DAILY CURRENT AFFAIRS 07-11-2024

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Sambhar Lake

Syllabus: GS-1; Geography

Context

- Contagious Bird Disease Strikes At Rajasthan Sambhar Lake.

About

Sambhar Lake, India's largest inland saltwater lake, is located in Rajasthan, spanning across Jaipur, Nagaur, and Ajmer districts.

- **Geography**: Sambhar Lake covers around 230 square kilometers and is part of a closed basin with no outlet, making it an endorheic lake. It lies within the Aravalli Range and is surrounded by saline wetlands.
- **Salinity and Economy**: Known for its high salinity, the lake is a major center for salt production in India. The lake's saline properties allow for efficient salt extraction, with local salt pans producing significant quantities annually, contributing to both local and national economies.

- **Ecological Significance**: Sambhar Lake is recognized as a Ramsar site due to its ecological importance. It supports a variety of migratory birds, including flamingos, pelicans, and storks, making it a critical avian habitat in the arid region of Rajasthan.
- **Environmental Challenges**: The lake faces ecological threats from over-extraction of water for salt production, pollution, and illegal salt mining, which have impacted the water quality and local biodiversity. Efforts for sustainable management and conservation of Sambhar Lake are ongoing to address these issues.
- **Cultural Importance**: Sambhar Lake holds mythological significance and is associated with the Hindu goddess Shakambhari Devi. A temple dedicated to her is located near the lake, attracting pilgrims.

Shadow Fleet

Syllabus: GS-2; International Relations

Context

- Russia's shadow fleet of oil tankers grows despite western sanctions.

About

- The Shadow Fleet refers to vessels that **operate with limited or obscured oversight to conduct trade, especially in sanctioned goods like oil.**
- These fleets often use tactics such as concealing their origins, using flags of convenience (registered in countries with lenient regulations), or turning off tracking systems to avoid detection.

Significance in Global Trade and Geopolitics

- The Shadow Fleet has played a notable role in allowing sanctioned nations, particularly **Iran** and **Russia**, to continue oil exports despite international restrictions.
- These operations affect global oil markets by introducing unsanctioned oil supplies, influencing oil prices, and creating complex enforcement challenges for sanctions.

Gold Reserves

Syllabus: GS-3; Economy

Context

- The gold reserve held by the Reserve Bank of India (RBI) has increased almost 40 per cent in volume in five years, in line with other central banks on a buying spree.
- India's gold reserves increased from 618 metric tonne in September 2019 to 854 tonne in September 2024.

Definition and Purpose

- Gold reserves refer to the gold held by central banks and governments as part of their financial assets.
- These reserves serve as a safeguard to ensure economic stability, boost confidence in the national currency, and support monetary policy, especially during financial crises.

Significance of Gold Reserves

- **Economic Stability**: Gold is considered a "safe-haven asset" that retains value, particularly during economic downturns, currency devaluations, or inflation.
- **Foreign Exchange and Balance of Payments**: Gold reserves back a country's foreign exchange holdings and improve its ability to settle international trade and debt.
- **Currency Stabilization**: Many countries use gold to stabilize their currency as it provides a hedge against fluctuations in the value of fiat money.

India's Gold Reserves

- **Volume and Ranking**: India's gold reserves are managed by the Reserve Bank of India (RBI). As of recent records, India holds significant gold reserves, placing it among the top 10 gold-holding countries globally.
- **Gold as Part of Foreign Exchange Reserves**: India's gold reserves account for a substantial portion of its foreign exchange reserves, providing a buffer against external shocks.

International Context

- **World Leaders in Gold Reserves**: The United States, Germany, and the International Monetary Fund (IMF) have the largest gold reserves globally.

- **Global Trends**: Recently, countries like China and Russia have been increasing their gold reserves to reduce dependency on the US dollar and safeguard against geopolitical tensions.

Challenges and Considerations

- **Volatility**: Gold prices can be volatile, influenced by global demand-supply dynamics, geopolitical tensions, and currency fluctuations.
- **Opportunity Cost**: Holding large gold reserves can limit investments in other profitable avenues, though it's balanced by the security gold provides.
- **Storage and Security**: Physical gold storage involves security concerns and costs for countries with extensive reserves.

Policy Implications and Strategic Use

- India's increased gold reserves contribute to its economic security and provide leverage in the global market.
- The government can utilize gold reserves for international borrowing purposes or to stabilize the rupee in times of currency depreciation.

Global Value Chains (GVCs)

Syllabus: GS-3; Economy- Global Value Chains (GVCs)

Context

- Proposed U.S. rules on Chinese connected car tech and Israel's pager attacks indicate the changing focus of global supply chains — from resilience to security.

About

- **Global Value Chains (GVCs)** refer to the full range of activities required to bring a product or service from conception to delivery, and beyond, across different countries. This includes design, production, marketing, distribution, and support services.

Key Characteristics:

- **Fragmentation of Production**: GVCs enable the segmentation of production processes across different countries, allowing firms to specialize in specific tasks.
- **International Trade**: GVCs are integral to international trade, as they often involve multiple countries in the production process.
- **Technology and Innovation**: They are heavily influenced by advancements in technology, which facilitate coordination and communication across borders.

Importance of GVCs:

- **Economic Growth**: Participation in GVCs can drive economic growth by providing access to international markets and fostering local industries.
- **Job Creation**: GVCs can create jobs in various sectors, including manufacturing, services, and logistics.
- **Development Opportunities**: For developing countries, GVCs can offer opportunities to integrate into the global economy and enhance competitiveness.

Drivers of GVCs:

- **Trade Liberalization**: Reduction of trade barriers has encouraged countries to participate in GVCs.
- **Technological Advancements**: Innovations in transportation and communication technologies have made it easier to manage global operations.
- **Consumer Demand**: Increasing demand for diverse and customized products has led companies to source components from different regions.

Challenges:

- **Supply Chain Disruptions**: Events like natural disasters, geopolitical tensions, or pandemics can disrupt GVCs, affecting production and delivery.
- **Inequality**: While GVCs can promote economic growth, they can also exacerbate inequalities within and between countries.
- **Sustainability**: Environmental concerns related to GVCs include carbon footprints and resource depletion associated with global logistics.

Policy Implications:

- **Trade Policies**: Governments need to formulate policies that facilitate participation in GVCs while ensuring fair trade practices.

- **Investment in Infrastructure**: Developing countries may require investment in infrastructure and skills to effectively engage in GVCs.
- **Regulatory Frameworks**: Establishing clear regulatory frameworks can help in managing the complexities of GVCs and ensuring sustainability.

Role of India in GVCs:

- **Manufacturing Hub**: India has been positioning itself as a significant player in global manufacturing, especially in sectors like textiles, pharmaceuticals, automotive, and electronics. Initiatives like "Make in India" aim to enhance manufacturing capabilities and attract foreign investment.
- **Service Sector**: India is a leader in the global service sector, particularly in IT and business process outsourcing (BPO). Indian companies play a crucial role in the GVCs of global tech firms by providing software development, data analysis, and customer support services.
- **Agricultural Exports**: India is a major player in global agricultural value chains, exporting products such as spices, tea, and rice. The government promotes agricultural exports through various policies and initiatives.

Opportunities for India:

- **Market Access**: Participation in GVCs allows Indian firms to access international markets and diversify their export base.
- **Job Creation**: Engaging in GVCs can create significant employment opportunities, especially in manufacturing and service sectors.
- **Technology Transfer**: Participation in GVCs can facilitate the transfer of technology and skills from advanced economies, helping to upgrade Indian industries.

- **Investment Inflows**: As a part of GVCs, India can attract foreign direct investment (FDI), which is vital for infrastructure development and economic growth.

Challenges Faced by India:

- **Infrastructure Gaps**: Inadequate infrastructure (transport, logistics, and supply chain management) hinders India's ability to fully capitalize on GVCs.
- **Policy and Regulatory Issues**: Complex regulations and bureaucratic hurdles can deter foreign investment and participation in GVCs.
- **Skill Mismatch**: There is often a mismatch between the skills of the workforce and the demands of industries involved in GVCs, necessitating substantial investment in skill development.

- **Dependence on Imports**: India's heavy reliance on imported components for manufacturing can make it vulnerable to supply chain disruptions.

Government Initiatives:

- **Make in India**: Launched in 2014, this initiative aims to boost manufacturing by attracting FDI and increasing the share of manufacturing in India's GDP.
- **Production-Linked Incentive (PLI) Schemes**: These schemes are designed to incentivize domestic manufacturing and increase global competitiveness in sectors like electronics, pharmaceuticals, and automobiles.
- **Digital India**: This initiative aims to transform India into a digitally empowered society and knowledge economy, which can enhance participation in GVCs.
- **Skill India Mission**: Focuses on equipping the workforce with relevant skills needed for industries that are part of GVCs.

Green Hydrogen Fuel Cell Bus

Syllabus: GS-3; Science & Tech

Context

- Green Hydrogen Fuel Cell Bus is a part of our efforts to boost sustainability and contribute to a greener future for the coming generations : PM

What is Green Hydrogen?

- **Definition**: Green hydrogen is hydrogen produced using renewable energy sources like solar, wind, or hydropower, through a process called electrolysis.
- **Electrolysis Process**: Water is split into hydrogen and oxygen using electricity from renewable sources, emitting no CO_2.
- **Significance**: Unlike grey and blue hydrogen, green hydrogen is entirely carbon-free, making it a key player in reducing emissions in heavy industries and transportation.

How Fuel Cell Buses Work

- **Fuel Cells**: Fuel cells in these buses use hydrogen as a fuel. Through an electrochemical process, hydrogen reacts with oxygen from the air to produce electricity, with water as the only by-product.
- **Battery and Fuel Cell Combination**: Green hydrogen fuel cell buses may also have batteries to store extra electricity generated or to assist with peak power demands.
- **No Tailpipe Emissions**: The only emission from hydrogen fuel cell buses is water vapor, making them zero-emission vehicles.

Advantages of Green Hydrogen Fuel Cell Buses

- **Environmental Benefits**: They produce no CO_2 emissions, helping reduce urban air pollution and combat climate change.
- **Energy Efficiency**: These buses are more energy-efficient than traditional combustion-engine vehicles.
- **Refueling Speed**: Hydrogen fuel cell buses can be refueled quickly, often within 10-15 minutes, which is much faster than the recharging time required by electric buses.
- **Range**: Hydrogen fuel cell buses have a longer range compared to battery electric buses, making them suitable for long-distance and high-demand routes.

Challenges in Adoption

- **High Production Costs**: Producing green hydrogen is currently expensive due to the cost of renewable energy and electrolyzers.
- **Infrastructure**: The lack of a hydrogen refueling infrastructure makes it difficult to operate hydrogen-powered fleets widely.
- **Storage and Safety**: Hydrogen is a highly flammable gas, requiring specialized storage and handling, which can be costly and complex.
- **Technology Development**: Advancements in fuel cell technology and a drop in renewable energy costs are essential for widespread adoption.

India's Initiative for Hydrogen Fuel Cell Buses

- **National Hydrogen Mission**: Launched by the Government of India in 2021, this mission aims to promote green hydrogen production and usage, including in public transportation.
- **Pilot Projects**: India has launched several pilot projects to deploy hydrogen fuel cell buses, including initiatives by NTPC and other public-sector organizations to test their viability in Indian conditions.

- **Policy Support**: Subsidies, policy incentives, and research funding are being provided to develop hydrogen production and infrastructure.
- **Potential Benefits for India**: With growing renewable energy capacity, India could produce green hydrogen domestically, reducing dependency on fossil fuels and advancing energy security.

Global Examples and Success Stories

- **Europe**: Countries like Germany, France, and the Netherlands are leading with hydrogen fuel cell bus fleets, supported by EU green energy funding.
- **Japan and South Korea**: These nations have heavily invested in hydrogen technology and have deployed fuel cell buses as part of their public transportation.
- **United States**: California operates hydrogen buses as part of its zero-emission transit goals, showcasing successful adoption in urban settings.

Future Prospects

- **Cost Reduction**: Advances in electrolyzer technology and renewable energy could make green hydrogen more affordable.
- **Hydrogen Hubs**: Governments are exploring hydrogen hubs to centralize production, distribution, and refueling stations, which could enhance the feasibility of hydrogen fuel cell buses.

- **Public-Private Partnerships**: Collaborations between governments, research institutions, and private sectors could accelerate the development and adoption of hydrogen-based public transport solutions.