

CURRENT AFFAIRS

WEEKLY



MAINS ARTICLE

GS-I

- ▣ DELAYED LA NIÑA
- ▣ CYCLONE PATTERNS AND MONSOONAL CHANGES IN INDIAN OCEAN
- ▣ IMPACT OF ARCTIC SEA ICE ON INDIA'S MONSOON

GS-II

- ▣ EU-INDIA IN THE 'INDO-PACIFIC'
- ▣ CHINA-AFRICA SUMMIT 2024
- ▣ INDIA-SINGAPORE AGREEMENT ON SEMICONDUCTOR CHIPS
- ▣ INDIA AND UAE SIGN MAJOR AGREEMENTS TO BOOST STRATEGIC TIES
- ▣ VERTICAL FISCAL IMBALANCE (VFI)
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- ▣ Bedouin Community (Israel)

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- ▣ Centre extends ABPM-JAY to all above 70
- ▣ PM E-DRIVE
- ▣ Modification of scheme of Budgetary Support for HEP
- ▣ Waqf Properties and Protected Monuments

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- ▣ MSP of Soyabean

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- ▣ Mpox virus (West African clade 2)
- ▣ Whale Phishing Scam
- ▣ Helium in Space Operations

ENVIRONMENT

- ▣ Vulture Population
- ▣ Alzheimer's Risk Linked to Light Pollution: Study
- ▣ Loss and Damage Fund (LDF)

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DISCLAIMER

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION -A

MAINS ISSUES

DELAYED LA NIÑA

CONTEXT

The delay in the anticipated onset of La Niña this year has raised concerns among meteorologists and climate experts. India, which heavily depends on the monsoon for agricultural and water resources, had anticipated enhanced rainfall during the August-September period due to La Niña. However, with the phenomenon's onset delayed, questions arise about the likely impact on the ongoing monsoon and why global weather models failed to predict this accurately.

What is La Niña?

- La Niña is a phase of the El Niño Southern Oscillation (ENSO), a critical climate pattern that influences global weather. La Niña is characterized by **cooler-than-average sea surface temperatures** in the **eastern tropical Pacific Ocean**.
- ENSO Phases:** The ENSO cycle consists of three phases:
 - El Niño (warmer sea temperatures)
 - La Niña (cooler sea temperatures)
 - Neutral (average sea temperatures)
- Impact on Global Weather:** La Niña affects global atmospheric circulation, leading to alterations in weather patterns worldwide. For example, it can enhance monsoon activity in India.

Predictions and Current Status

- Initial Predictions:** Global models forecasted that La Niña would emerge around July 2024. The US-based **National Oceanic and Atmospheric Administration**

(NOAA) and **Australia's Bureau of Meteorology (BoM)** projected a transition from neutral to La Niña conditions between August and October.

- Current Situation:** By mid-July, it became evident that **La Niña would not materialize as predicted**. Current forecasts suggest that La Niña might begin showing signs by late September or early October, peaking in November and persisting through the northern hemisphere winter.

Impact of delayed La Ni Niña on India's Monsoon

- Monsoon Influence:** La Niña typically boosts the southwest monsoon, which runs from June to September in India. The delay in La Niña's onset means its direct impact on the current monsoon is minimal.
- Rainfall Data:** India recorded a 16% surplus in rainfall for August 2024. Forecasts for September predict 109% of normal rainfall, and overall, the monsoon season has seen an 8% increase in rainfall compared to the average. Regional variations persist, with some areas experiencing deficient rainfall.

Factors Contributing to Forecast Inaccuracies

- Weak La Niña:** Weather models are more adept at predicting strong La Niña or El Niño events. The current weak La Niña has been challenging to detect accurately.
- Complex Interactions:** Other climatic factors, such as the Madden-Julian Oscillation (MJO), which influences atmospheric conditions, add to the complexity of accurate predictions. These interactions can affect the timing and intensity of La Niña conditions.

CYCLONE PATTERNS AND MONSOONAL CHANGES IN INDIAN OCEAN

CONTEXT

The Indian Ocean's unique climatic and oceanographic features, along with its role in cyclogenesis, have recently gained attention due to the rare August cyclone named 'Asna'. This cyclone is noteworthy as it marks the first instance of a **North Indian Ocean cyclone** in August since 1981, reflecting unusual patterns in cyclogenesis and monsoonal behavior.

Monsoonal Circulation in the Indian Ocean

The Indian Ocean plays a crucial role in the summer monsoon, which is vital for replenishing water resources across the Indian subcontinent. Below is how the monsoonal circulation operates:

- **Evaporation and Moisture Supply:** The **North Indian Ocean** contributes significantly to the monsoon by supplying moisture. Warm sea surfaces in the **Arabian Sea** and the **Bay of Bengal** facilitate high evaporation rates, which are crucial for generating the moisture needed for the monsoon rains.
- **Cyclogenesis:** Cyclones, which are intense weather systems, form in **warm tropical waters** where high evaporation rates provide the necessary energy. The North Indian Ocean is unique due to its seasonal cyclogenesis patterns: cyclones typically form during the-
 - pre-monsoon (April to June)
 - post-monsoon (October to December) periods

- **Regional Variations:** The Arabian Sea and the Bay of Bengal exhibit different cyclogenesis patterns.
 - The Arabian Sea, though warm, shows relatively less cyclonic activity due to cooler temperatures, weaker convective activity, and stronger wind shear during the monsoon.
 - In contrast, the Bay of Bengal is more active with numerous cyclones due to favorable conditions for convection and cyclogenesis.

Why the Pattern is Changing Now?

Recent changes in cyclone patterns and monsoonal behavior can be attributed to several factors:

- **Climate Change:** The Indian Ocean is warming rapidly, driven by increased heat inflows from the Pacific and Southern Oceans. This warming trend is altering traditional cyclone patterns and affecting the monsoon. Elevated **sea surface temperatures (SSTs)** in the Indian Ocean enhance **cyclogenesis** but can also lead to more unpredictable weather patterns.
- **Atmospheric Changes:** Changes in atmospheric circulation, including variations in wind patterns and humidity levels, influence cyclone formation. The Indian Ocean's rapid warming is impacting global atmospheric circulation, affecting weather patterns across the region.
- **Oceanic Inputs:** The Indian Ocean is influenced by '**oceanic tunnels**'—warm water inflows from the Pacific and cooler waters from the Southern Ocean. These inputs contribute to regional sea surface temperature variations and influence cyclonic activity.

What is Surprising: The August Cyclone 'Asna'?

- **Rare Timing:** The formation of cyclone 'Asna' in August is unusual. Historically, the North Indian Ocean typically

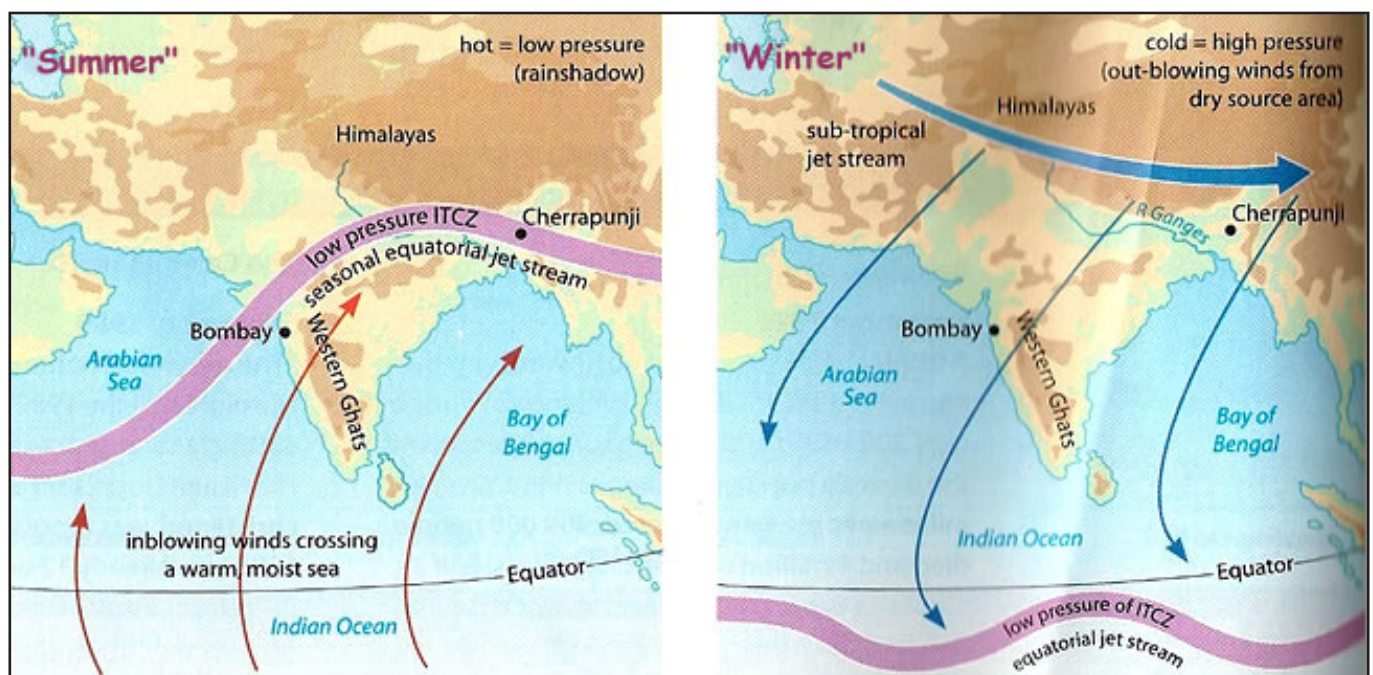


Figure No., 01

experiences cyclones during the pre-monsoon and post-monsoon seasons. The emergence of a cyclone in August signifies a deviation from these established patterns.

- **Land-to-Ocean Transition:** 'Asna' began as a powerful land-born depression that intensified over the Arabian Sea. This transition from a land-based system to an oceanic cyclone is rare and underscores the changing dynamics of cyclogenesis in the Indian Ocean.
- **Implications of Warming:** The unusual growth of 'Asna' over the Arabian Sea, which was energized by warm waters, highlights the broader impacts of climate change. The warming of the Arabian Sea and shifts in atmospheric conditions have allowed for **unexpected cyclone developments** and intensified weather events.

IMPACT OF ARCTIC SEA ICE ON INDIA'S MONSOON

CONTEXT

In recent years, the Indian monsoon, once celebrated as a **life-giving force for the subcontinent**, has increasingly become a symbol of **climatic unpredictability**. The erratic nature of the monsoon, which brings both severe floods and debilitating droughts, has raised urgent questions about the underlying causes. A recent study sheds light on an **unexpected factor influencing these shifts: Arctic sea ice**.

What is the Indian Summer Monsoon Rainfall?

- The Indian Summer Monsoon Rainfall (ISMR) is a **crucial weather phenomenon** that shapes the climate of the Indian subcontinent from July to September, with peak rains typically in July and August.
- During the summer, the landmass of **Central Asia and India heats up** faster than the surrounding oceans. This differential heating creates a **low-pressure zone** at the **Tropic of Cancer**, known as the **intertropical convergence zone (ITCZ)**.
- **Trade winds** from the southeast are deflected towards the Indian subcontinent due to the **Coriolis effect** and the **low pressure**.
- As these winds move over the Arabian Sea, they gather moisture and bring rainfall to India.
- The southwest monsoon splits into two branches:
 - one affecting the west coast from the **Arabian Sea**
 - the other traveling towards the **Bay of Bengal** to bring rain to the eastern and northeastern regions
- The two branches converge over Punjab and Himachal Pradesh, with the Arabian Sea branch moving inward and the Bay of Bengal branch following the Himalayas.

How Does Arctic Sea Ice Influence the Indian Monsoon?

- Recent research highlights that Arctic sea ice levels play a significant role in determining the behavior of the Indian monsoon.

Key Findings from the Study:

- Decline in central Arctic Sea ice correlates with reduced rainfall in western and peninsular India but increased rainfall in central and northern India.
- It affects atmospheric circulation patterns, which in turn impact monsoon distribution.
- Decrease in Sea Ice in the **Barents-Kara Sea Region** leads to a delayed monsoon onset and greater unpredictability in rainfall patterns.
 - ◆ It creates high-pressure conditions over southwest China and affect atmospheric stability over the Indian subcontinent, leading to increased rainfall in northeastern India and drier conditions in central and northwest India.



FACT BOX

Atmospheric Processes Involved:

- **Rossby Waves:** The study identifies Rossby waves—large-scale atmospheric waves created by Earth's rotation and temperature differences—as crucial in influencing monsoon patterns. Enhanced Rossby waves can shift atmospheric pressure zones, altering rainfall distribution.
- **Jet Streams:** Jet streams are fast-moving air currents high up in the atmosphere, about 8 to 15 kilometers (5 to 9 miles) above the Earth's surface. They travel from west to east and form where there are big temperature differences in the atmosphere.
 - Jet streams are among the strongest winds in the atmosphere, with speeds ranging from 129 to 225 kilometers per hour (80 to 140 miles per hour), and can even exceed 443 kilometers per hour (275 miles per hour). They are faster in winter due to greater temperature differences between tropical, temperate, and polar air masses.
 - **Types of Jet Streams**
 - ◆ **Subtropical Jet Stream:** Centered around 30 degrees latitude.
 - ◆ **Polar-Front Jet Stream:** Varies with the boundary between polar and temperate air masses.

(See Figure No. 2 on next page)

- **Formation of Air Currents:** Air currents are **movements of air** within the atmosphere, the layer of gases surrounding Earth. They form because the sun heats Earth unevenly.
 - **For instance**, the tropics receive more direct sunlight and thus warm up more than the poles. As the Earth's surface heats up, it warms the air above it. This warm air expands, becomes lighter, and rises, creating warm air currents. Cooler, heavier air then moves in to replace the rising warm air, creating cool air currents.

(See Figure No. 3 on next page)

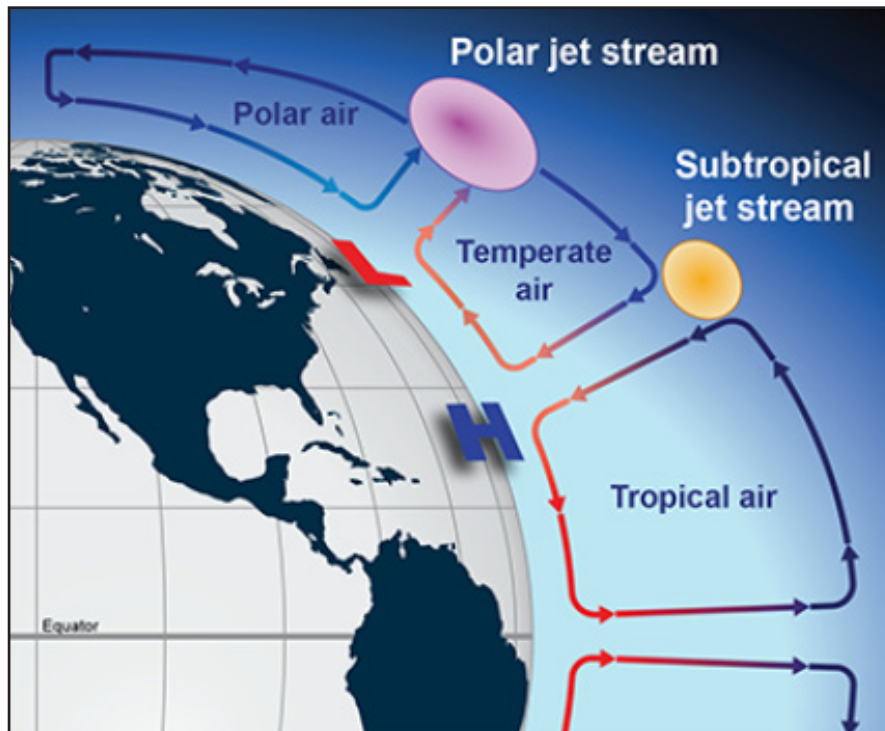


Figure No., 02

Surface Wind Bands

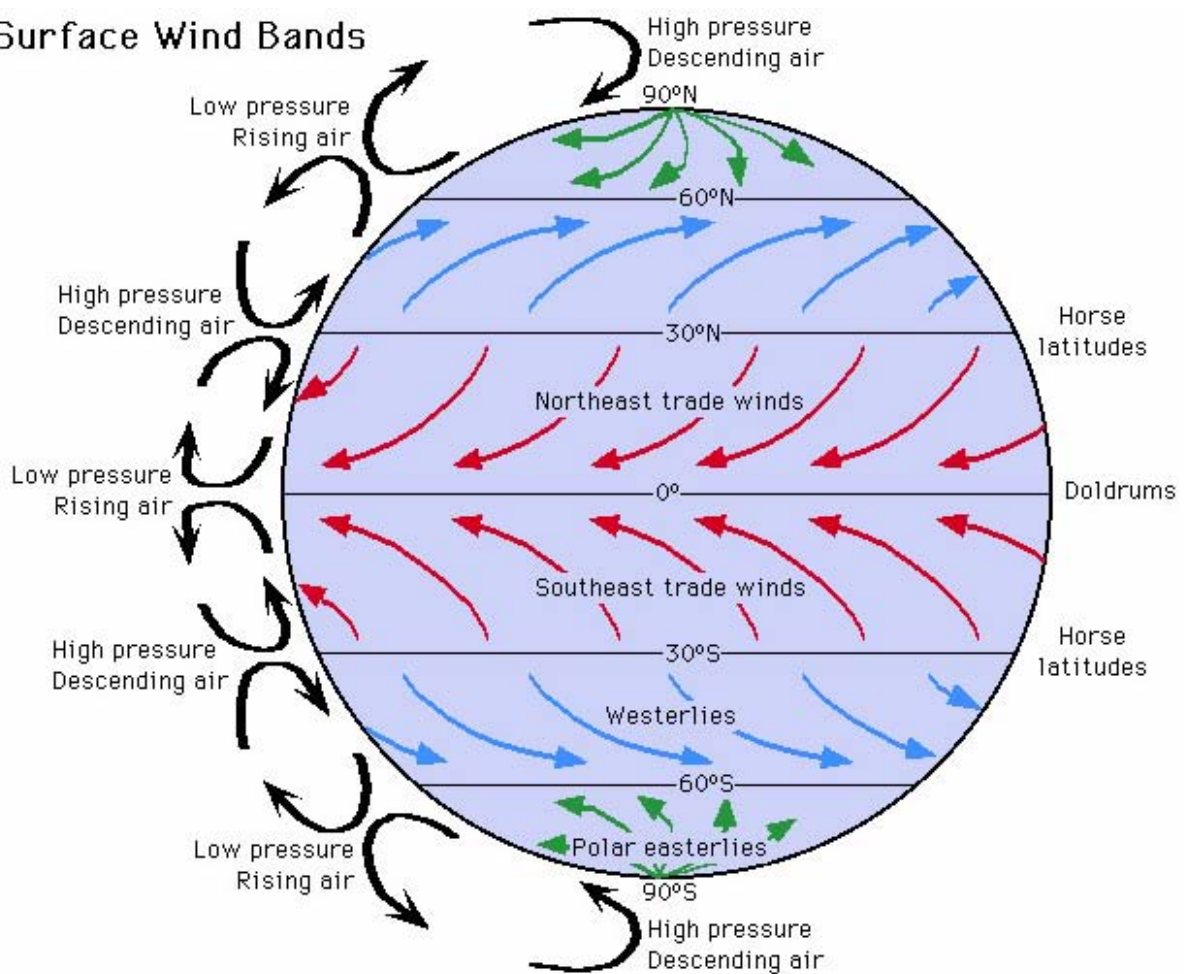


Figure No., 03

EU-INDIA IN THE 'INDO-PACIFIC'

CONTEXT

In a significant effort to bolster security and defence cooperation, the European Union (EU) recently organized a study visit for senior Indian officials from the **Ministry of External Affairs (MEA) and Ministry of Defence**. The visit aimed to deepen ties between India and the EU, specifically focusing on Common Security and Defence Policy (CSDP) missions and maritime security in the Indo-Pacific region.

Why is Indo-Pacific region so significant?

- India's definition of the "Indo-Pacific" stretches from the Eastern coast of Africa to the islands of the South Pacific.
- **Global trade and maritime security:** Almost 60 percent of global GDP and two thirds of global growth are generated in the Indo-Pacific. As much as 25 percent of international maritime trade passes through the Strait of Malacca alone.
- **Home to largest economies:** The Indo-Pacific region is home to around 60 percent of the global population and 20 of the world's 33 megacities.
- **Key-player:** It is also the source of more than half of all global carbon emissions. This makes the region's countries key players in tackling global challenges such as the climate crisis.

India's strategy for Indo-Pacific

- India has been active in championing a Free and Open Indo-Pacific. India has been an active participant in mechanisms such as the
 - Indian Ocean Rim Association (IORA)
 - East Asia Summit
 - ASEAN Defence Ministers Meeting Plus
 - ASEAN Regional Forum
 - Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)
 - Mekong Ganga Economic Corridor
- Through the Forum for India-Pacific Islands Cooperation (FIPIC), India is moving towards engaging with the Pacific Island countries.
- **Recognising important groupings:** India supports **ASEAN centrality** in the evolving Indo-Pacific regional architecture, but also works with groupings such as the **Quad, IORA and the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)**, among others.
- India's trade in this region is growing rapidly, with overseas investments being directed towards the East, e.g., the
 - **Comprehensive Economic Partnership Agreements** with Japan, South Korea, and Singapore

- **Free Trade Agreements** with ASEAN and Thailand
- **Evolving "Act East Policy"** comprising economic engagement with Southeast Asia and strategic cooperation beyond that to East Asia (Japan, Republic of Korea), Australia, New Zealand, as well as the Pacific Island countries

CHINA-AFRICA SUMMIT 2024

CONTEXT

During the ninth Forum on China-Africa Cooperation (FOCAC), Chinese President Xi Jinping pledged \$51 billion in funding to African countries

What is the FOCAC?

- The China-Africa summit, officially called the Forum on China-Africa Cooperation (FOCAC), has been held **every three years** since 2000.
- It was established to formalize and strengthen the strategic partnership between China and African nations.
- **Membership:** FOCAC includes 53 African nations (excluding Eswatini) and the African Union Commission.
- **Purpose and Theme:** The 2024 summit, themed **"Joining Hands to Advance Modernization and Build a High-Level China-Africa Community with a Shared Future,"** focuses on bilateral talks on political and economic cooperation, with a significant emphasis on infrastructure, governance, and economic development.

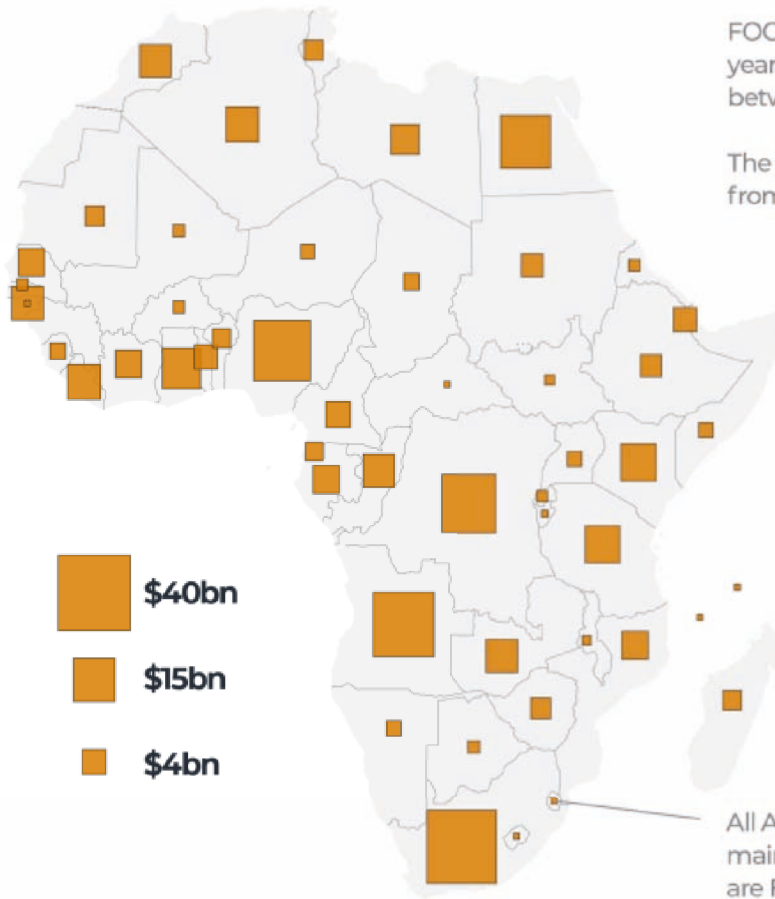
Africa-China Relations

- China supported African countries' decolonization efforts in the 1950s and 1960s, establishing strong bilateral relations. The transnational Tanzania-Zambia railway, completed in 1976, was China's first major infrastructure project in Africa.
- **China's investment in Africa:** China has been **Africa's largest bilateral trading partner** since 2009. In 2023, Africa-China trade reached \$282 billion, with China importing 20% of Africa's exports (mainly commodities) and exporting 16% of Africa's imports (mainly manufactured goods).
 - Beijing is also the continent's biggest creditor. Between 2006 and 2021, it committed to investing \$191bn in African countries.
- **Belt and Road Initiative (BRI):** Africa is a key partner in China's BRI, aimed at enhancing cross-border economic, political, and cultural relations. China has invested over \$120 billion in infrastructure for the BRI over the past decade.
- **Debt Diplomacy:** China has faced criticism for 'debt trap diplomacy,' where large loans for infrastructure projects lead to significant debt burdens on African nations, exemplified by Sri Lanka's Hambantota port situation. However, China disputes these claims, attributing defaults to local mismanagement.

ECONOMY

China-Africa Trade and FOCAC

The Forum on China-Africa Cooperation (FOCAC) is a diplomatic and economic summit held between China and 53 African countries. In 2009, China surpassed the United States as Africa's largest trade partner, and China-Africa trade hit \$282bn in 2023.



Trade value (2022)

South Africa	\$35.9bn
Angola	\$27.3bn
Nigeria	\$23.9bn
DRC	\$21.9bn
Egypt	\$18.2bn
Ghana	\$10.3bn
Kenya	\$8.5bn
Tanzania	\$8.3bn
Liberia	\$7.5bn
Algeria	\$7.4bn

All African states, except Eswatini which maintains diplomatic ties with Taiwan, are FOCAC members

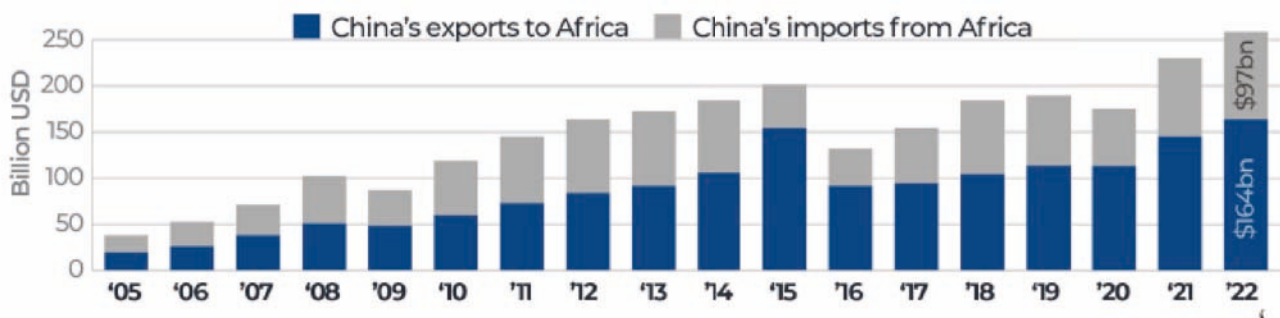


Figure No., 04

Impact on India

- Economic Influence:** As China scales down its large-scale infrastructure investments amid its economic slowdown, there is an opportunity for India to engage more deeply with Africa. The changing dynamics could impact India's competitive position in Africa's infrastructure and trade sectors.
- Strategic Considerations:** India might need to enhance its diplomatic and economic strategies in Africa to counterbalance China's growing influence. This includes **strategic investments**, **triangular development cooperation** with third countries, and a greater role for **MSMEs**.
- Regional Balance:** The shift in China's focus from large

projects to smaller, technologically advanced initiatives may open avenues for India to participate in different types of development projects in Africa, potentially influencing the regional balance of influence.

- In FY23, India's bilateral trade with Africa reached almost \$100 billion. Meanwhile, China's total trade with the continent was nearly triple this at \$282 billion.
- In term of FDI in 2021, India was last on the list, at \$14 billion, while China ranked fifth at \$44 billion.

India's interests in Africa

- **Resource and energy security:** Africa is home to sizeable reserves of the world's critical energy transition minerals: 55% of cobalt, 47.65% of manganese, 21.6% of natural graphite, 5.9% of copper, 5.6% of nickel, 1% of lithium, and 0.6% of iron ore globally.
- **India wants African countries' support for India's candidature to the UNSC's permanent seat** and to restructure global multilateral and financial institutions, achieve greater autonomy, and ensure that the agenda of the 'Global South' is prioritised.
 - The inclusion of the **African Union** as a permanent member in the **G20 under Indian G20 Presidency** is a testament to the importance India attaches to its relations with the continent.

UPSC PYQ

Q: Increasing interest of India in Africa has its pros and cons. Critically Examine. (2015)

INDIA-SINGAPORE AGREEMENT ON SEMICONDUCTOR CHIPS

CONTEXT

Prime Minister Narendra Modi visited Singapore during his trip to South-East Asia. The visit was marked by agreements on **semiconductors, digital technologies, health and skill development**.

Key-highlights

- Given the breadth and depth of bilateral ties and immense potential, they decided to elevate the relationship to a Comprehensive Strategic Partnership. This would also give a major boost to India's Act East Policy.
- India and Singapore announced four agreements on:
 - **Semiconductor:** The MoU envisages cooperation to support India's growing semiconductor industry while facilitating Singapore's companies and supply chains to enter the Indian market.

- Singapore contributes around **10% of the global semiconductor output**, along with 5% of the **global wafer fabrication capacity** (silicon wafer is a circular piece of ultra pure silicon, out of which chips are carved) and 20% of semiconductor equipment production.
- Nine of the world's **top 15 semiconductor firms** have set up shop in Singapore.
- Singapore has players in all segments of the semiconductor value chain: **integrated circuit (IC) design, assembly, packaging and testing; wafer fabrication, and equipment/ raw material production**.
- **Challenge:** Singapore's semiconductor industry is limited to "**mature-node chips**", which are used in appliances, cars, and industrial equipment. It is not equipped to make **high-end logic chips** like the ones used in the AI sector.
- **Digital Cooperation:** The MoU on cooperation in digital technology will encourage greater interoperability between the digital economies of the two countries and build on earlier work such as the linking of the digital payment systems of India and Singapore.
 - ◆ The main areas of cooperation under this MoU are data flows and data protection, digital utilities and digital public infrastructure, cyber-security and business-to-business linkages.
- **Education and skill development:** The two sides will cooperate on technical and vocational education and training
- **Healthcare and medical research:** There will be cooperation in disease surveillance, pandemic preparedness and prevention of communicable diseases.

Why is India intensifying its efforts for chip?

- Semiconductor chips are critical in virtually everything from missiles to mobile phones and from cars to computers.
- However, the global chip industry is dominated only by companies from a very small number of countries, and India is a late entrant into this high-tech and expensive race.

Supply disruptions during the Covid-19 pandemic and the geopolitical tensions arising out of **China's aggressive moves** in the **Taiwan Strait and the South China Sea** have brought **great urgency to India's efforts to develop its own semiconductor ecosystem**.

- India launched the **India Semiconductor Mission** in 2021 with a Rs 76,000 crore chip incentive scheme, under which the central government offered half the plant's capital expenditure costs as subsidy.
- The Cabinet approved **semiconductor-related projects** adding up to investments of about Rs 1.26 lakh crore.
- The government announced a partnership between the **Tata Group and Taiwan's Powerchip Semiconductor Manufacturing Corporation (PSMC)** to set up a **semiconductor fabrication plant**.

India-Singapore Trade and Economic Relations

- Singapore is currently **India's largest trade partner** within the Association of Southeast Asian Nations (ASEAN) and the **sixth largest trade partner** worldwide.
- It was the top source of **foreign direct investment (FDI)** in India in 2023, with investments valued at USD 11.77 billion.
- Since 2000, Singapore has invested nearly \$160 billion in India.
- Singapore is a key partner in **India's 'Act East' policy** and vision for the **Indo-Pacific region**.
- The year 2025 will mark the 60th anniversary of bilateral relations.

INDIA & UAE SIGN MAJOR AGREEMENTS TO BOOST STRATEGIC TIES

CONTEXT

India and the **United Arab Emirates** inked four major pacts that will facilitate **crude oil storage, long-term supply of LNG and cooperation in the civil nuclear energy sector** as Prime Minister Narendra Modi held wide-ranging talks with Abu Dhabi Crown Prince Sheikh Khaled bin Mohamed bin Zayed Al Nahyan focusing on boosting overall strategic ties.

Breakdown of the key deals

India and the United Arab Emirates (UAE) have recently signed four significant agreements to strengthen their strategic partnership. Here's a breakdown of the key deals:

- **Long-Term LNG Supply Agreement:** Abu Dhabi National Oil Company (ADNOC) will supply 1 million metric tonnes of liquefied natural gas (LNG) annually to Indian Oil Corporation Ltd (IOCL).
- **CONTEXT:** This is the third such LNG contract signed in over a year, with IOCL and GAIL previously securing similar agreements for 1.2 million metric tonnes per annum (MMTPA) and 0.5 MMTPA, respectively.
- **Crude Oil Storage and Management:** ADNOC and India Strategic Petroleum Reserve Ltd (ISPRL) have signed a Memorandum of Understanding (MoU) to explore additional opportunities for crude oil storage in India. This includes renewing their existing storage agreement.
 - **Background:** ADNOC has been storing crude in ISPRL's Mangalore cavern since 2018, with a total of 5.86 million barrels stored. This helps India manage energy security during global supply disruptions.

- **Civil Nuclear Energy Cooperation:** Emirates Nuclear Energy Company (ENEC) and Nuclear Power Corporation of India Ltd (NPCIL) have agreed to enhance cooperation in nuclear power. This includes operating and maintaining nuclear plants, sourcing nuclear materials from India, and exploring investment opportunities.
 - This agreement builds on recent advancements, such as the completion of the **Arab world's first nuclear power plant** in Abu Dhabi, which will generate 40 terawatt-hours of electricity annually once fully operational.
- **Production Concession Agreement:** A concession agreement for **Abu Dhabi Onshore Block 1** was signed between ADNOC and Urja Bharat, a joint venture of **Indian Oil Corporation Ltd (IOCL)** and **Bharat Petro Resources Ltd**. This allows Urja Bharat to bring crude oil to India, supporting the country's energy security.
 - This is the first such agreement involving an Indian company operating in the UAE.
- **Food Park Development:** A Memorandum of Understanding (MoU) between the Gujarat government and Abu Dhabi Developmental Holding Company (ADQ) will set up a food and agriculture park in Gundanpara, Ahmedabad. The project is expected to start by the second quarter of 2025.

Bilateral Relations:

- The **strategic partnership** between India and the UAE has significantly strengthened in recent years.
- Following Prime Minister Narendra Modi's visit to the UAE in August 2015, the countries upgraded their relationship to a **Comprehensive Strategic Partnership in 2022**.
 - Eyeing bilateral trade of \$100 billion in the next five years, CEPA brings cuts in tariff, fast-tracked approvals for business, access to trade zones etc.
- Both countries signed a **Local Currency Settlement (LCS) System** in July 2023 to promote the use of **Indian Rupee and AED (United Arab Emirates Dirham)** for cross-border transactions.
- While UAE is India's second top export destination after the US, India is UAE's second largest trading partner after China.
- Trade between India and the UAE touched historic highs going from \$72.9 billion in FY22 to \$84.5 billion in FY23.
- About 3.5 million strong and vibrant Indian community forms the largest expatriate group in the UAE.
 - The Indian expatriate community in the UAE, numbering about 3.5 million, is the largest foreign community in the country.
- The UAE and other GCC nations are major contributors to India's foreign remittance inflow and the use of local currencies in cross-border transactions will further increase this.



Figure No., 05

- Both countries are also currently part of several plurilateral platforms such as **BRICS**, **I2U2 (India-Israel-UAE-USA)** and **UFI (UAE-France-India) Trilateral**, etc.

Strategic partnerships vs comprehensive strategic partnership

- The major fields of **strategic partnerships** usually include **economy, defence, energy security, intelligence and foreign policy cooperation, science and innovation, and technology cooperation**.
- A **comprehensive strategic partnership** is seen as a level higher, with more broad-ranging engagement in the same, if not more, fields. Bilateral ties are viewed as significantly deepened with a comprehensive strategic partnership.

VERTICAL FISCAL IMBALANCE (VFI)

CONTEXT:

In India's federal structure, a notable issue is the **Vertical Fiscal Imbalance (VFI)**, where States spend more money

than they can raise through their own revenues. This imbalance occurs because the responsibility for spending is **decentralized to the States**, but the **ability to collect taxes and generate revenue is largely controlled by the Union government**.

What is Vertical Fiscal Imbalance (VFI)?

- Vertical Fiscal Imbalance occurs when there is a disparity between the revenue collected by different levels of government and their expenditure responsibilities. In India:
 - States are responsible for 61% of the revenue expenditure but only generate 38% of the revenue receipts.
- This disparity means that States rely heavily on **transfers from the Union government** to meet their expenditure needs.
- Constitutional Allocation of Responsibilities:**
 - The Union government is tasked with collecting major taxes, including **Personal Income Tax, Corporation Tax**, and a portion of **indirect taxes**, to ensure efficiency in tax collection.
 - States are responsible for providing **public services and goods** (education, health, police, law and order, forests, drinking water, etc.), which is best managed at the local level due to better understanding of local needs.

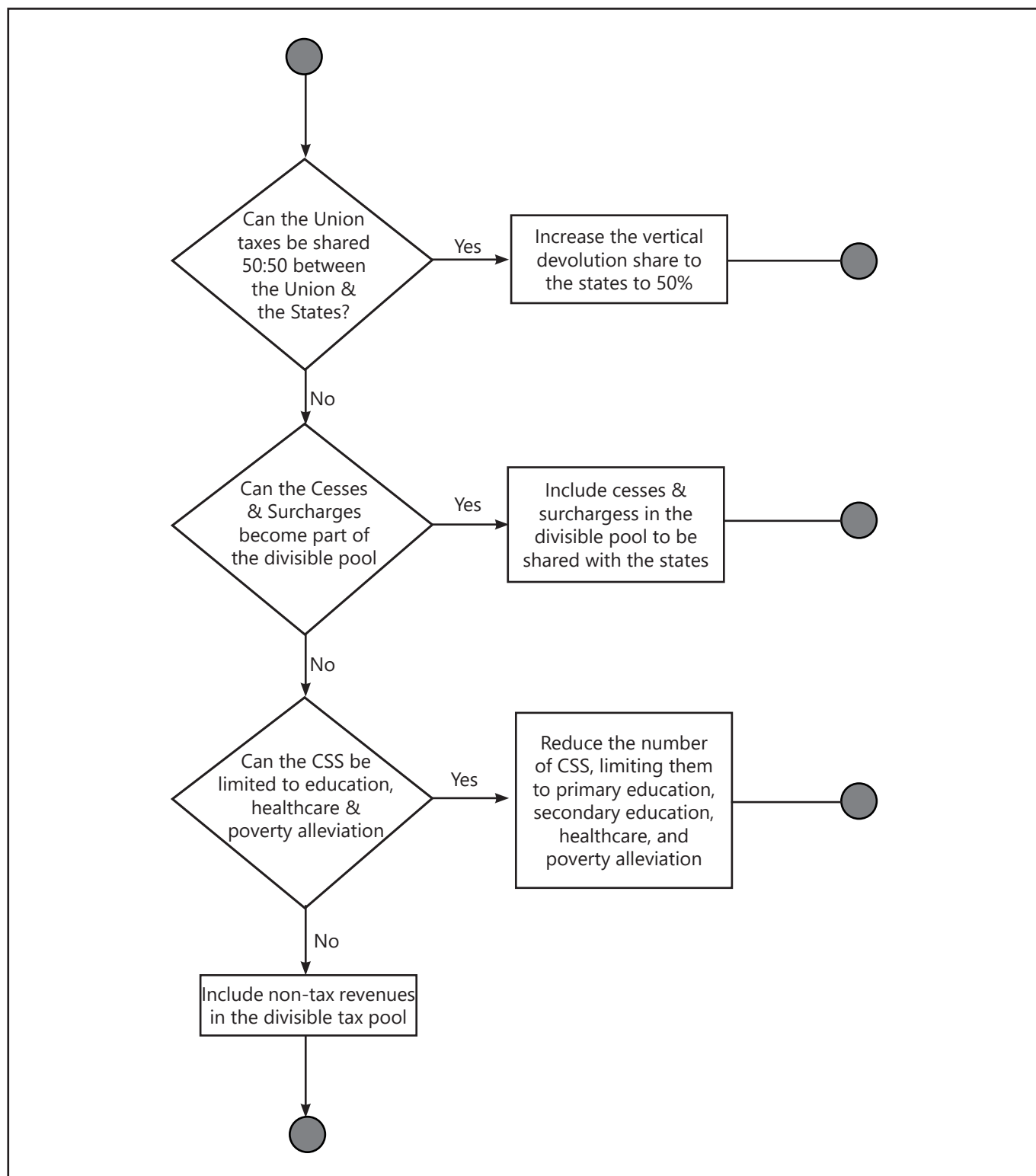


Figure No.,. 06

In some sectors, the share of state expenditure is disproportionately high. For instance, states incur 77 per cent of the total government spending on health (2023-24) and 75 per cent on education (2020-21).

Finance Commission's Role in Tax Devolution

- The Finance Commission addresses VFI by recommending how Union-collected taxes should be distributed among States.
- These recommendations are based on the "**Net Proceeds**" of taxes (Gross Tax Revenue minus surcharges, cesses, and costs of collection).
- Besides tax devolution, the Finance Commission also recommends **grants under Article 275** of the Constitution for specific needs. However, these grants are often conditional and short-term.
 - Grants to local governments, both rural and urban, are devolved as per the provisions under **Article 280(3) (bb) and (c) of the Constitution**.

Impact of Imbalance:

According to the **15th Finance Commission**, India's VFI is larger and rising compared to other federations. It pointed out that although the Union collected 62.7 per cent of the combined revenues of both the Union and the state governments, states alone were responsible for 62.4 per cent of the total expenditure.

- This imbalance has worsened during crises, such as the COVID-19 pandemic, exacerbating the gap between States' revenues and their expenditure responsibilities.
 - The 14th and 15th Finance Commissions recommended devolution shares of 42% and 41% of net proceeds, respectively. To eliminate VFI, the average share of net proceeds devolved should be approximately 48.94%.
- Many States are advocating for a fixed tax devolution share of 50% by the 16th Finance Commission. This demand is supported by the fact that substantial cesses and surcharges are excluded from the net proceeds, which reduces available resources for States.

Implications of Increasing Tax Devolution:

- **Enhanced Autonomy:** Increasing the share of tax devolution to States would provide them with more untied resources, enhancing their financial autonomy.
- **Efficient Expenditure:** With a more balanced financial framework, States can better address local needs and improve the efficiency of their expenditures.
- **Cooperative Federalism:** Adjusting tax devolution to mitigate VFI will contribute to a healthier system of cooperative fiscal federalism, aligning financial responsibilities with revenue generation.



FACT BOX

Fiscal Imbalance

- The distribution of power between the Centre and states as put forth by the Seventh Schedule of the Constitution has created a fiscal gap, and led to a vertical **fiscal imbalance**.
- **Types of imbalance:** Vertical and horizontal fiscal imbalance
 - **Vertical fiscal imbalance** occurs when revenues do not match expenditures for different government levels.
 - **Horizontal fiscal imbalance** occurs when revenues do not match expenditures for different regions of the country.

INDIA STATUS REPORT ON ROAD SAFETY 2024

CONTEXT

The "**India Status Report on Road Safety 2024**," prepared by the TRIP Centre at IIT Delhi, highlights the ongoing challenges India faces in improving road safety. Despite advancements in other sectors, the report reveals a troubling picture of road traffic fatalities and injuries.

What does the Report reveal?

- **High Fatality Rates:** Road traffic injuries are a major public health issue in India. In 2021, they were the 13th leading cause of death and the 12th leading cause of health loss. In states like **Haryana, Jammu and Kashmir, Punjab, Rajasthan, Uttarakhand, and Uttar Pradesh**, road traffic injuries are among the top 10 causes of health loss.
- **Disparities across States:** There is a significant variation in road safety across India. **Tamil Nadu, Telangana, and Chhattisgarh** have some of the highest road traffic death rates, while **West Bengal and Bihar** report much lower rates. Six states—**Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Rajasthan, and Tamil Nadu**—account for nearly half of all traffic fatalities.
- **Vulnerable Road Users:** Pedestrians, cyclists, and motorized two-wheeler riders are the most common victims of road accidents. Trucks are frequently involved in fatal crashes. Despite the potential for helmets to reduce fatalities and injuries, less than 50% of motorized two-wheeler riders wear them in most states.
- **Comparing globally:** In 1990, an Indian was 40% more likely to die in a road accident than someone in countries like Sweden. By 2021, this disparity had increased to 600%.

What makes India's roads unsafe?

- Accidents and deaths on Indian roads are mainly due to **faulty road engineering, defective detailed project reports** and the **bad design of junctions** coupled with **inadequate signage and road markings**.
- **India's current road safety data systems are insufficient** for effective policymaking.
- **Absence of a national crash-level database:** Road safety statistics are compiled from police station records and aggregated at various levels before being published. This system allows only basic analyses and often contains inaccuracies.
- **Many states lack comprehensive road safety measures.** Basic elements like traffic calming, proper markings, and signage are insufficient. Helmet usage in rural areas is particularly low, and trauma care facilities are inadequate.
- In India, the **Ministry of Road Transport and Highways** and the **National Highways Authority of India** are responsible for setting safety standards and those assessing compliance. Legislative loopholes enable design failures to slip through the cracks because there are no independent audits.

- The **2007 Sundar Committee on Road Safety** has recommended separating the entities responsible for setting safety standards and those assessing compliance.
- **Road Infrastructure heavily favours motorised vehicles over non-motorised transport.** Pedestrians are relegated to the periphery of road networks or forced to compete for space with motor vehicles, which puts them at grave risk of injuries or fatalities.

Government Measures for Road Safety

India has the second largest road network in the world, with about 63.32 lakh km of roads as of March 2019.

- **Motor Vehicle Amendment (MVA) Act 2019:** The Act amended Motor Vehicles Act of 1988. It includes inter-alia, provisions like stiff hikes in penalties for traffic violations, electronic monitoring of the same, enhanced penalties for juvenile driving, etc.
- **Vehicle Scrapping Policy:** It provides for creating an ecosystem to phase out older, unfit polluting vehicles.
- **National Road Safety Policy:** Based on the recommendations of the **Sunder Committee**, the Policy outlines the policy initiatives to be framed/taken by the Government at all levels to improve road safety activities in the country.
- **Road Safety Audit (RSA)** for all National Highways (NHs) have been made mandatory through third-party auditors at all stages, including design, construction, operation, and maintenance.
- **Electronic Detailed Accident Report (e-DAR)** to establish a central repository for reporting, management, and analysis of road accident data across the nation.
- **Good Samaritan Law:** MoRTH has published rules for the protection of Good Samaritan.
- **India State Support Programme for Road Safety by World Bank:** The World Bank has approved a USD 250 million loan for seven States under which a single accident reporting number will be set up to better manage post-crash events.
- **Rajasthan** became the **first State in the country to adopt an action plan for road safety** for the next 10 years.
- **Kerala's Good Governance:** Kerala achieved zero deaths in the network of roads, including the narrow hill stretches, leading to the Sabarimala temple. Kerala's interventions saw zero road accident deaths for two consecutive years, beginning 2019-20, owing to sustained intervention by the state government—a first in India.

Global initiatives on road safety

- Brasilia Declaration on Road Safety, 2015
- Decade of Action for Road Safety 2021-2030
- Bloomberg Initiative for Global Road Safety (BIGRS) 2020-2025

What needs to be done?

- **Scale Up Road Safety Interventions:** There is need to prioritize and expand road safety measures across states.
- **Establish a National Database:** Government must create a comprehensive national database for fatal crashes, which should be publicly accessible. This would improve the understanding of road safety risks and the effectiveness of interventions.
- **Implement Targeted Strategies:** There is need to develop tailored strategies to address the unique road safety challenges faced by different states, focusing on areas such as helmet usage, traffic management, and trauma care.

RESEARCH ECOSYSTEM IN INDIA

CONTEXT

Prime Minister Narendra Modi said there is a need to identify and remove obstacles in the research ecosystem of the country, Prime Minister Narendra Modi said while chairing the first meeting of the governing board of **Anusandhan National Research Foundation (ANRF)**. He further emphasised that research should be focussed on **finding new solutions** to existing problems and although these concerns could be global in nature, their solutions must be localised in accordance with Indian needs.

Need of strong research ecosystem

The significance of research and innovation cannot be overstated in fuelling: Economic growth; Technological advancement and Global competitiveness. However, the ecosystem is suffering from various challenges/issues:

- **Low Funding:** R&D funding in India is less than 1% of the Gross Domestic Product (GDP), which is relatively low compared to global standards.
- As per data from the **National Science Foundation USA**,
 - ▶ India's spending on research and development is among the lowest in the world. In 2022, India spent 0.65% of GDP on R&D, which is lower than the BRICS nations and much lower than the world average of 1.8%.
 - ▶ India ranks 3rd in the world for both scientific publications as well as for the number of PhD students.
 - ▶ India ranks 9th in citations, 6th in patent filings and 40th for innovation, which is a matter of concern.
 - ▶ India has one of the lowest **Gross Expenditure on R&D (GERD)** in the world, with only USD 43 per capita, according to the **NITI Aayog's India Innovation Index Report 2021**.
- **Gap:** India has over 4.3 crore students spread across 1,168 universities and 45,473 colleges. Centrally funded institutions like IITs and IIMs, though prestigious, enroll less than **1 per cent** of the total student population.

- **Lack of Provisions:** There are insufficient additional provisions for R&D in emerging sectors, hindering innovation in sunrise industries.
- **High Dependence on Grants:** Many universities rely heavily on extramural support from agencies like the Department of Science and Technology (DST), Department of Biotechnology (DBT), Indian Council of Medical Research (ICMR), and Council of Scientific and Industrial Research (CSIR). This dependency often compromises the quality of doctoral research due to fluctuating funding levels and reduced autonomy.
- **Brain Drain:** A significant outflow of top talent to foreign countries results in a shortage of skilled professionals within India's R&D sector, affecting the country's innovative capacity.
- **IPR Violation:** Poor enforcement of Intellectual Property Rights (IPR) discourages foreign investment in R&D, as investors are concerned about the safety and return on their innovations.
- **Outdated Curriculum and Pedagogy:** Many universities continue to use outdated curricula centered around rote learning and job-oriented skills, which limits the effective utilization of research grants and the development of innovative capabilities.
- **Poor Private Sector Participation:** Private sector contributions to R&D account for only 37% of total R&D expenditure in India, significantly below the 68% average in developed countries, resulting in underfunded and less dynamic research efforts.

Steps Taken by the Government to Boost Research and Development (R&D)

- **Anusandhan National Research Foundation (ANRF)** was established to promote research and development and foster a culture of research and innovation throughout India's Universities, Colleges, Research Institutions, and R&D laboratories.
- It acts as an apex body to provide high-level strategic direction of scientific research in the country.
- The ANRF will launch programmes on solution-focussed research in mission mode in select priority areas like **Electric Vehicle (EV) mobility, Advanced Materials, Solar Cells, Smart Infrastructure, Health & Medical Technology and Sustainable Agriculture and Photonics**.
- It has been decided to set up Centers of Excellence to support interdisciplinary research in humanities and social sciences.
- The idea is inspired by the **US National Science Foundation (NSF)**.
- The decision to bring ANRF into action aligns well with the goals outlined in the **National Education Policy (NEP) 2020**, which emphasised the need to make India a knowledge-based economy.
- ANRF aims to consolidate research funding previously managed by the **Science and Engineering Research Board (SERB)**.

Structure and Leadership:

- **Governing Board (15 members):** Headed by Prime Minister Narendra Modi as President, with Ministers of Science & Technology and Education as Vice Presidents. Includes Secretaries from key departments and advisors.
- **Executive Council:** Chaired by the Principal Scientific Adviser, consisting of Secretaries from various ministries and CEOs.
- **IMPRINT Initiative:** The IMPacting Research, INnovation, and Technology (IMPRINT) scheme was launched in 2015 as a joint effort of Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc).
- It seeks to address critical engineering challenges by converting research into practical technologies in ten specific domains, thus bridging the gap between academia and industry.
- **National Deep Tech Startup Policy (NDTSP):** This policy holds the potential to incentivise private sector engagement in India's R&D ecosystem.
- **Atal Tinkering Labs:** Under the Atal Innovation Mission, this initiative by NITI Aayog aims to nurture young minds' curiosity and creativity.
 - The labs focus on imparting skills like design thinking, computational skills, and adaptive learning to students, fostering an innovative mindset from an early age.
- **IPR Laws and TRIPS Agreement:** India adheres to the WTO Agreement on **Trade-Related Aspects of Intellectual Property Rights (TRIPS)**, which establishes a comprehensive framework for intellectual property protection.
 - **Domestic Legislation:** The enactment of domestic IPR laws aims to promote innovation and safeguard intellectual property by addressing violations and fostering a robust IP environment.

Despite the comparatively lower share of GDP dedicated to R&D, India has emerged as a powerhouse in producing academic talent. Annually, India generates an impressive 40,813 PhDs and is in third place after the United States and China.

WEAK BANK DEPOSIT GROWTH

CONTEXT:

Recently, there has been a notable divergence between the growth rates of bank deposits and credit in India. For the quarter ending June 2024, while deposits grew at 11.7%, bank credit surged by 15%. This widening gap has raised concerns about an **asset-liability mismatch** and potential **liquidity issues** within the banking sector.

Deposit-Credit Gap

- ◉ **Deposit Growth vs. Credit Growth:** In June 2024, deposit growth was 11.7%, but bank credit grew at 15%, indicating that banks are lending more than they are receiving in deposits. When this gap increases, it can lead to **liquidity problems**, as banks may struggle to meet their lending obligations.
- ◉ **Recent Trends:** Bank credit grew by 14%, while deposits grew by only 11%. This continued disparity has highlighted the pressing issue of **managing liquidity** effectively within the banking sector.
- ◉ **Factors Contributing to Slower Deposit Growth**
 - **Shift to Capital Markets:** One significant factor is the **outflow of household savings from banks to capital markets**. Post-COVID-19, there has been a surge in retail activity in capital markets. The rise in demat accounts (from 11.45 crore in FY23 to 15.14 crore in FY24) and the growth of mutual funds (with assets under management reaching Rs 64.97 lakh crore) reflect this trend.
 - **Increased Retail Participation:** The increase in retail participation, especially through mutual funds, has contributed to the slower growth in bank deposits. The mutual funds industry, with 9.33 crore systematic investment plan (SIP) accounts, is drawing more savings away from banks.



FACT BOX

Key-Concepts

- ◉ **Deposit Growth:** It is the rate at which the amount of money deposited in banks increases over a specific period.
- ◉ **Credit Growth:** It is the rate at which banks' lending to customers increases over a specific period.
- ◉ **Asset-Liability Mismatch:** It is a situation where the growth of a bank's assets (loans and advances) outpaces the growth of its liabilities (deposits), creating a potential liquidity shortfall.
- ◉ **Liquidity:** The availability of liquid assets (cash or easily convertible assets) that banks can use to meet their short-term obligations and operational needs.
- ◉ **Capital Markets:** Financial markets where long-term securities such as stocks and bonds are issued and traded, often offering higher returns compared to traditional bank deposits.

boost India's economic growth. Mr. Das highlighted the importance of private sector involvement in sustaining economic momentum, especially as consumption demand shows signs of revival.

Key Points:

- ◉ Governor Das emphasized that the private sector needs to increase its investments significantly. This is crucial for supporting sustainable economic growth and ensuring that the economy remains resilient to external uncertainties.
- ◉ The current conditions are favorable for investment, making it an opportune time for the private sector to invest more heavily.

Economic Growth Drivers:

- **Consumption:** Higher domestic consumption can help protect the economy from external shocks.
- **Investment and Exports:** Both investment and exports are critical for maintaining economic momentum. These elements need to work in tandem to drive sustained growth.
- ◉ **Manufacturing sector's** contribution would be "pivotal" in generating additional employment. Towards this, initiatives such as **Make in India, Startup India, One District One Product**, and the **Production-Linked Incentive schemes** are helping the sector gain competitiveness and grow faster.
- ◉ **Services sector** had remained the mainstay of growth in the Indian economy for the last several decades, but must now "explore new vistas of opportunities" with a focus on higher value-added services.
- ◉ **MSME sector**, in particular, holds a lot of promise to step up growth and employment opportunities.

Current Economic Status:

- ◉ Recent data shows that while growth has moderated slightly, fundamental drivers such as consumption and investment are gaining momentum.
- ◉ The RBI projects a GDP growth rate of 7.2% for 2024-25.

Private Sector Investment in India

- ◉ In India, private investment began to pick up significantly mostly after the economic reforms of the late-1980s and the early-1990s that improved private sector confidence.
- ◉ From independence to economic liberalisation, private investment largely remained either slightly below or above 10% of the GDP.
- ◉ Public investment as a percentage of GDP, on the other hand, steadily rose over the decades from less than 3% of GDP in 1950-51 to overtake private investment as a percentage of GDP in the early 1980s.
- ◉ It, however, began to drop post-liberalisation with private investment taking on the leading role in fixed capital formation.

INVESTMENT & ROLE OF PRIVATE SECTOR

CONTEXT

Reserve Bank of India (RBI) Governor Shaktikanta Das addressed the need for private sector investment to

- The growth in private investment lasted until the global financial crisis of 2007-08. It rose from around 10% of GDP in the 1980s to around 27% in 2007-08. From 2011-12 onwards, however, private investment began to drop and hit a low of 19.6% of the GDP in 2020-21.

Factors Contributing to the Decline

- **Low Private Consumption:** Strong consumption is necessary to encourage businesses to invest, as it signals future demand for their products.
- **Policy Factors:** Structural problems and policy uncertainty have also been cited as reasons for the decline in private investment. For example, the slowdown in economic reforms and changes in government policies can deter long-term investments.
- **Reforms Correlation:** The growth in private investment in the 1990s and early 2000s correlated with the economic reforms started in 1991. The subsequent decline has been linked to a slowdown in reforms and rising policy uncertainty.

Government Measures and Tax Reforms

- **Tax Cuts:** In 2019, the Indian government reduced corporate taxes from 30% to 22% to stimulate private investment. The aim was to make investing more attractive for businesses.
- **Facilitation of Tax Compliance:** Simplification of tax compliance procedures and introduction of measures like the Goods and Services Tax (GST) have been designed to create a more business-friendly environment.
- **National Infrastructure Pipeline (NIP)**
- **Regulatory Simplification:** The government introduced the **Single Window Clearance system** to reduce the time and effort required to start and operate a business.
- **Online Processes:** Digital platforms like the Ministry of Corporate Affairs (MCA) 21 portal have been introduced to streamline business registration and compliance processes.
- **Production Linked Incentive (PLI) Schemes:** The PLI schemes offer incentives to companies for boosting domestic manufacturing in sectors such as electronics, textiles, and pharmaceuticals. The goal is to enhance competitiveness and attract foreign and domestic investment.
- **Sector-Specific Incentives:** Various incentives and subsidies are offered in sectors like renewable energy, manufacturing, and technology to stimulate investment.
- **Banking Sector Improvements:** Measures to strengthen the banking sector, including recapitalization of public sector banks and the introduction of the Insolvency and Bankruptcy Code (IBC), are aimed at improving credit availability and reducing non-performing assets (NPAs).
- **Development Finance Institutions:** Support for institutions like the National Bank for Agriculture and Rural Development (NABARD) and the National Housing Bank (NHB) to enhance financing options for specific sectors.

- **FDI Liberalization:** Reforms to relax FDI norms in various sectors, such as defense, retail, and aviation, to make India a more attractive destination for foreign investors.
- **Automatic Route Expansion:** Expansion of the automatic route for FDI to simplify the process and reduce bureaucratic hurdles.
- **Startup India Initiative:** Provides various benefits including tax exemptions, easier compliance norms, and funding support to encourage the growth of startups and innovative enterprises.
- **Innovation and Technology Support:** Grants and funding opportunities for research and development (R&D) and innovation, including support for tech startups and incubators.
- **Special Economic Zones (SEZs):** Creation of SEZs with incentives for businesses, including tax breaks and easier regulatory compliance, to attract investment in specific regions.
- **Industrial Corridors and Clusters:** Development of industrial corridors and investment in industrial clusters to boost investment in targeted regions.

Key-Concepts

- **Gross Fixed Capital Formation (GFCF)** measures the increase in fixed capital, such as buildings and machinery, in an economy. It reflects how much the private sector invests in these assets.
- **Why It Matters:** Higher GFCF boosts economic growth by increasing productivity and improving living standards. It contributes significantly to the overall output and purchasing power in the economy.

AGRICULTURAL PATTERNS OF PUNJAB AND HARYANA

CONTEXT

Punjab and Haryana, two key states in **India's Green Revolution history**, are facing **contrasting agricultural challenges**. This issue is significant as both states have significantly shaped India's rice and wheat production.

Agricultural Patterns in Punjab

Monoculture Dominance:

- **Rice-Wheat Cycle:** Punjab's agriculture is heavily reliant on a **monoculture system**, focusing predominantly on **rice and wheat**. Rice is grown during the **kharif season** (monsoon), while wheat is cultivated in the **rabi season** (winter-spring).
- **Crop Share:** Over the past five years, rice has occupied about 86.8% of Punjab's kharif crop area, and wheat has covered approximately 97.9% of the rabi area.

TABLE 1			TABLE 2		
PUNJAB CROPPING PROFILE			HARYANA CROPPING PROFILE		
KHARIF			KHARIF		
Kharif	Area*	% share	Kharif	Area*	% share
Rice	30.20	86.78	Rice	14.28	49.39
Cotton	2.43	6.98	Cotton	6.50	22.50
Maize	1.03	2.97	Bajra	5.20	17.98
Sugarcane	0.89	2.57	Guarseed	1.08	3.74
Guarseed	0.10	0.29	Sugarcane	1.00	3.45
Total***	34.81	100.00	Moong	0.40	1.40
RABI			RABI		
Rabi	Area*	% share	Rabi	Area*	% share
Wheat	35.24	97.86	Wheat	24.25	75.78
Mustard	0.43	1.19	Mustard	7.04	22.01
Moong**	0.22	0.62	Chana	0.35	1.09
Barley	0.05	0.15	Sunflower	0.13	0.39
Total***	36.01	100.00	Moong**	0.10	0.32
			Barley	0.10	0.30
			Total***	32.00	100.00

*Five-year-average from 2019-20 to 2023-24;
 **Includes summer moong;
 ***Includes other crops.
 Source: Department of Agriculture and Farmers' Welfare.

Figure No., 07

Expansion and Challenges:

- **Increased Area:** The area under rice cultivation in Punjab has risen significantly from 20.2 lakh hectares in 1990-91 to 31.9 lakh hectares in 2023-24. Wheat cultivation has also increased, though less dramatically.
- **Water Use and Groundwater Depletion:** Rice is water-intensive, requiring about 25 irrigations compared to wheat's 4-5. This has led to severe groundwater depletion and fiscal issues related to grain procurement and storage.

Agricultural Patterns in Haryana

Diversification Approach:

- **Varied Cropping:** Haryana exhibits a more diversified cropping pattern.
 - ♦ **Kharif season:** Rice occupies less than half of the crop area, while crops like **cotton, bajra (pearl millet), and guar (cluster bean)** are also cultivated.
 - ♦ **Rabi season:** Rapeseed-mustard, chickpea, and sunflower.

- **Basmati vs. Non-Basmati Rice:** Haryana's rice cultivation includes a significant portion of basmati varieties (56.2% of rice area), which are less water-intensive and not subject to fixed minimum support prices (MSP), reducing surplus issues.

Irrigation and Crop Mix:

- **Irrigation Infrastructure:** Haryana has an extensive canal network but faces irrigation constraints in southern districts. This limited irrigation leads to the cultivation of drought-resistant crops like bajra and guar in those areas.
- **Challenges and Adjustments:** Haryana's government promotes crop diversification through MSP and the Bhavantar Bharpai Yojana (BBY) scheme to cover price differences for crops like bajra, mustard, and sunflower.

Environmental and Economic Impacts

Punjab:

- **Environmental Strain:** The heavy reliance on rice has strained water resources and contributed to groundwater depletion.

- **Economic Concerns:** The surplus grain procurement has led to high fiscal costs and logistical challenges.

■ Haryana:

- **Balanced Approach:** Haryana's diversified cropping helps in managing water resources better and reduces reliance on a single crop.
- **Promotion of Diversification:** The state's policies and incentives aim to balance agricultural risk and economic stability by encouraging a range of crops.

UPSC PYQ

- Q: What are the present challenges before crop diversification? How do emerging technologies provide an opportunity for crop diversification? (2021)**
- Q: What are the major reasons for declining rice and wheat yield in the cropping system? How crop diversification is helpful to stabilize the yield of the crop in the system? (2017)**

RBI'S ROLE IN CONTROLLING INFLATION AND INTEREST RATES

CONTEXT

In India, the Reserve Bank of India (RBI) plays a crucial role in managing inflation and setting interest rates, which directly affect consumers, borrowers, and the broader economy. The recent query from borrowers about when the RBI will reduce **interest rates** stems from the complexities of controlling inflation in the current economic climate.

What is the importance of Price Stability?

- Inflation refers to the rate at which the general price level of goods and services rises, reducing purchasing power.
- An unstable inflation rate causes uncertainty around **costs, prices, and profits, discouraging businesses from producing and investing**. As a result, price stability—meaning a **low and stable inflation rate**—is considered essential for sustaining a high and stable investment rate, which in turn leads to healthy and stable growth of gross domestic product.

Why is the RBI Holding Off on Lowering Interest Rates?

- **Inflation Management:** The RBI's main goal is to manage inflation, which affects the overall cost of living. A stable inflation rate helps in maintaining economic stability and encourages investment.
- **Current Inflation Situation:**
 - **GDP Growth Projection:** The RBI projects the GDP growth rate for 2024-2025 to be between 6.5% and 7%.

- **Retail Inflation:** As of July 2024, retail inflation (CPI inflation) has fallen to a near five-year low of 3.64%, which is below the RBI's target of 4%.
- **Repo Rate:** The repo rate, at which banks borrow short-term funds from the RBI, has been held steady at 6.5% since February 2023, following an increase from 4% in May 2022, to curb inflation.

Key Factors Affecting RBI's Decision

- **Food Inflation Impact:** Food prices make up a large portion of the **Consumer Price Index (CPI)**. Persistent high food inflation (which stood at **9.36%** in June 2024) can offset gains from lower overall inflation, complicating the RBI's decision to lower rates.
- **Global and Supply-Side Factors:** Food and fuel prices are influenced by external factors like **weather conditions and global oil prices**, which the RBI cannot control. High food prices can lead to broader inflation if workers demand higher wages to cover rising costs.
- **Fiscal Policy:** The government's **fiscal deficit** (the gap between its spending and revenue) impacts overall demand in the economy. A high fiscal deficit can increase demand, making it harder for the RBI to control inflation. The Indian government has been working to reduce the fiscal deficit, easing the RBI's task.
- **Economic Growth and Employment:** Lowering interest rates too quickly can slow down economic growth and increase unemployment. The RBI must balance its policies to avoid negative impacts on the economy.
- **Global Interest Rates:** The RBI's interest rate decisions are also influenced by rates in other major economies. If interest rates in the US and EU are high, international investors might seek better returns elsewhere, affecting domestic monetary policy.
- **Impact on Savers vs. Borrowers:** Lower interest rates benefit borrowers but can harm savers, especially those relying on fixed deposits for income. The RBI needs to balance the interests of both groups.
- **Delayed Effects:** Changes in interest rates take time to affect the economy. Even after lowering rates, it can take time for lending rates and investment spending to adjust. The RBI must wait to see the full impact before making further changes.

The RBI's current stance is to maintain its monetary policy until it is certain that inflation, particularly food inflation, is under control. This cautious approach ensures that inflationary pressures do not resurface, and economic stability is preserved.

INDIA IMPOSES TARIFFS ON STEEL IMPORTS

CONTEXT

India has announced the imposition of tariffs ranging from **12% to 30%** on **select steel products** imported from China and Vietnam to safeguard and bolster its local steel industry amidst growing concerns over unfair trade practices and market disruptions caused by foreign imports.

Background and Rationale

- The decision to levy these tariffs comes in the wake of an **anti-dumping investigation** initiated by the Indian government.
- The **Directorate General of Trade Remedies (DGTR)**, tasked with overseeing trade remedies, conducted a comprehensive inquiry into the impact of steel imports from China and Vietnam on the domestic market.
- This investigation was prompted by concerns that these imports, subsidized by foreign governments, were being sold at prices below the cost of production, undermining the competitiveness of Indian steel producers.

Impact of the Tariff Decision

The imposition of tariffs on steel products from China and Vietnam represents a strategic intervention by India to address concerns related to trade imbalances and market distortions. By imposing tariffs of 12% to 30%, the Indian government aims to:

- **Protect Domestic Industry:** The tariffs are designed to shield Indian steel manufacturers from the adverse effects of subsidized foreign imports, which can significantly undercut local prices and threaten the viability of domestic production.
- **Promote Fair Competition:** By increasing the cost of imported steel products, the tariffs seek to create a more equitable environment where domestic producers can compete on a level playing field. This is crucial for maintaining the sustainability of the local steel industry, which plays a vital role in India's infrastructure and manufacturing sectors.
- **Encourage Local Investment:** With reduced pressure from unfairly priced imports, domestic steel producers may be more inclined to invest in expanding their operations, improving technology, and enhancing productivity. This, in turn, could lead to increased employment opportunities and economic growth within the sector.
- **Respond to Trade Practices:** The move also reflects India's broader strategy to address perceived trade imbalances and protect its industries from practices deemed harmful to the local economy. This approach aligns with global trade practices where countries seek to enforce fair trade standards and mitigate the impact of unfair competition.

Concepts Explained

- **Countervailing Duties (CVD):** These are tariffs imposed on imported goods to counteract subsidies provided by foreign governments to their producers. The goal of CVDs is to level the playing field for domestic industries by offsetting the price advantage enjoyed by subsidized imports. The DGTR conducts investigations to determine whether such subsidies are indeed harming local industries and, if so, recommends the imposition of CVDs to mitigate the impact.

- **Anti-Dumping Investigation:** This process involves examining whether imported goods are being sold at less than their fair value in the domestic market, typically due to government subsidies or other unfair trade practices. If the investigation finds that such practices are causing material injury to domestic industries, it can lead to the imposition of anti-dumping duties to restore fair competition.

MISSION MAUSAM

CONTEXT:

The Union Cabinet has approved '**Mission Mausam**' with a budget of Rs 2,000 crore over two years. This initiative aims to significantly enhance India's capabilities in weather and climate-related science and services.

About Mission Mausam

- Mission Mausam is envisaged to be a **multi-faceted and transformative initiative** to tremendously boost India's weather and climate-related science, research, and services.
- **Objective:** To create a more weather-ready and climate-smart Bharat.
- It will help to better equip stakeholders, including citizens and last-mile users, in tackling extreme weather events and the impacts of climate change.
- **Critical elements of Mission Mausam will include**
 - ▶ deployment of next-generation radars and satellite systems with advanced sensors and high-performance supercomputers
 - ▶ development of improved Earth system models and a GIS-based automated Decision Support System for real-time data dissemination
- Mission Mausam will focus on advancing research and development in atmospheric sciences, **improving weather surveillance, forecasting, and management**.
- The mission will leverage advanced technologies like **artificial intelligence, machine learning, and high-performance computing**.
- The mission will benefit multiple sectors including **agriculture, disaster management, aviation, and health**. It aims to improve **data-driven decision-making** across urban planning, transport, and environmental monitoring.
- **Institutional Role:** Implementation will be led by the India Meteorological Department, Indian Institute of Tropical Meteorology, and the National Centre for Medium-Range Weather Forecasting, with support from other Ministry of Earth Sciences institutions and national and international collaborators.
- **Implementing Agency:** It will be implemented by three key institutions under the **Ministry of Earth Sciences (MoES)**:

- ▶ India Meteorological Department
- ▶ Indian Institute of Tropical Meteorology
- ▶ National Centre for Medium-Range Weather Forecasting
- These will be supported by other MoES bodies, such as the **Indian National Centre for Ocean Information Services, the National Centre for Polar and Ocean Research and the National Institute of Ocean Technology.**

Need for 'Mission Mausam' in India:

Predicting weather events with a high level of accuracy has become increasingly important in India, one of the most vulnerable nations to climate change. It allows the country to better prepare - from issuing early heat and rain warnings to coordinating power supplies to guiding farmers on how to protect their crops.

- **Vulnerability:** Almost 58.6 percent of the landmass is prone to earthquakes of moderate to very high intensity; over 40 million hectares (12 per cent of land) are prone to floods and river erosion; of the 7,516 km long coastline, close to 5,700 km is prone to cyclones and tsunamis; 68 per cent of the cultivable area is vulnerable to drought and hilly areas are at risk from landslides and avalanches.
- **Increased Frequency of Extreme Weather Events:** Extreme weather events like heatwaves and cloudbursts, which were rare in the past, are now happening throughout the year, highlighting the need for accurate forecasts.

- **Climate-Induced Vagaries:** Climate change has led to severe and unexpected weather conditions such as **Wayanad landslide and lake bursts in Sikkim, Uttarakhand**, underscoring the necessity for improved weather prediction.
- **Need for Hyper-Local Weather Data:** There is a growing demand for precise weather forecasts at very local levels for specific needs like farming and daily activities.
- **Increased Intensity of Rainfall:** The frequency and intensity of heavy, localized rainfall have surged, making accurate weather predictions crucial to manage water resources and prevent flooding.
- **For accurate forecasting:** In tropical countries like India, weather variability is inherently higher. IMD's forecasts have improved vastly in the last few years as it has upgraded to technologies similar to the ones used by the U.S., the U.K. and Japan. Yet, there are still many days and geographies for which Indian forecasts go wrong, especially during winter and summer monsoon.

Challenges in weather forecasting

- **Lack of weather monitoring ground stations:** Currently, IMD operates around 800 **automatic weather stations (AWS)**, 1,500 **automatic rain gauges (ARG)** and 37 **doppler weather radars (DWR)**. This is against the total requirements of more than 3,00,000 **ground stations (AWS/ARG)** and around 70 DWRs.
- **Dependency on global system:** Currently, most of the prediction software used in forecasting are based on the **global forecasting system** and weather research and forecasting models, both of which are not the most modern.

Why weather forecasts still go wrong

IMD's forecasts have improved vastly in the last few years due to technological upgradation

- IMD currently operates only around 800 automatic weather stations, 1,500 automatic rain gauges, and 37 doppler weather radars
- Over 300,000 ground stations (either automatic weather stations or automatic rain gauges) and around 70 doppler weather radars are required for reliable weather forecast
- Several State governments and private companies together operate over 20,000 ground stations, many of which are not currently used by IMD
- New ground stations need to be installed by IMD and the available data need to be shared seamlessly with IMD to improve the accuracy of forecasts
- The Ministry of Agriculture & Farmers Welfare has initiated the WINDS system to generate long-term, hyperlocal weather data
- Under the WINDS programme, over 200,000 ground stations will be installed

Figure No. 08



FACT BOX

Recent Initiatives for Weather Forecasting

- **IMD:** India, at present, depends on satellite data and computer models for weather prediction. The Indian Meteorological Department (IMD) uses the **INSAT series of satellites** and **supercomputers**.
 - ▶ **Insat-3DS** is a third-generation weather satellite to augment meteorological services and improve the accuracy of weather forecasts in the country.
 - ▶ IMD has been recognised as one of the six **Regional Specialized Meteorological Centres of the World Meteorological Organization (WMO)**. IMD has contributed to the **United Nations' 'Early Warning for All'** programme regarding climate change.
- Forecasters use satellite data around cloud motion, cloud top temperature, and water vapour content that help in rainfall estimation, weather forecasting, and tracking cyclones.
- **Monsoon Mission: the government launched the mission in 2012** to improve the long-range monsoon forecasts that are crucial for the government's economic planning.

- **Winter Fog Experiment (WIFEX):** IMD developed the system to help in the dissemination of fog information, which is used by airlines and passengers to plan their travel.
- **IMD's SAFAR system:** It is used to monitor air pollution level in major cities such as Delhi.
- **National Framework for Climate Services (NFCS):** Modeled after the **Global Framework for Climate Services (GFCS)** adopted by the UN in 2012, it aims

to increase climate forecasting and enhance the accessibility of weather data.

- **Panchayat-level weather forecasts:** IMD launched panchayat-level weather forecasts in 12 Indian languages to provide weather information directly to the farmers in every gram panchayat.
- **Weather information network and data system (WINDS):** A program to generate long-term, hyper-local weather data.



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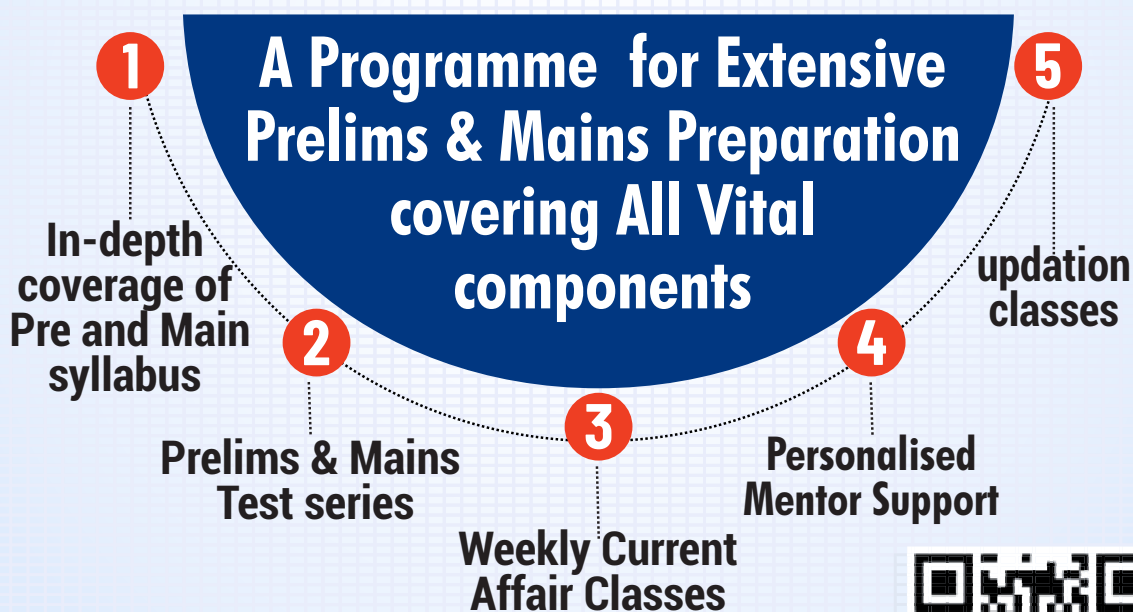
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SECTION -B

QUICK BYTES

TAPI PIPELINE

CONTEXT

Afghanistan has announced the resumption of work on the TAPI pipeline, which had faced delays and disruptions due to political instability and security concerns in Afghanistan. Afghanistan said work would begin on a **USD 10 billion gas pipeline** traversing South Asia.

About TAPI Pipeline

- The **TAPI (Turkmenistan-Afghanistan-Pakistan-India) Pipeline** is a natural gas pipeline. It aims to transport natural gas from Turkmenistan through Afghanistan and Pakistan to India. The project was conceived to address energy needs and enhance regional economic integration.
- The TAPI project has been "under development" for three decades.
- It is being developed by the **Galkynysh – TAPI Pipeline Company Limited** with participation of the **Asian Development Bank**.
- **Route:** The pipeline starts from near the city of **Mary** in the southeastern part of Turkmenistan, close to the giant **Galkynysh gas field** which is meant to provide gas for the 1,814-kilometre link.
 - The pipeline is proposed to run from the **Dauletabad gas field to Afghanistan**, from where TAPI will be constructed alongside the highway running from **Herat to Kandahar**, and then via **Quetta and Multan in Pakistan**.
 - The final destination of the pipeline will be **Fazilka in India**, near the border with Pakistan.
- An initial agreement over the pipeline was signed between Iran and India in 1999.

- **Objective:** The pipeline seeks to supply gas from the vast Turkmenistan gas fields to South Asia, thereby improving energy security and fostering economic cooperation among the participating countries.
- **Concern:** Part of the pipeline passed through the restive **Balochistan province**.
 - China is involved in the development of **Gwadar Port** in Pakistan. Gwadar is in Balochistan province. The port is being developed by China as a part of its **China-Pakistan Economic Corridor (CPEC)** project.

BEDOUIN COMMUNITY (ISRAEL)

CONTEXT

The Gaza–Israel conflict has spotlighted the Bedouin community in Israel and the unique challenges faced by this minority group within Israeli society.

About

- The Bedouin are part of Israel's Arab minority, which constitutes about 20% of the country's population.
- They are Palestinian citizens of Israel, holding Israeli citizenship but facing unique socio-economic challenges.
- Traditionally, Bedouins are nomadic. However, modern pressures and state policies have significantly impacted their traditional lifestyle, leading to issues of marginalization and neglect.
- The Bedouin's primary area of settlement is the Negev Desert in southern Israel. This region is characterized by its harsh living conditions and has been a focal point of land and resource conflicts.

NATIONAL EXIT TEST (NExT) FOR AYUSH

CONTEXT

The government announced that National Exit Test (NExT) will be mandatory for students enrolled in Ayush streams from the 2021-22 academic session onwards.

What is NExT?

- The **National Exit Test (NExT)** is designed to assess the clinical competency, medical ethics, and the ability to handle medico-legal cases of graduates in the Ayush systems, which include **Ayurveda, Siddha, Unani, and Sowa-Rigpa**.
- It is **mandatory** for obtaining a license and enrollment in State or national registers after completing a one-year internship.
- **Legislative Background:** The requirement for NExT is part of the provisions under the **National Commission for Indian System of Medicine (NCISM) Act, 2020, and the National Commission for Homoeopathy (NCH) Act, 2020**.
 - These Acts came into force on June 11, 2021, and July 5, 2021, respectively. NExT is to be conducted by the Commissions within three years from the date these legislations were enforced.
- **Government's Aim:** The government's objective with NExT is to ensure a fair and transparent examination process while maintaining the quality of Ayush education and healthcare standards.



FACT BOX

About AYUSH

- Ayush is an acronym for the medical systems of **Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa Rigpa, and Homoeopathy**.
 - **Ayurveda:** It is a holistic system of medicine that originated in India over 3,000 years ago. It emphasizes balance in bodily systems and uses natural therapies, including herbs, diet, and yoga, to restore and maintain health.
 - **Yoga:** It is a discipline that integrates physical postures, breathing techniques, and meditation to promote physical and mental well-being.
 - **Unani:** It is a system of medicine with roots in ancient Greece, developed further in the Arab world, and practiced in India. It focuses on balancing bodily humors (blood, phlegm, yellow bile, and black bile) through herbal medicines, dietary practices, and other treatments.
 - **Siddha:** It is an ancient South Indian system of medicine that combines physical, mental, and spiritual aspects.

- **Homeopathy:** It is a system of medicine based on the principle of "like cures like," which means that substances causing symptoms in healthy individuals can be used to treat similar symptoms in sick individuals.

- **Ministry of Ayush** was formed in 2014 to promote and develop these systems of healthcare.

CENTRE EXTENDS ABPM-JAY TO ALL ABOVE 70

CONTEXT

The Union Cabinet approved the expansion of the **Ayushman Bharat Pradhan Mantri Jan Aarogya Yojana (AB PM-JAY)**—to all Indian citizens aged 70 and above, adding nearly six crore people to the list of beneficiaries.

About ABPM-JAY

- The scheme was first rolled out in 2018.
- Under the scheme, cashless hospitalisation benefit of up to Rs 5 lakh per family per year is offered for **secondary and tertiary healthcare services** in empanelled hospitals.
- It is a **Centrally Sponsored Scheme** and the nodal agency to implement it is the **National Health Authority (NHA)**.
- **Eligibility:** With the latest approval, all senior citizens aged 70 years and above, irrespective of their socio-economic status, would be eligible to avail the benefits of AB PM-JAY.
- **Top-up coverage** - For families already enrolled in Ayushman Bharat, senior members will receive an extra Rs 5 lakh top-up, which is solely for their use.
- **Private insurance** - Senior citizens with private health insurance can still take advantage of the scheme without any conflict with their existing coverage.
- **Public health schemes** - Seniors who are part of other public health schemes like the Central Government Health Scheme (CGHS), Ex-Servicemen Contributory Health Scheme (ECHS), or Ayushman Central Armed Police Force (CAPF) will need to choose between their current insurance and the new Ayushman Bharat health coverage.



FACT BOX

India Ageing Population

- India's population over the age of 60 years is estimated to increase from 8.6 per cent in 2011 to 19.5 per cent by 2050, according to the **Longitudinal Ageing Study in India (LASI)**.

- ▶ In terms of absolute numbers it means that the 60 plus population is set to triple from 103 million in 2011 to 319 million in 2050.
- Health coverage in this age group is currently about 20 per cent, according to the **India Ageing Report 2023**.

PM E-DRIVE

CONTEXT

The Union Cabinet approved the PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) scheme with an allocation of Rs 10,900 crore for two years to promote the adoption of electric vehicles in the country.

About PM E-DRIVE

- PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme aims for the promotion of electric mobility in the country.
- This scheme will replace the existing FAME programme, which ran for nine years until March. However, PM E-DRIVE will not subsidise electric cars.
 - ▶ **Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicle (FAME) Scheme** was launched in 2015, which came to an end on March 31 this year.

Key Components Of PM E-Drive Scheme:

- ▶ **Subsidies:** Subsidies/Demand incentives worth Rs.3,679 crore have been provided to incentivize e-2Ws, e-3Ws, e-ambulances, e-trucks and other emerging EVs. The scheme will support 24.79 lakh e-2Ws, 3.16 lakh e-3Ws, and 14,028 e-buses.
- ▶ **E-Vouchers For Demand Incentives:** Ministry of Heavy Industries (MHI) is introducing e-vouchers for EV buyers to avail demand incentives under the scheme.
- There are no incentives for hybrid or electric cars.
- Electric vehicle adoption in India is at its nascent stage with overall penetration close to 7 per cent. Two-wheelers accounted for 56 per cent of the electric vehicle sales in the last financial year, while three-wheelers constituted 38 per cent.



FACT BOX

Government Polices to promote e-vehicle

- **Electric Mobility Promotion Scheme 2024 (EMPS 2024):** The scheme aims to boost the adoption of EVs across the country.

- **Battery Swapping Policy:** This scheme aims to standardize the standards of batteries to be used in EVs across India.
- **Production Linked Incentive (PLI) Scheme for Automotive Sector:** The Government approved the PLI Scheme for Automotive Sector in 2021 with a budgetary outlay of Rs. 25,938 crores to support domestic manufacturing of vehicles. Electric vehicles are covered under this PLI scheme.
- **PLI Scheme for Advanced Chemistry Cell (ACC):** The Government approved PLI Scheme for manufacturing of ACC for 50 GWh in the country. Additionally, 5GWh of niche ACC technologies is also covered under the Scheme.
- **Go Electric campaign** aims to create awareness on the benefits of EVs and EV charging infrastructure.
- **GST on EVs** has been reduced from 12% to 5%; GST on chargers/ charging stations for EVs has been reduced from 18% to 5%.
- **Ministry of Road Transport & Highways (MoRTH)** announced that the battery-operated vehicles will be given green license plates and be exempted from permit requirements.

MODIFICATION OF SCHEME OF BUDGETARY SUPPORT FOR HEP

CONTEXT

The Union Cabinet has approved the proposal of the **Ministry of Power** for modification of the scheme of budgetary support for the cost of Enabling Infrastructure for **Hydro Electric Projects (HEP)** with a total outlay of Rs.12461 crore. The scheme would be implemented from FY 2024-25 to FY 2031-32.

About the Scheme

- The scheme would be implemented from FY 2024-25 to FY 2031-32.
- It aims to enhance the country's hydropower capacity, bolstering both energy security and infrastructure in remote areas.
- **Scope and Coverage**
 - ▶ The scheme will extend its support to hydropower projects with a cumulative generation capacity of about 31,350 MW, including a significant portion allocated to pumped storage projects (PSPs).
 - ▶ A total of approximately 15,000 MW capacity in PSPs will be covered under this initiative.
 - ▶ The scheme is inclusive of all hydropower projects over 25 MW, whether they are publicly or privately managed, provided the allotment process is transparent.

- Under the new scheme, the budgetary support for enabling infrastructure has been revised to better cater to varying project sizes.
 - For projects up to 200 MW capacity**, the support limit is set at ₹1 crore per MW.
 - For larger projects exceeding 200 MW**, the funding will be ₹200 crore plus ₹0.75 crore per MW.
 - In exceptional cases**, where substantial justification is provided, the support can increase up to ₹1.5 crore per MW.
- This modification ensures that both smaller and larger projects receive appropriate financial backing based on their scale and requirements.
- The Government has been taking several policy initiatives to address the issues impeding Hydro Power development, viz., remote locations, hilly areas, lack of infrastructure etc.
- To promote the hydro power sector and to make it more viable, the Cabinet in March, 2019, approved measures, namely declaring large hydro power projects as **Renewable Energy sources, Hydro Power Purchase Obligations (HPOs), tariff rationalization measures** through escalating tariff, budgetary support for flood moderation in storage HEP and budgetary support for the cost of enabling infrastructure, i.e., construction of roads and bridges.

WAQF PROPERTIES AND PROTECTED MONUMENTS

CONTEXT

Recent discussions before a parliamentary committee have highlighted significant tensions between the **Archaeological Survey of India (ASI)** and the **Waqf Board** concerning the management of historical monuments. The ASI has raised concerns about the **administrative conflicts** and conservation issues arising from the **dual designation of certain protected monuments** as **Waqf properties**. This debate unfolds as the **Waqf (Amendment) Bill, 2024**, is under review.

Key Issues Raised by ASI

- The ASI manages and conserves monuments classified under the **Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act)**.
- Simultaneously, some of these monuments have been declared as **Waqf properties under the Waqf Act, 1995**.
- Examples:**
 - The Fatehpur Sikri in Agra and Atala Masjid in Jaunpur are cited as examples where such dual authority has led to conflicts.
 - The Atala Masjid in Jaunpur has reportedly seen shops constructed within its precincts, and fittings in Mecca Masjid, Ahmednagar, were installed without ASI approval.



FACT BOX

About Waqf Board

- The Waqf Board is an organization that manages and oversees properties designated as **Waqf** under **Islamic law**.
- These properties are considered **charitable endowments** and are often used for religious, educational, or social purposes.
- Functions:** Waqf Boards are responsible for the upkeep and administration of Waqf properties, which may include mosques, graveyards, schools, and other charitable institutions.
- The **Waqf Act 1995** empowers the Waqf Board to declare any property or building as Waqf property in the name of charity.
- Waqf (Amendment) Bill, 2024:** The bill seeks to amend existing Waqf laws and address various issues related to the management of Waqf properties. It is under review by a parliamentary committee.

Protected Monuments

- Protected monuments are historical and archaeological sites recognized by the government for their cultural, historical, or architectural significance.
- They are safeguarded under the **Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act), 1958**.
- The **Archaeological Survey of India (ASI)** is responsible for the conservation and preservation of these sites. This includes preventing unauthorized alterations, conducting restorations, and ensuring that the historical integrity of the monuments is maintained.

AGRO-METEOROLOGY UNITS

CONTEXT

The recent decision to revive District Agro-Meteorology Units (DAMUs) under the Gramin Krishi Mausam Sewa (GKMS) scheme highlights the importance of localized weather advisories for India's farming community.

What Are Agro-Meteorology Units (DAMUs)?

- DAMUs were set up in 2018 by the India Meteorological Department (IMD) in collaboration with the Indian Council of Agricultural Research.
- Their primary goal was to provide localized agricultural advisories using detailed weather data.
- These units were housed within **Krishi Vigyan Kendras (KVKs)** and staffed by experts trained in both meteorology and agriculture.

Key Functions of DAMUs:

- **Weather Data Utilization:** DAMUs used weather data, such as **rainfall, temperature, and wind speed**, to create actionable advisories for farmers.
- **Timely Advisories:** These advisories, including guidance on **sowing, harvesting, irrigation, and pest management**, were communicated twice a week in local languages. They were disseminated via text messages, WhatsApp, newspapers, and direct interactions.
- **Early Warnings:** DAMUs also provided **early warnings for extreme weather** events like **droughts and heavy rainfall**, helping farmers to prepare and adapt.
- DAMUs were shut down in March following an order by the IMD, which was influenced by NITI Aayog's recommendations.

- Wheat was the first crop for which a MSP was offered in 1965-66.
- At present, it is extended to 22 Kharif (summer) and Rabi (winter) crops.
 - The **MSP mandated summer crops** are paddy, jowar, bajra, ragi, maize, tur (arhar), moong, urad, groundnut, sunflower seed, soyabean (yellow), sesamum, niger-seed and cotton.
- The **winter crops** include wheat, barley, gram, masur (lentil), rapeseed and mustard, and sunflower.
- The regime also covers copra and jute.
- It is fixed by the Union government on the recommendations of the **Commission for Agricultural Costs & Prices**, which consults the state governments and ministries.

MSP OF SOYABEAN

CONTEXT

The Centre permitted Madhya Pradesh, Maharashtra and Karnataka to procure soybeans at the fixed MSP of Rs 4,892 per quintal.

About Soyabean Crop

- Soyabean (*Glycin max*) is a kharif oilseed crop. The crop belongs to legume family. It is native of East Asia.
- It is a rich source of Protein also excellent source of fibre. Oil extracted from soybean contain small amount of saturated fat.
- **Major soyabean growing states:** Madhya Pradesh, Maharashtra, Rajasthan, Karnataka, and Telangana.
- **Soil requirement:** Well-drained, fertile loamy soils with a pH range of 6.0 to 7.5
- Nationally, soybeans have been sown in around 12.51 million hectares of land this kharif season, which is nearly two per cent higher than the normal acreage under the crop. Normal acreage is the average acreage of the last five years.
- In July 2024, India imported around 1.84 million tonnes of edible oils, which is marginally less than the 1.85 million tonnes imported in June 2024.
- Most notably, India imported a record 1.08 million tonnes of palm oil which is the highest level reached since November 2022.



FACT BOX

About MSP

- The MSP is the lowest rate at which government procurement agencies buy crops from farmers.
- The scheme was first introduced in the mid-1960s as a safety net for farmers, protecting them from the uncertainties of the market.

OVARIAN CANCER

CONTEXT

Ovarian cancer is one of the most deadly forms of **gynecological cancer**, often termed a "silent killer" due to its vague symptoms and late diagnosis

About

- Ovarian cancer occurs when abnormal cells in ovaries or fallopian tubes grow and multiply out of control.
- Ovaries are part of the **female reproductive system**. These two round, walnut-sized organs make eggs during reproductive years.

Cancer Subtypes:

- **Type I Tumors:** Less common, typically diagnosed early, and have a better prognosis.

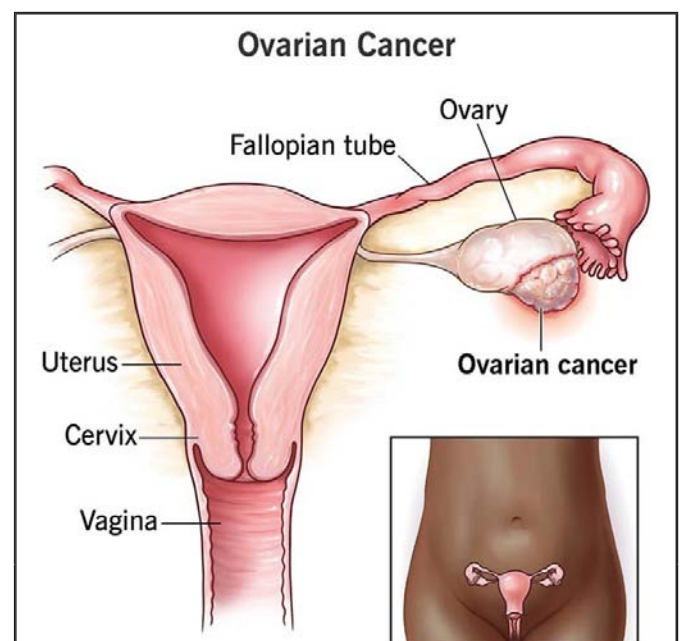


Figure No. 01

- **Type II Tumors:** More aggressive, commonly diagnosed at advanced stages, and responsible for most deaths.
- **Common Symptoms:** Include bloating, pelvic or abdominal pain, loss of appetite, feeling full quickly, frequent urination, indigestion, constipation, back pain, fatigue, weight loss, and postmenopausal bleeding.
- **Diagnostic Challenges:** These symptoms often mimic less serious conditions, leading to delayed diagnosis. A 2004 study noted that women with malignant ovarian cancer experience these symptoms 20-30 times a month, more severely compared to those without the disease.
- **Screening Challenges:** There are no effective routine screening tests for ovarian cancer. The CA125 blood test is not recommended for general screening due to its low specificity and potential for false positives.

❑ Risk Factors

- **Genetics:** BRCA1 and BRCA2 Mutations significantly increase the risk of ovarian cancer (up to 50% for BRCA1 and around 15% for BRCA2).
- **Endometriosis:** Women with endometriosis have a higher risk of developing certain types of ovarian cancer, though the risk is relatively low.
- **Hormone Replacement Therapy (HRT),** used for menopausal symptoms, has been associated with a higher risk of ovarian cancer, even with short-term use.
- **Unhealthy lifestyle**

❑ The Gravity of Ovarian Cancer

- **Prevalence in India:** Ovarian cancer ranks among the top three cancers in Indian women, contributing to 6.6% of all female cancer cases.
- **Incidence and Mortality:** In 2022, India reported 47,333 new cases and 32,978 deaths due to ovarian cancer.

ANTIMICROBIAL RESISTANCE (AMR)

CONTEXT

Ahead of the upcoming **UN General Assembly High-Level Meeting on antimicrobial resistance**, the World Health Organization (WHO) issued its **first-ever guidance on antibiotic pollution from manufacturing**. The WHO highlighted that antibiotic pollution and the resultant antimicrobial resistance (AMR) could threaten global antibiotic effectiveness, including those produced at manufacturing sites.

About AMR

- Antimicrobial resistance (AMR) occurs when pathogens evolve to survive despite the presence of antimicrobial drugs, such as **antibiotics**.
- This evolution typically results from the **misuse or overuse of these drugs**, leading to the development of “**superbugs**” that are resistant to common treatments.

- **Impact of AMR:** AMR complicates the treatment of infections, making previously manageable diseases difficult to treat. This often results in prolonged hospital stays, higher medical costs, and an increased risk of severe complications. The situation is exacerbated in patients with multiple health conditions.
- **Common Resistant Pathogens:**
 - **E. coli:** This bacterium, which can cause gut infections, showed a decrease in susceptibility to many antibiotics. For example, susceptibility to carbapenems dropped from 81.4% in 2017 to 62.7% in 2023.
 - **Klebsiella pneumoniae:** Known for causing pneumonia and urinary tract infections, this pathogen also displayed reduced susceptibility. Susceptibility to two carbapenem medicines decreased from 58.5% to 35.6% and 48% to 37.6% between 2017 and 2023.
 - **Acinetobacter baumannii:** Typically associated with hospital-acquired infections, this pathogen’s resistance to carbapenems was 88% in 2023, indicating its high resistance to even strong antibiotics.

SPACEX’S POLARIS DAWN MISSION

CONTEXT

SpaceX’s Polaris Dawn mission launched successfully, carrying four private citizens on a five-day journey that includes the first spacewalk by an all-civilian crew.

About

- The mission aims to reach an orbital altitude of 870 miles above Earth, which is more than three times higher than the **International Space Station (ISS)** and the highest humans have reached since the final **Apollo moon mission** in 1972.
- **Spacecraft:** The crew is traveling aboard a Crew Dragon capsule launched by a **Falcon 9 rocket**.
- **Mission Goals:** The mission will test new spacesuits and technologies that could facilitate future long-duration missions to the Moon and Mars, potentially revolutionizing space exploration.
 - The Crew Dragon capsule’s orbit will pass through the inner regions of the **Van Allen radiation belts**, allowing scientists to study the effects of **space radiation** on both the astronauts and the spacecraft.
 - Findings from this mission could help SpaceX plan future missions to the Moon and Mars, where astronauts will encounter similar radiation challenges as they navigate through the Van Allen belts.
- The mission marks a historic event as it represents the first spacewalk by a crew of entirely non-government astronauts.

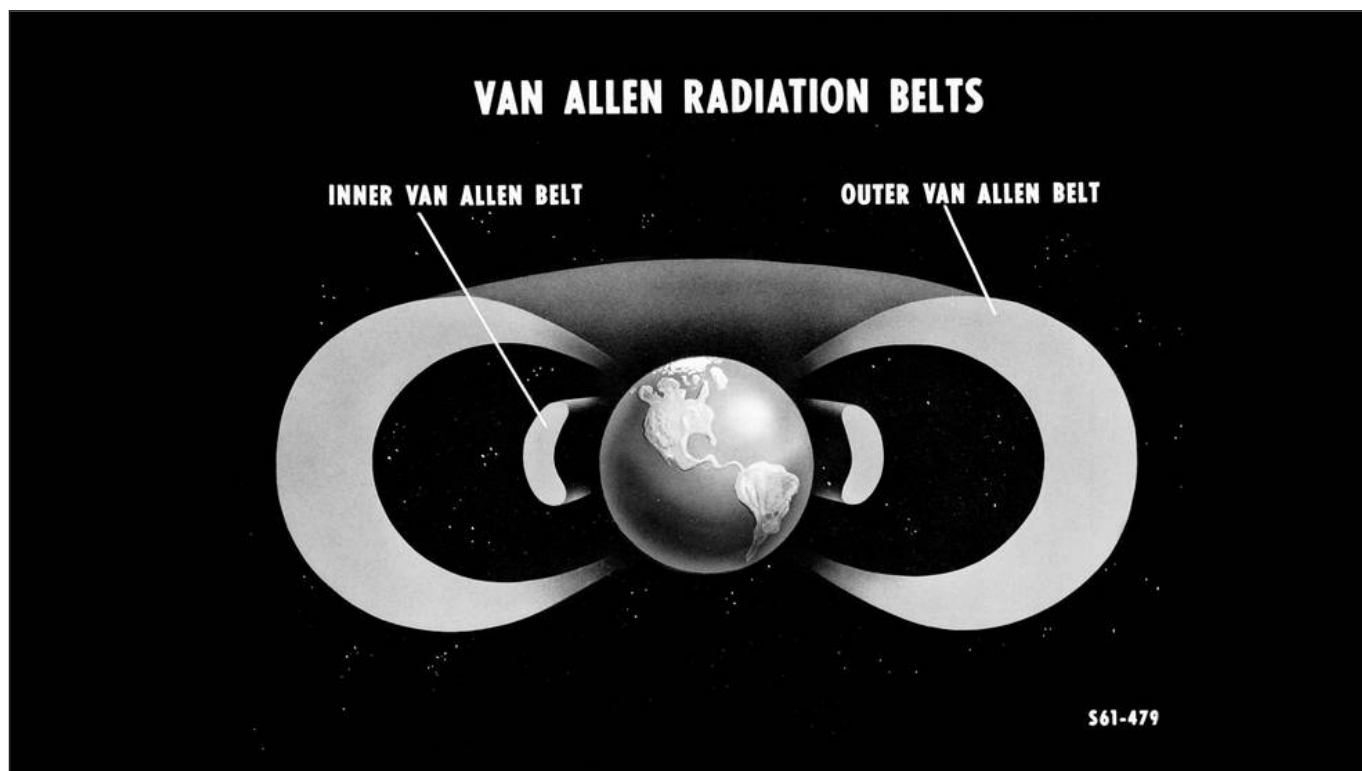


Figure No. 02

**FACT BOX****About Van Allen Radiation Belt**

- The Van Allen radiation belt is a **zone of energetic charged particles**, most of which originate from the solar wind.
- The particles are captured by and held around a planet by that planet's magnetic field.
- It surrounds Earth, containing a nearly impenetrable barrier that prevents the fastest, most energetic electrons from reaching Earth.
 - ▶ **The outer belt** is made up of billions of high-energy particles that originate from the Sun and become trapped in Earth's magnetic field, an area known as the magnetosphere.
 - ▶ **The inner belt** results from interactions of cosmic rays with Earth's atmosphere.
- The Van Allen radiation belts were discovered in 1958 by **James A. Van Allen**, the American physicist who designed the instruments on board **Explorer 1**, the first spacecraft launched by the United States.

(See Figure No. 02 above)

INS MALPE & INS MULK**CONTEXT**

Cochin Shipyard Limited has launched two new **Anti-Submarine Warfare (ASW) Shallow Water Crafts**, *Malpe*

and *Mulki*. These ships are the fourth and fifth in the **Eight ASW Shallow Water Craft (SWC) project**, signed between the Defence Ministry and CSL in 2019.

About the Vessels

- The vessels are 78.0 m long, 11.36 m wide with a draught of about 2.7 m.
- The displacement is about 900 tonnes, with a maximum speed of 25 knots and endurance of 1800 nautical miles.
- The ships are designed to fit indigenously developed, **state-of-the-art SONARS**, for underwater surveillance.
- Concurrent launching of the two ships is yet another milestone achievement for CSL.
- The ships are equipped with advanced, indigenously developed underwater sensors.
- Designed for anti-submarine warfare, they will also engage in **Low Intensity Maritime Operations and Mine Laying Operations**.

MPOX VIRUS (WEST AFRICAN CLADE 2)**CONTEXT**

A confirmed case of Mpox virus (West African clade 2) has been reported in an isolated patient in India.

About Mpox Virus

- Mpox is a zoonotic virus that causes **flu-like symptoms** and a **rash with painful lesions**.

	Clade 1 (Congo Basin Clade)	Clade 2 (West African Clade)
Severity and Virulence	It is more virulent with higher fatality rates (1-10%).	It is less severe with a fatality rate of less than 1%.
Symptoms	It causes severe symptoms including intense skin rashes, large lesions, pronounced lymphadenopathy (swelling of lymph nodes), and higher rates of complications like encephalitis and pneumonia.	Symptoms are milder with fewer complications.
Geographic Distribution	Central Africa, especially the Democratic Republic of Congo.	Predominantly found in West Africa, particularly Nigeria and surrounding regions.
Transmission	Higher person-to-person transmission rate through respiratory droplets and close contact.	Lower rate of human-to-human transmission compared to Clade 1.
Animal Models	Demonstrates high virulence in studies, causing severe disease in experimental models.	Exhibits reduced virulence and replication in studies compared to Clade 1, with lower lethality even at high doses.

Table No. 01

- Mpox is an **infectious disease** caused by a virus that belongs to the same family as that which causes **smallpox**.
- There are two distinct lineages of mpox: **clade I and clade II**.
- **Symptoms:** Rash, lesions, fever, headache, muscle aches, back pain, fatigue and swollen lymph nodes.
- **Spread:** It is spread through close contact with people who have the illness.
- The World Health Organisation (WHO) has recently declared the Mpox outbreak a **Public Health Emergency of International Concern (PHEIC)**.

Mpox Virus Clades:

(See Table No. 1 above)

- **Impersonation:** Attackers pose as trusted figures within the organization to increase the credibility of their requests.
- **Urgency and Pressure:** The scam typically involves urgent and high-pressure tactics to force the target into making quick decisions.

HELIUM IN SPACE OPERATIONS

CONTEXT

Helium plays a crucial role in the operation of spacecraft and rockets, but its unique properties also introduce specific challenges. Recent issues with **helium leaks** in missions by NASA, Boeing, ISRO, and ESA highlight the importance of understanding why helium is used and what makes it so tricky to handle.

Why Helium?

- **Inert Properties:** Helium is **chemically inert**, meaning it does not react with other substances or combust. This makes it an ideal choice for use in rocket and spacecraft systems, where the risk of chemical reactions and explosions needs to be minimized.
- **Lightweight and Efficient:** With an atomic number of **2**, helium is the **second lightest element after hydrogen**. Using helium helps reduce the overall weight of rockets and spacecraft, which is crucial for achieving the high speeds and altitudes required to reach and maintain orbit.
- **Low Boiling Point:** Helium has a very low boiling point of **-268.9°C**, allowing it to remain in gaseous form even in the extremely cold temperatures of space. This property is essential for rockets that store their fuels at cryogenic temperatures.
- **Non-Toxic but Non-Breathable:** While helium is non-toxic, it cannot be breathed on its own because it

WHALE PHISHING SCAM

CONTEXT

A recent cyber fraud incident has highlighted the dangers of whale phishing attacks. The HR manager of a US-based IT company was deceived into purchasing Apple gift cards worth Rs 10 lakh. The scam was orchestrated by cybercriminals posing as the company's CEO.

What is Whale Phishing?

- Whale phishing, or whaling, is a type of **phishing attack** targeting high-profile individuals. The term "whale" refers to these prominent targets due to their significant potential for financial gain.
- **Attack Characteristics:**
 - **Personalized Attacks:** Scammers create convincing and tailored messages or emails, often based on detailed research about the target's role and business operations.

displaces oxygen. This is an important consideration for astronauts and ground personnel who may be exposed to it during handling.

Usage in Rockets and Spacecraft

- ▶ Helium is used to pressurize fuel tanks. As rocket fuel and oxidizers are consumed during engine operation, helium fills the resulting empty space in the tanks, ensuring a continuous flow of fuel to the engines.
- ▶ Helium is also employed in cooling systems to manage the extreme temperatures of rocket components. Its low boiling point makes it effective at cooling systems that operate in very cold conditions.

- **Why are Helium Leaks a Concern?** Helium atoms are **small and light**, which makes them **prone to escaping through tiny gaps or seals** in storage tanks and fuel systems. This can lead to leaks, which are challenging to contain.

VULTURE POPULATION

CONTEXT

Of the nine vulture species in India, three of them — white-backed, slender-billed, and long-billed vultures — have seen a 99 per cent decline in the last decade. The main cause was the use of diclofenac, an anti-inflammatory drug to treat cattle, which has proved toxic for vultures when they feed on cattle carcasses. Other drugs like **aciclofenac** and **ketoprofane**, also toxic to vultures, were banned in 2023 but remain in use.

About Indian vulture (*Gyps indicus*)

- The Indian vulture (*Gyps indicus*) is a large bird of prey that belongs to the family **Accipitridae**.
- With a wingspan of about 1.96 to 2.38 meters, it has a body length of about 75 to 85 centimeters.
- The plumage is primarily pale with dark flight feathers and a bare, pale head. The neck and head are covered in down, which is sparse compared to other vulture species.
- It has a hooked beak adapted for tearing flesh from carcasses.
- Indian vultures are scavengers, feeding mainly on the carcasses of dead animals. They play a critical role in the ecosystem by disposing of dead animals, which helps prevent the spread of diseases.
- Indian vultures are found primarily in South Asia, including **India, Pakistan, and Nepal**. Their range extends to some parts of **Southeast Asia**.
- **Threat:** The use of **nemisulide, flunixin and carprofene** posed risks to vultures, scavenger birds which feed on carcasses of animals treated with these medicines.
 - ▶ There is need to use vulture-safe alternatives like **meloxicam and tolfenamic acid**.

Significance of Vultures

- ▶ Vultures provide **free ecosystem services**, which are the contributions that ecosystems or wildlife make to human well-being.

- ▶ Vultures are **obligate scavengers** that play a crucial role in maintaining ecosystem services such as **nutrient recycling, removal of soil and water contaminants, and regulating the spread of diseases**.
- ▶ Their presence can help limit the transmission of diseases by controlling the populations of other facultative scavengers such as feral dogs.

ALZHEIMER'S RISK LINKED TO LIGHT POLLUTION: STUDY

CONTEXT

Recent research has identified a potential link between **light pollution and Alzheimer's disease**.

About Light Pollution

- This refers to the excessive, misdirected, or obtrusive artificial light that interferes with natural darkness.
- It is commonly caused by streetlights, advertisements, and other outdoor lighting that illuminates the night sky.
- **Prevalence:** Approximately 80% of the global population is affected by light pollution, which is prevalent in urban and suburban areas where artificial lighting is extensive.
- **Impact**
 - ▶ **Health Effects:** Light pollution disrupts **natural circadian rhythms**, which can lead to various health problems, including **sleep disorders, increased stress levels**, obesity, diabetes, and depression, conditions.
 - ▶ **Environmental Impact:** It disrupts ecosystems and natural behaviors in nocturnal animals.

Alzheimer's Disease

- Alzheimer's disease is a **brain disorder** that slowly destroys memory and thinking skills
- It is the most common form of **dementia**, characterized by **progressive cognitive decline**. It leads to severe memory loss, confusion, and difficulties with everyday tasks.
- **Pathology:** The disease involves the accumulation of **amyloid plaques** and **tau tangles** in the brain, which impair neuron function and lead to memory and cognitive deficits.
 - ▶ **Tau is a protein** that when it occurs in tangled formations in the **brain of Alzheimer patients**, disrupts the ability of neurons to communicate with one another in the brain.
- **Treatment:** There is currently no known cure for Alzheimer's disease. Treatment addresses several areas:
 - ▶ Helping people maintain brain health.
 - ▶ Managing behavioral symptoms.
 - ▶ Slowing or delaying symptoms of the disease.

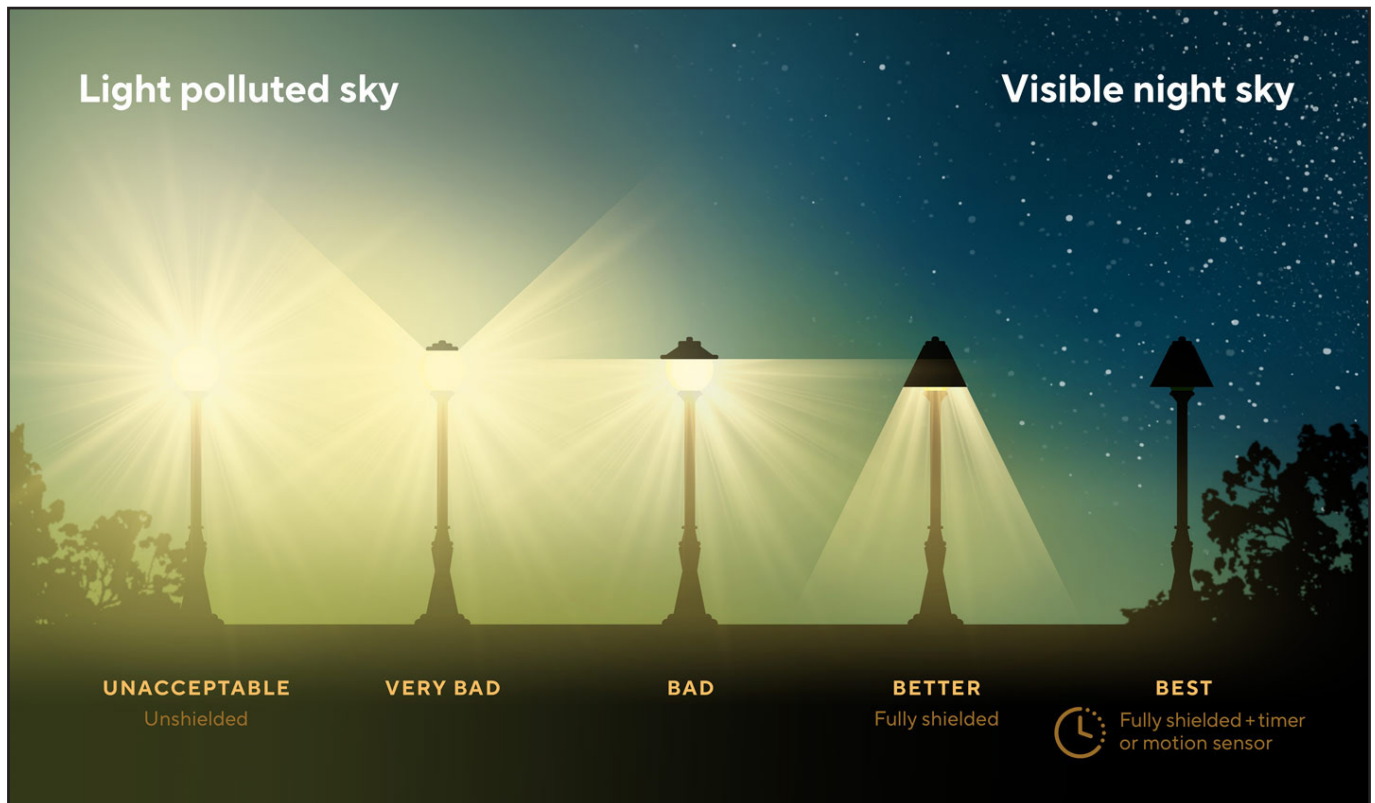


Figure No. 03

Prevalence and Impact:

- **Global Statistics:** Over 55 million people globally suffer from dementia, with Alzheimer's accounting for about 75% of these cases.
- **In India:** An estimated 3 to 9 million Indians are affected by Alzheimer's, a number expected to rise with an aging population.

LOSS & DAMAGE FUND (LDF)

CONTEXT

The recent focus on the **Loss and Damage Fund (LDF)** has been heightened due to the devastating landslides that struck **Kerala's Wayanad district**. This disaster has sparked a crucial conversation about **whether subnational entities**, such as individual states or districts, can seek **compensation through international climate finance mechanisms like the LDF**.

Loss and Damage Fund (LDF)

- The LDF was created during the **2022 UNFCCC Conference (COP27)** in Egypt.
- Its objective was to provide financial support to regions experiencing both economic and non-economic losses

due to climate change, such as extreme weather events (e.g., landslides, floods) and slow-onset processes (e.g., rising sea levels).

- **Governance:** Managed by a Governing Board, with the World Bank serving as the interim trustee.
- **Mechanisms:** Includes direct access, small grants, and rapid disbursement options to facilitate resource allocation.
- **India's Situation:**
 - India faced over \$56 billion in damages from weather-related disasters between 2019 and 2023.
 - However, the country has focused more on **mitigation rather than adaptation** and loss management in its climate policies. This has resulted in **less active participation in loss and damage dialogues**, which might affect how effectively Indian states, including Kerala, can leverage the LDF.
 - ◆ India requires a clear legal and policy framework to streamline climate finance, particularly for adaptation and loss and damage, emphasizing locally led adaptation.



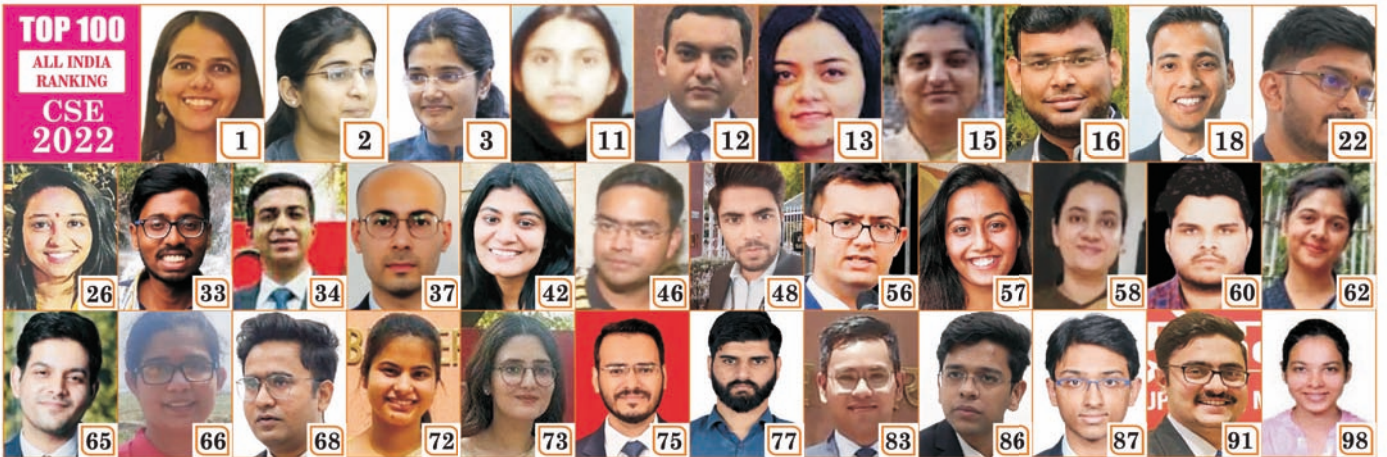


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