waste Situation: Insights from the Food Waste Index Report 2024

Defining the Domain

- Jointly released by the United Nations Environment Programme (UNEP) and Waste and Resources Action Programme (WRAP), the Food Waste Index Report 2024 throws light on the crucial issue of food waste and loss.

- WRAP is a key player in climate action, striving to mitigate climate change impacts for a sustainable future.

- The report crucially distinguishes between "food waste," which refers to food removed from the human supply chain, and "food loss," encompassing edible quantities lost in the production and supply processes.

The Food Waste Index Ancestry and Objective

- The Food Waste Index Report aims to measure country-level progress in achieving the Sustainable Development Goal 12.3 of halving food waste by 2030.

- The first edition was released in 2021, while the latest report enhances data sets and promotes multi-stakeholder collaboration via partnerships.

Key Findings - The Extent of Global Food Waste

- The 2022 data reveals 1.05 billion tonnes of food were wasted worldwide, constituting about a fifth of available food.

- Additionally, the FAO estimates that 13% of global food was lost in the supply chain.

- The globe's lost and wasted food is responsible for about 8-10% of global greenhouse gas emissions, nearly five times the total emissions from the aviation sector.

Urban-Rural and International Disparities and the Impact of Temperature

- The 2021 and 2024 reports indicate narrowing disparities in per capita household food waste across various income groups.
- Higher food waste in hotter countries might be due to increased consumption of fresh foods with substantial inedible parts and inadequate cold chain management.
- Variations in food waste between urban and rural populations exist in middle-income countries, typically with rural areas wasting less.

Tracking Progress Challenges and the Variance in Data

- Many low and middle-income countries, including India and Indonesia, lack adequate systems for tracking progress on SDG 12.3, particularly in retail and food services.
- Only four G-20 countries (Australia, Japan, UK, USA) and the European Union currently have effective food waste estimation systems to track progress towards 2030.

Report Recommendations

- The report urges G-20 countries to lead international cooperation and policy development to achieve SDG 12.3.
- Public Private Partnerships (PPPs) are recommended for reducing food waste, facilitating collaboration among governments, regional, and industry groups.
- It suggests the universal adoption of the Food Waste Index for consistent food waste measurement, baseline establishment, and tracking of progress towards SDG 12.3.
- Conducting national food waste studies is suggested for countries such as India, China, South Africa, Indonesia, and Mexico to address data variance and food waste comprehensively.

Existing Measures and Provisions for Food Loss and Waste in India

- Despite no explicit right to food in the Indian Constitution, a derived right to adequate food and necessities is understood from the fundamental right to life under Article 21.
- The Food Corporation of India (FCI) maintains buffer foodgrain stocks procured at minimum support price (MSP).
- The National Food Security Act, 2013 (NFSA) is another significant stride towards ensuring food security in India, extending its coverage to 75% rural and 50% urban population.

Considering the compelling insights shared in the report, the promotion of multi-stakeholder cooperation, innovative solutions, and comprehensive data collection is pivotal to meeting the ambitious target of halving global food waste by 2030.

Hurun Global Rich List, 2024 and The Rise of Wealth Inequality

1: Introduction to the Hurun Global Rich List

- The Hurun Global Rich List is a highly comprehensive ranking of the world's billionaires, released annually by the Hurun Research Institute.
- 2024 saw the release of the 13th edition of the list, and it exhibited some significant findings regarding India's billionaire population, and moreover, the economic landscape of the country.

2: Key Findings of the Hurun Global Rich List 2024

- Mumbai, the financial capital of India, emerged as the fastest-growing billionaire city in the world, housing a total of 92 billionaires.
- An increase of 26 new billionaires since the previous year's list took Mumbai to the third spot globally, overshadowing Beijing as Asia's billionaire capital.
- India, second only to the US, saw the addition of 94 new billionaires in 2023, cultivating a total of 271 individuals with a net worth of at least USD 1 billion.
- The collective wealth of these Indian billionaires rose to a staggering USD 1 trillion, making up 7% of the total global billionaire wealth. This reiterates India's growing economic significance.
- The list also illustrated the dominant industries among India's billionaires were pharmaceuticals with 39 individuals, followed by 27 in automobile & auto components, and 24 in the chemical sector.

3: World Inequality Lab Report 2022-23

- A working paper titled "Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj", released by the World Inequality Lab, provided an alarming insight into the rising economic disparity in India since the early 2000s.
- The paper highlighted that India's economic inequality in the present has exceeded that observed during the British Raj era.
- The top 1% of India boasts a share of 22.6% in income and 40.1% in wealth, marking their highest recorded levels in 2022-23.
- The average wealth of the top 1% of the Indian population is Rs 5.4 crore, a figure 40 times higher than the country's average income level. This wealth demarcation surpasses even those found in South Africa, Brazil, and the US.

Implications for General Knowledge:

- The Hurun Global Rich List provides significant insights into global wealth distribution, in many cases, highlighting disparities.

- An understanding of these lists and the statistics found within them aid in comprehending economic trends, both global and domestic.
- The rankings and findings are particularly relevant for examinations that emphasize Economics, Business Studies, and Current Affairs.
- Awareness of wealth distribution is also an integral part of understanding social issues like economic inequality, poverty, and social mobility.

World Anti-Doping Report 2022: Implications and Initiatives

Introduction and Background

- The World Anti-Doping Agency (WADA) recently released the WADA Anti-Doping Report 2022, highlighting worrying global doping violation statistics and indicating an urgent need for strict measures to uphold the integrity of sports.

Global Doping Violation Highlights

- India was found to have the highest percentage of doping offenders with 3.26% of tested athletes testing positive.
- Despite being 11th in the number of samples tested, India's doping violations surpassed major sporting countries like Russia, the USA, Italy, and France.

Comparison with Other Nations

- Other nations with significant doping offences included South Africa, China, the USA, and Russia.
- China, despite testing the most samples, had the lowest percentage of Adverse Analytical Findings (AAFs).

Overall Increase in Testing and AAFs

- WADA noted a 6.4% increase in total samples analysed in 2022 compared to 2021.

- The percentage of AAFs also increased, from 0.65% in 2021 to 0.77% in 2022.

Implications for India

- The alarming prevalence of doping raises concerns over the physical and mental development of young athletes.
- From a reputational perspective, being the top country in doping offences damages India's stance in the international sports community and raises doubts about Indian athletes' achievements.
- The report also highlighted potential risks for Indian athletes in the upcoming Olympics 2024 due to doping violations.

India's Anti-Doping Initiatives

- Initiatives by India include the National Anti-Doping Agency (NADA), the National Anti-Doping Act 2022, and the National Dope Testing Laboratories (NDTL). These initiatives aim to reduce doping in sports, promote clean sports culture, and improve the integrity of Indian athletes on a global level.

About the World Anti-Doping Agency (WADA)

- WADA is an international organisation established in 1999 to combat doping in sports globally.
- Headquartered in Montreal, Canada, WADA promotes and coordinates anti-doping activities worldwide through its World Anti-Doping Code and the annually updated WADA Prohibited List.

Lessons from China: Criminalising Doping

- To curb doping effectively, India could consider following China's approach of criminalising doping with penalties including jail time for athletes and coaches.

Way Forward: Need for Comprehensive Measures

- Increased vigilance, ramping up testing efforts, effective collaboration amongst stakeholders, and adoption of advanced technologies for doping detection can help prevent future doping cases.
- Alongside these, athletes need to be educated about the dangers of doping and provided guidance on supplement use to prevent unforeseen health risks.

In summary, while the recent WADA report poses a significant challenge for India, it also presents an opportunity for the country to reinforce its anti-doping initiatives, promote a clean sports culture, safeguard athletes' wellbeing, and enhance its international reputation in sports.

Ascertaining the Intensity of Hepatitis Burden in India Through Global Hepatitis Report 2024

1: India's Share in Global Hepatitis Burden

- India has been identified by the Global Hepatitis Report 2024, released by the World Health Organization (WHO), as one of the countries bearing a significant burden of viral Hepatitis, especially Hepatitis B and C.
- In 2022, India recorded over 50,000 new Hepatitis B cases and 1.4 lakh new Hepatitis C cases.
- With 2.9 crore people living with Hepatitis B and 0.55 crore living with Hepatitis C, India is one of the countries with the highest prevalence of viral hepatitis.
- Viral hepatitis ended up claiming the lives of 1.23 lakh people in India in 2022 alone.

2: Diagnosis and Treatment Challenges

- Despite availability of affordable generic medicines, in India, only 2.4% of Hepatitis B cases and 28% of Hepatitis C cases get diagnosed, and treatment coverage is even lower.
- Challenges include limited reach and utilisation of the National Viral Hepatitis Control Program, need for expanded access to affordable diagnostics and treatment services, and treatment of all the diagnosed individuals, irrespective of their disease stage.

3: Global Mortality and Prevalence Trends

- Viral hepatitis was responsible for an estimated 1.3 million deaths globally in 2022, matching the mortality rate of tuberculosis.
- Hepatitis B and C combined afflicted about 304 million people globally in 2022.
- The number of new viral hepatitis infections globally fell from 2.5 million in 2019 to 2.2 million in 2022.

4: Major Facts about Hepatitis

- Hepatitis, which can be fatal, is caused by infectious viruses and noninfectious agents.
- Despite their varying characteristics, Hepatitis strains A, B, C, D, and E can lead to serious health conditions like liver cirrhosis, liver cancer, and chronic liver infection.
- Prevention of certain hepatitis types is possible through vaccination, and it is estimated that about 4.5 million premature deaths can be averted by 2030 through vaccination, diagnostic tests, medicines, and education campaigns.

5: India's and Global Countermeasures

- India is combating Hepatitis through initiatives like the National Viral Hepatitis Control Program,

National Health Mission, and India's Universal Immunization Programme.

- On the global front, World Hepatitis Day and WHO's goal of eliminating hepatitis by 2030 are significant initiatives.

6: The Way Ahead

- Immediate focus should be on treating an estimated 40 million people with hepatitis B and curing 30 million people with hepatitis C by 2026.
- Efforts should be targeted towards high-risk groups prevalently affected by viral hepatitis.
- Integrating hepatitis services into primary healthcare settings can improve accessibility across all socioeconomic groups.
- Upgrading the National Viral Hepatitis Control Program by enhancing funding, scope, and coordination among stakeholders along with prioritising early diagnosis and treatment initiation would be a progressive approach.

Miscellaneous

RBI New Guidelines for the Asset Reconstruction Companies

1. Overview of RBI Guidelines for ARCs

- The Reserve Bank of India (RBI) issued updated guidelines for Asset Reconstruction Companies (ARCs), effective from 24th April 2024.
- The new guidelines have increased the minimum capital requirement for ARCs.
- The guidelines also outline ARCs' eligibility as resolution applicants and provide directions for allowed investment opportunities.

2. The Revised Capital Requirement

- As per the new guidelines, ARCs now need a minimum capital of Rs 300 crore, significantly up from the previous requirement of Rs 100 crore.
- Existing ARCs have a transition period until 31st March 2026 to fulfill the increased capital requirement.
- In case of any non-compliance, ARCs may face supervisory action until they meet the required capital.

3. Role of ARCs as Resolution Applicants

- ARCs with a minimum net-owned fund of Rs 1000 crore can act as resolution applicants in the asset resolution process under the Insolvency and Bankruptcy Code, 2016.

4. Investment Opportunities for ARCs

- ARCs are permitted to invest in government securities, scheduled commercial bank deposits, or such entities as specified by the RBI from time to time.
- ARCs can also opt for short-term instruments but with a cap of 10% of the net-owned fund on the maximum investment.

5. What are ARCs?

- ARCs are financial institutions that purchase Non-Performing Assets (NPAs) from banks and other financial institutions and help clean up their balance sheets.
- National Asset Reconstruction Company Limited (NARCL) and India Debt Resolution Company Ltd. (IDRCL) are examples of ARCs in India.

6. Recent Changes in ARC Regulations.

- The RBI has made significant changes aiming to strengthen corporate governance, increase transparency, and revise investment requirements.
- Requirements for disclosure of track records, mandatory rating agency engagement, and revision in minimum investment in security receipts have been included.

7. Security Receipts (SRs)

- SRs are issued by ARCs to Qualified Buyers who purchase distressed assets from banks and NBFCs.
- The recent change mandates ARCs to invest at least 15% of the transferors' investment in such receipts or 2.5% of the total receipts issued, whichever is higher.

This thorough understanding of the updated ARC guidelines will be crucial for an aspirant preparing for any government exam related to banking and finance, enhancing their knowledge about ARCs and their role in asset management and reconstruction as outlined by the RBI.

PayU's Leap: Becoming an RBI Approved Payment Aggregator

I. PayU: The Latest Payment Aggregator

1. Fintech firm PayU has recently locked the limelight by announcing that it received in-principle approval from the Reserve Bank of India (RBI) to function as a payment aggregator (PA). This feat is achieved under the provisions of the Payment and Settlement Systems (PSS) Act, 2007.
2. The in-principle approval grants PayU the right to onboard new merchants. However, the process

of gaining final approval usually spans six months to a year.

II. Understanding the Role of a Payment Aggregator

1. A PA primarily serves as a link between businesses and financial institutions, assuming responsibility for payment processing on behalf of merchants.
2. It simplifies the process of accepting electronic payments for businesses, streamlining the payment acceptance procedure and relieving businesses from the complexities of establishing direct dealings with financial entities.
3. They empower businesses, allowing acceptance of a diverse range of payment methods like credit cards, debit cards, e-wallets, and bank transfers through a unified platform.
4. Prominent examples of PAs include Google Pay, Amazon Pay, Phone pe, and PayPal.

III. Capital Requirements and Authorization Process

1. Aspiring PAs must possess a minimum net worth of Rs 15 crore at the time of application. This figure should elevate to Rs 25 crore by the end of the third financial year succeeding authorisation.
2. The authorisation process distinguishes banks and non-bank PAs. While banks can offer PA services as a part of their conventional banking relationship without needing separate authorisation, non-bank PAs require distinct authorisation from RBI under the PSS Act, 2007.

IV. Settlement and Escrow Account Management

1. Non-bank PAs have to keep the accumulated funds in an escrow account with a scheduled commercial bank.

2. They are bound to follow certain timelines for settling funds with merchants based on the transaction lifecycle and mutually decided terms.

V. Key Differences: Payment Aggregators vs Payment Gateways

1. Unlike PAs, Payment Gateways (PG) provide an interface technology infrastructure to route and facilitate the execution of online payment transactions but do not involve direct handling of funds.
2. Conversely, PAs allow multiple payment options on their portal for merchants, incorporating the functions of a payment gateway.

VI. Overview of Payment and Settlement Systems (PSS) Act, 2007

1. Enacted in 2007, the PSS Act supervises the regulation of payment systems in India and names RBI as the authority in control.
2. RBI, in accordance with the Act, can establish a Committee of its Central Board called the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS) to execute its powers, duties, and functions.
3. According to Section 4 of the PSS Act, only RBI can authorise the functioning of a payment system. Any entity desiring to run a payment system must apply for authorization under Section 5 of the PSS Act, 2007.
4. The Act does not prevent foreign entities from operating a payment system in India nor does it discriminate between foreign and domestic entities.
5. Unauthorised operation of a payment system, non-adherence to RBI guidelines, or violation of any PSS Act provisions can lead to criminal proceedings initiated by RBI against the violator.

Decoding India's Renewable Energy Ambitions and Challenges

1: Introduction to India's Renewable Energy Landscape

- India, being the world's third-largest emitter of greenhouse gases, is transitioning towards renewable energy to tackle climate change and meet the growing domestic energy needs.
- The country's burgeoning economy and increasing energy demands offer massive potential for its renewable energy sector.
- During 2023-24, India saw a 21% increase in its renewable energy capacity, adding 18.48 GW, driven mainly by solar (12.78 GW) and wind energy (2.27 GW).
- The total renewable energy capacity has seen a jump from 76.37 GW in 2014 to 178.98 GW in 2023, marking a 2.34 times increase.

2: India's Ambitious Renewable Energy Targets

- India's renewable energy agenda envisions an ambitious target of achieving 500 GW of capacity from renewable sources by 2030, up from the previous goal of 450 GW.
- This target necessitates a significant surge in solar and wind energy and is backed by an estimated investment of ₹2.44 trillion.
- Solar power emerges as a crucial component, with 214 sq. km of land being dedicated to solar parks in the country.
- The rooftop solar program is aimed to provide up to 300 units of free electricity every month to 10 million households, saving each household between ₹15,000-₹18,000 annually.

3: Stumbling blocks in India's Renewable Energy Path

- High Initial Costs: The implementation of renewable technologies requires significant

upfront investment, which can prove prohibitive, specifically in developing countries where borrowing costs are high.

- Infrastructure and Technical Challenges: Renewable energy systems mandate extensive land use, technical expertise, regular maintenance and skilled technicians which may cause conflicts over land rights.
- Unpredictability: The weather-dependent nature of solar and wind energy introduces the challenge of variability and intermittency, necessitating reliable energy storage systems and robust grid infrastructure.
- Regulatory Barriers: Inconsistent policies and complex permitting procedures can hinder investment and delay projects.
- Raw Material Access: Increased reliance on renewable energy technologies intensifies the demand for raw materials and rare earth metals, projecting a potential shortage.
- Geographical Disparities: Varying distribution of renewable resources along with varying infrastructure and resource availability can hinder renewable energy adoption.

4: Concerns over Food Security and Land Use

- Transitioning to renewable energy in India has to compete with alternative land uses such as agriculture and urbanisation.
- Large-scale renewable energy projects like solar parks demand extensive land use, which could lead to the conversion of agricultural land into solar farms, triggering concerns about food security.
- The necessary land for achieving India's renewable goals by 2030 (estimated between 50,000 and 75,000 sq. km) threatens India's food security as agriculture emerges as an essential sector providing livelihood and ensuring food security in India.

5: Towards a Sustainable Future – The Way Forward

- The pivot to renewable energy is essential to curb climate change impact and ensure sustainable development.
- It requires coordinated efforts from governments, businesses, and individuals for successful implementation.
- Policymakers need to reinforce clear and consistent policy signals to boost investment in renewable energy, accompanied by technological advancements to improve system efficiency and reliability.
- Public awareness programs and education are also vital to foster the adoption and acceptance of renewable energy technologies.

D Gukesh's Triumph: From India to the Chessboard of the World

I. Introduction and Overview:

- In a soaring victory for India, D Gukesh emerged as the winner of the International Chess Federation (FIDE) Candidates Chess Tournament 2024 that took place in Toronto, Canada.
- Gukesh, with his immense talent and prowess, has etched his name in the annals of the game, becoming the youngest-ever challenger to the world title.
- The success of Gukesh is not an isolated event. India currently boasts of 7 players in the top 20 junior rankings, solidifying its place as a global chess powerhouse.

II. Chess History Revisited: Tracing the Champions

- The title of World Champion currently rests with Ding Liren, who secured victory against his opponent, Ian Nepomniachtchi, in the 2023 World Chess Championship.

- Magnus Carlsen, an eminent figure in the world of chess and the previous world champion, chose not to defend his title.

III. Understanding The International Chess Federation (FIDE)

- FIDE, the official governing body of the sport of chess, is responsible for organising and regulating all international chess competitions.
- Established as a non-governmental institution, its most prestigious event happens to be the Candidates Tournament, which ultimately determines the contender for the World Chess Champion title.
- The first FIDE Candidates Tournament dates back to 1950. Initially, it was conducted every three years until 1992.
- Post-1992, in order to amplify the game's excitement and competition, the tournament cycle was changed to biyearly from 2013 onwards.

IV. FIDE: A Crucial Player in the World of Chess

- FIDE has been instrumental in maintaining the standards of the sport and providing a global platform for players to showcase their abilities.
- Its role in promoting the game of chess, especially among the younger generation, is commendable. The existence of a third of the world's top 30 juniors from India testifies to FIDE's global strategy working brilliantly.

In a nutshell, the win of Gukesh encapsulates India's growing stature in the world of chess, the relentless ambition of youngsters, and the strategic importance of FIDE in promoting and regulating the sport internationally.

India Unveils its Biggest Climate Clock: A Major Step Towards Awareness on Climate Change

Introduction and About

- The Council of Scientific & Industrial Research (CSIR) has installed and activated India's largest Climate Clock at the CSIR Headquarters in New Delhi to mark Earth Day Celebrations.
- The move is a crucial progression in CSIR's aim to boost consciousness about climate change and also make people better aware of energy consumption.

Significance and Aim

- The Climate Clock, first launched in 2015, serves as an easily interpretable visual tool that allows viewers to track the progress being made in global climate change mitigation efforts.
- Installation of India's largest Climate Clock signals the nation's sincere commitment towards addressing and mitigating the implications of climate change.

Working of the Climate Clock

- The Clock provides a vivid representation of how rapidly the planet is nearing 1.5°C of global warming, taking into account the prevailing emissions trends.
- It exhibits not only the extent of CO₂ emissions already released into the atmosphere but also the global warming trajectory to date.
- The clock also reflects the changes in climate temperature; in tune with the rise and fall of emissions, the date at which humanity will reach 1.5°C moves closer or farther respectively.

Current Status

- As of the 4th of April 2024, the Climate Clock indicated a current global temperature of 1.295°C,

demonstrating how close we are to crossing the critical 1.5°C threshold.

General Knowledge Insights

- Council of Scientific & Industrial Research (CSIR), an autonomous body, was established by the Government of India in 1942. CSIR is one of the world's largest publicly funded research organisations and plays a significant role in India's scientific and industrial research landscape.
- Earth Day, celebrated annually on April 22, was first organised in 1970 to spread awareness about the environment and encourage people to support environmental protection. It is now recognized globally and celebrated in over 193 countries.
- Global warming refers to the long-term warming of the planet, which is measured as an increase in the average atmospheric temperature. This warming has major implications, including climate change, sea-level rise, and more frequent extreme weather events.

SJVN Limited Honoured with Two Renowned Awards at the 15th CIDC Vishwakarma Awards 2024

1: SJVN Limited's Recognition at CIDC Vishwakarma Awards 2024

- SJVN Limited was awarded two prestigious titles at the 15th CIDC Vishwakarma Awards in 2024.
- Previously known as Satluj Jal Vidyut Nigam, SJVN received the 'Achievement Award for Creating Social Development & Impact' and the 'CIDC Partners in Progress Trophy'.
- These awards laud SJVN's dedication to creating positive societal changes through

innovative and sustainable CSR (Corporate Social Responsibility) initiatives.

- The company secured these respected awards for the third consecutive year, demonstrating their consistent contribution to societal change.

2: SJVN Limited's Corporate Social Responsibility Efforts

- So far, SJVN Limited has invested over ₹450 crores in a wide range of CSR activities.

- CSR is a self-regulatory business model that makes a company socially accountable to itself, stakeholders, and society.

- The Companies Act, 2013, Section 135, mandates certain businesses to spend 2% of their average net profit from the last three years on CSR initiatives.

- India thus has the largest compulsory CSR program globally.

3: About CIDC Vishwakarma Awards

- The Vishwakarma awards aim to honour the spirit of construction and creation, inspired by Lord Vishwakarma, the patron deity of Indian construction practices.

- These annual awards celebrate notable achievements in India's construction industry.

- The awards are given out annually on March 7th, the Construction Industry Development Council (CIDC)'s foundation day.

- The inaugural CIDC Vishwakarma Awards were held in 2009.

4: Ambitions of SJVN

- SJVN has set ambitious targets for its growth, aiming to become a 5000 MW company by 2023-24, a 25000 MW company by 2030, and a 50000 MW company by 2040.

5: Overview of the Construction Council Industry Development Council (CIDC)

- The CIDC was established by the combined efforts of the Planning Commission, the Government of India, and the Indian construction industry.

- It has been awarded the prestigious Golden Peacock National Training Award in 2008, demonstrating their approach to excellence in training within the industry.

A Kaleidoscope of Prestige: The Padma Awards 2024

Introduction to the 2024 Padma Awards

- President Droupadi Murmu recently honoured an array of eminent personalities with the esteemed Padma Awards of 2024.

- The recipients for this year constituted a diverse group of individuals including popular figures from politics, cinema, sport, music, and social work.

Notable Recipients of the 2024 Padma Awards

- The distinguished cohort of awardees included former Vice President M. Venkaiah Naidu, actor and politician Mithun Chakraborty, singer Usha Uthup, and tennis ace Rohan Bopanna.

- Composite social reformer Bindeshwar Pathak, founder of Sulabh International, and Bharatanatyam maven Padma Subrahmanyam were bestowed with the Padma Vibhushan, the highest honour in the hierarchy of Padma Awards.

Overview of the Total Padma Awards Conferred in 2024

- The President approved a total of 132 Padma Awards for 2024, including two awarded as duo

cases. These are special cases where the honour counts as one award for two individuals.

- These awards comprised 5 Padma Vibhushan, 17 Padma Bhushan, and 110 Padma Shri awards.
- The recipients include 30 females, 8 individuals from the Foreigners/NRI/PIO/OCI category, along with 9 posthumous honorees.

General Knowledge on Padma Awards: History, Objective, & Significance

Inception and History

- The Padma Awards were first instituted in 1954.
- They are announced annually on Republic Day, an iconic date in India's calendar, occurring on the 26th of January.

Objective

- These awards aim to acknowledge and honour exceptional achievements done in public service across a variety of fields or disciplines.

Hierarchy and Categories

- They are segregated into three categories namely, Padma Vibhushan for exceptional and extraordinary service, Padma Bhushan for distinguished service of a high level and Padma Shri for distinguished service.
- The awards follow a hierarchy with Padma Vibhushan at the top, followed by Padma Bhushan and Padma Shri.

Eligibility

- The eligibility for these awards is comprehensive, with no restrictions on race, occupation, position, or gender.

Selection Process

- The selection for these awards is conducted by the Padma Awards Committee, which is constituted by the Prime Minister every year.
- The final presentation is carried out by the President of India, typically in March/April annually.

Exercise Poorvi Lehar: Unifying India's Defense Forces & Enhancing Maritime Security Preparedness

1: Introduction and About

- Exercise Poorvi Lehar is a coordinated military exercise conducted by the Indian Navy on the East Coast.
- It involves the joint participation of the Indian Navy, Indian Army, Indian Air Force, and the Indian Coast Guard.
- Key military assets from Eastern Naval Command, Indian Air Force (IAF), Andaman & Nicobar Command, and Coast Guard are utilised in this exercise.

2: Objectives and Phases of Exercise

- The primary objective of Exercise Poorvi Lehar is to review and validate procedures assessing the Indian Navy's readiness towards addressing Maritime Security challenges in the region.
- Additionally, the exercise illustrates a high degree of interoperability among the services, aiming to foster stronger collaboration and communication.
- The exercise is conducted in several stages, including a Tactical Phase and Weapon Phase, both entailing combat training in realistic scenarios.
- Performing successful firings during the Weapon Phase highlights the Navy's ability to accurately strike targets.

3: Maintaining Maritime Domain Awareness

- Diverse positioning of aircraft ensures nearly continuous Maritime Domain Awareness over the operating region during the course of the exercise.
- It provides the participating forces with a comprehensive understanding of maritime situations and security requirements.

4: Significance and Impact

- Exercise Poorvi Lehar 2024 has successfully reaffirmed the Indian Navy's dedication to address growing security situations in the maritime sector.
- The valuable insights gained by the participating forces strengthens defence strategies and boosts preparations for potential security threats.
- This exercise furthermore underlines the importance of interoperability and tactical coordination amongst the varied defence services in the country.

5: General Knowledge Insights

- The Eastern Naval Command, one of the key participants in the exercise, is a key segment of the Indian Navy and is located in Visakhapatnam.
- The Andaman & Nicobar Command is India's only tri-service command, bringing together the land, sea, and air forces in a unified command structure.
- Ensuring maritime security is crucial owing to India's strategic geographical location with extensive coastal boundaries, emphasising the importance of exercises like Poorvi Lehar.

In essence, Exercise Poorvi Lehar plays a critical role in optimising India's maritime security preparedness, promoting interservice cooperation, and facilitating response strategies towards potential security challenges in the maritime domain.

National Panchayati Raj Day 2024: Grassroots Governance and the 73rd Constitutional Amendment

1. Introduction

- The 24th of April is annually acknowledged as National Panchayati Raj Day in India. An initiative by the Ministry of Panchayati Raj, the day calls for recognition and celebration of our local self-governance bodies, also referred to as Panchayati Raj Institutions (PRIs).
- National Panchayati Raj Day 2024 was marked by the inauguration of the National Colloquium on "Governance at the Grassroots after Three Decades of the 73rd Constitutional Amendment" in New Delhi.

2. The 73rd Constitutional Amendment

- Perceived as a pivotal point in Indian history, the 73rd Amendment Act of 1992 bestowed constitutional status to the Panchayati Raj Institutions, enhancing local self-governance in India.
- This legislation was passed on 24th April, thus every subsequent year this day is observed as National Panchayati Raj Day.

3. Why in News

- To commemorate the National Panchayati Raj Day 2024, a colloquium in New Delhi was organised, wherein discussions were held on Governance at the grassroots level post three decades of the 73rd Constitutional Amendment.
- The event also recognized the outstanding contributions of the best panchayat units by presenting them with awards.

4. Understanding the Panchayati Raj System

- The Panchayati Raj system in India is a three-tiered structure, comprising the Gram Panchayat at the village level, Panchayat Samiti at the block level, and Zila Parishad at the district level, geared to facilitate better governance and development in rural areas.

- This decentralised form of governance plays a crucial role in promoting inclusive growth and tackling key challenges like climate change and persistent rural-to-urban migration.

5. Importance

- The Panchayati Raj institutions symbolise democracy at the grassroots level, fostering direct participation of the people in the administration.

- They play a pivotal role in rural development by executing schemes related to public health, sanitation, rural housing, and other welfare measures.

- Alongside, they contribute significantly to addressing global issues like climate change by implementing sustainable practices at the local level.

6. General Knowledge

- The establishment of Panchayati Raj was recommended by the Balwant Rai Mehta Committee setup in 1957.

- National Panchayati Raj Day was first celebrated on 24 April 2010.

- There are more than 2.5 lakhs Panchayati Raj Institutions in India and is considered the backbone of the Indian political system.

To wrap up, it can be said that National Panchayati Raj Day, beyond a celebration, serves to raise awareness about the importance of

grassroots democracy, and its impact on rural development and sustainability.

Space For Notes



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