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**Date:** 28-10-2026

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# DRUG PRICE CONTROL: RIGHT TO HEALTH VS "CALIBRATED" REGULATION

*The Supreme Court said that economic policy could not take precedence over the lives of citizens, as it questioned the Union government about its approach to regulating the prices of essential medicines and medical products.*

## Background

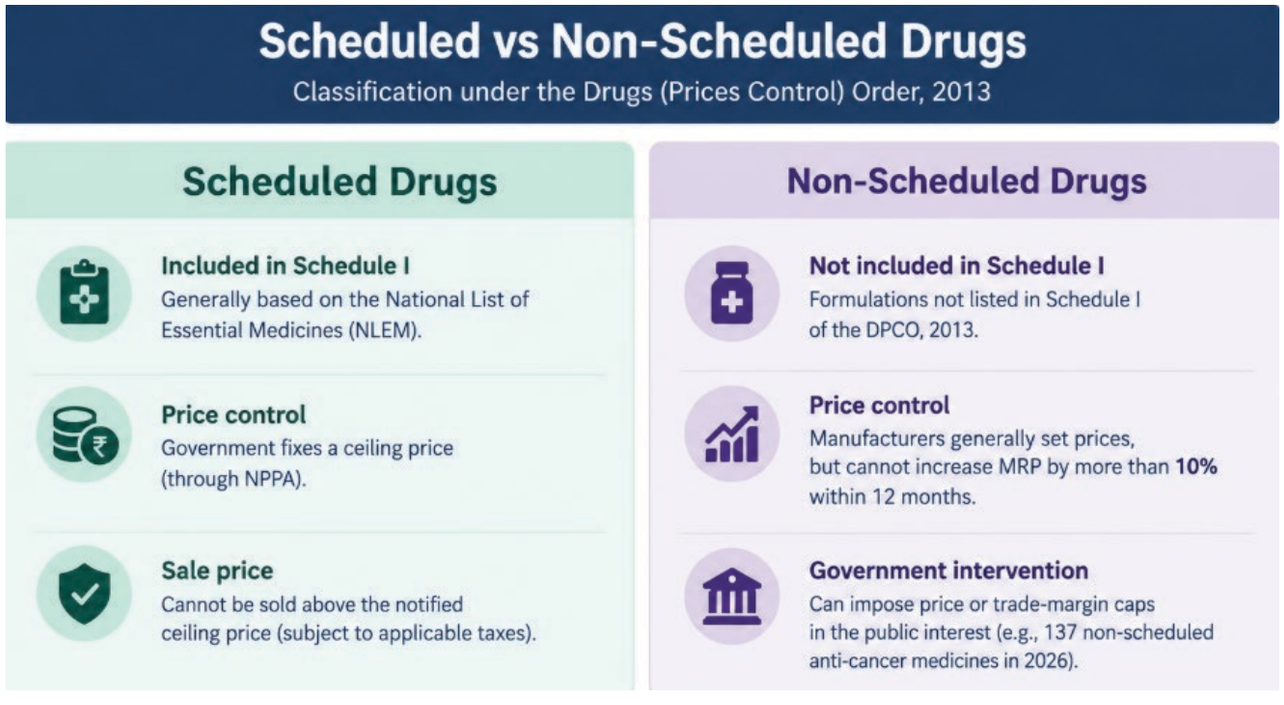
- The National Pharmaceutical Pricing Authority (NPPA), the government's drug-price regulator, capped trade margins on **137 non-scheduled anti-cancer medicines** at 30% of their maximum retail price (MRP).
  - **Trade margins** are the difference between the price at which a medicine is purchased and the price at which it is sold by intermediaries such as distributors, retailers or hospitals.

## Supreme Court's Stand on Drug Price Control

- The court **questioned the wide gap between the prices** at which hospitals procure medicines and the prices charged to patients.
- It also raised concerns about the NPPA's failure to adequately **control excessive trade margins** and why they were **introduced for selected anti-cancer medicines** and whether similar safeguards should extend to other essential medicines and medical consumables.

## Existing Framework for Drug Price Regulation

- **Drugs (Prices Control) Order (DPCO), 2013:** Issued under the Essential Commodities Act, 1955, the DPCO empowers the government to regulate prices of scheduled formulations and monitor prices of non-scheduled medicines.
- **The National Pharmaceutical Pricing Authority (NPPA)** is responsible to fix and revise drug prices under the provisions of the **Drugs (Prices Control) Order (DPCO), 2013,** while monitoring compliance, ensuring the availability of essential medicines, and advising on pharmaceutical policy.
- **National List of Essential Medicines (NLEM):** Prepared by the Ministry of Health and Family Welfare, the NLEM identifies medicines that address priority healthcare needs.
  - Inclusion of a medicine in the NLEM generally provides the basis for bringing its covered formulations under price control through the DPCO.
- **Trade margin regulation and price monitoring:** Under the DPCO, 2013, a notional retailer margin of 16% is incorporated into the calculation of ceiling prices for scheduled formulations.
  - **For non-scheduled medicines**, manufacturers generally have pricing flexibility, but annual MRP increases are restricted to 10% over the preceding 12 months.
  - The government may also, in the public interest, establish particular limitations on trade margins.



### Significance of the Court's Decision

- **Right to Health:** Affordable medicine flows from Article 21, backed by Article 47 on public health. Economic policy must be tested against this.
- **Addresses financial hardship:** Stricter regulation can reduce out-of-pocket expenditure and protect vulnerable households from catastrophic healthcare costs.
- **Regulatory accountability:** Highlights the need for the NPPA to act proactively against excessive markups and ensure timely recovery of overcharged amounts.

### What are the concerns?

- **Impact on innovation and investment:** The pharmaceutical industry argues that predictable returns are necessary to support research, innovation, quality manufacturing and investment.
- **Uneven implementation:** Differences in procurement practices, pricing transparency and enforcement across hospitals and states may limit the benefits of regulatory interventions.

### Way Ahead

- **Strengthen NPPA enforcement:** Strengthen price surveillance and impose proportionate penalties for violations.
- **Improve pricing transparency:** Require hospitals and pharmacies to disclose medicine prices and provide itemised bills, enabling patients to compare prices and identify excessive charges.
- **Expand affordable medicine access:** Strengthen Jan Aushadhi Kendras, generic prescribing and the availability of essential medicines in public hospitals.
- **Ensure regular review:** Periodically update the NLEM and the list of medicines subject to price control, incorporating new therapies, disease burdens and affordability concerns.

**Source: TH**

## INDIA NEEDS TO STRENGTHEN CAPABILITIES IN SEMICONDUCTOR

*At Semiconductor Summit 2026, Semiconductor Lab chief **flagged India's dependence on imported technologies and the need for R&D, manufacturing and specialised talent in Semiconductors.***

### Semiconductor Ecosystem

- **Global Status:** The global semiconductor market grew at a **compound annual growth rate (CAGR) of 6.5% between 2014 and 2024.** It is projected to grow at **8.5% over the next 5–10 years.**
  - However, **recent disruptions** have exposed vulnerabilities in the interconnected global semiconductor value chain.
  - Today, **Taiwan, South Korea, Japan, China, and the United States** dominate global semiconductor manufacturing.
  - **Taiwan alone accounts for over 60% of global chip production** and nearly 90% of advanced chips.
- **India's Position:** India's semiconductor demand is projected to reach **USD 110 billion by FY2030** and **exceed USD 200 billion by FY2035,** while domestic manufacturing remains at a nascent stage.
  - India spent almost **USD 150 billion** on semiconductor product imports **during FY17–FY25.** Imports grew at a CAGR of **23% during this period.**
  - If this trend continues, annual imports could reach **USD 240 billion by 2035.** Building a comprehensive semiconductor ecosystem is **therefore an urgent national priority.**

### Why are Semiconductors Strategically Important?

- **Foundation of the Digital Economy:** Semiconductors form the core component of almost every modern electronic device and digital technology.
- **National Security:** Semiconductor chips are indispensable for defence equipment, surveillance systems, satellites, cybersecurity infrastructure and strategic communication networks.



- **Industrial Competitiveness:** Countries with strong semiconductor manufacturing capabilities are leveraging technological leadership and industrial competitiveness.
- **Technological Sovereignty:** Domestic semiconductor production is necessary to reduce the dependence on foreign suppliers and strengthen self-reliance.

## India's Semiconductor Mission

- **India Semiconductor Mission 1.0**
  - It is a flagship programme launched in **2021** under the **Ministry of Electronics and Information Technology (MeitY)** to develop a comprehensive semiconductor and display manufacturing ecosystem in India.
  - The Mission is supported by an incentive framework of **₹76,000 crore**, offering fiscal support of up to **50%** for silicon fabs, compound semiconductor facilities, assembly and testing units, and chip design.
  - As many as **12 semiconductor** manufacturing projects have been approved with an investment pipeline of about **₹1.64 lakh crore** under the mission.
  - These include **silicon fabrication units, silicon carbide fabs, advanced and memory packaging facilities, and specialised assembly and testing infrastructure.**
- **India Semiconductor Mission 2.0**
- It was announced in the Union Budget **2026–27.**
- **ISM 2.0** will focus on **producing semiconductor equipment and materials in India,** designing full stack Indian semiconductor intellectual property, and fortifying both domestic and global supply chains.
- Semicon 2.0 seeks to build the semiconductor ecosystem through **six pillars- Design, Machines and materials, Setting up more fabs, Further strengthening the ATMP-OSAT industry, Research and Development and Talent development.**

**Schemes under ISM**

- **Schemes under ISM Semiconductor Fabs Scheme:** Provides up to 50 per cent fiscal support for setting up semiconductor wafer fabrication units, covering advanced and mature technology nodes.
- **Display Fabs Scheme:** Offers up to 50 per cent financial support to establish AMOLED and LCD display fabrication units in India.
- **Compound Semiconductors and ATMP/ OSAT Scheme:** Supports compound semiconductor and chip assembly, testing and packaging units with up to 50 per cent capital assistance.
- **Design Linked Incentive Scheme:** With an outlay of ₹1,000 crore, supports chip design startups and MSMEs through R&D support and incentives of up to ₹15 crore per company.

## Indigenous Microprocessors and Core Semiconductor Technologies

- Microprocessors form the **foundational layer** of modern digital infrastructure, **powering devices and systems across telecommunications**, mobility, healthcare, industry, defence, and space.
- India has made **focused investments to build sovereign capabilities** in advanced processor design as a core pillar of semiconductor self-reliance.
- A key milestone in this journey is the launch of **DHRUV64**, a fully indigenous **64-bit microprocessor** developed by C-DAC under the **Microprocessor Development Programme (MDP).**

## What are the Challenges?

- **High Capital Investment:** The establishment of semiconductor fabrication plants requires investments of several billion dollars and long gestation periods.
- **Technology-Intensive Industry:** Semiconductor manufacturing requires highly sophisticated technologies that are continuously evolving.
- **Dependence on Imported Equipment:** India remains dependent on foreign suppliers for advanced semiconductor manufacturing equipment and specialised machinery.
- **Infrastructure Requirements:** Semiconductor fabrication requires uninterrupted electricity, ultra-pure water and highly reliable logistics infrastructure.
- **Skill Gaps:** The industry requires a highly specialised workforce trained in semiconductor engineering, fabrication processes and chip design.

## Conclusion

- India Semiconductor Mission 2.0 marks a decisive shift from **ecosystem creation to ecosystem consolidation** and global integration.

- By deepening support for manufacturing, design, and advanced skills, ISM 2.0 **positions semiconductors as a strategic national capability**—central to economic resilience, digital infrastructure, and technological sovereignty.

**Source: TH**

## RICHARD J. ROBERTS BACKED GM CROPS FOR INDIA AND DEVELOPING WORLD

***Richard J. Roberts,*** *the 1993 Nobel laureate in Medicine, dismissed the idea that* ***Indians adopting genetically modified crops*** *would* ***become dependent on foreign companies.***

### Introduction of GM Crops in India

- In 2002, the government approved the **commercial cultivation of Bt cotton.**
  - The **first Bt hybrids** incorporating the **cry1Ac gene** were approved to resist the **bollworm complex.**
  - By 2006, GEAC had approved **Bollgard II,** a second-generation hybrid with two stacked genes.
  - Till now, it is the **only Genetically Modified (GM) crop that is allowed in India.**
- **In 2010,** the Government imposed an **indefinite prohibition on Bt brinjal,** a genetically-modified variant of the vegetable.
  - This was after years of debate on its safety, the financial impact on farmers, and the implications of foreign ownership of the genetic modification technology.
- **In 2024, the Supreme Court delivered a split verdict on GM mustard's environmental release,** but unanimously asked the Centre to frame a national policy on GM crops.

### What are GM crops?

- Crops that have undergone **genetic engineering processes** to alter their DNA are referred to as genetically modified crops.
  - **Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)** is a **gene-editing tool** in which a guide RNA steers the **Cas9 enzyme** to a chosen spot in an organism's DNA, where it cuts, **letting scientists alter or insert genes at that site.**
- This alteration is done **to introduce desirable traits** such as resistance to pests or herbicides, improved nutritional content, or increased yield.
- **The process of creating GM crops typically involves:** identification of desired traits, isolation of genes, insertion into crop genome, and expression of the trait.
- **The techniques used in GM crops are:** gene guns, electroporation, microinjection, agrobacterium etc.
- **The types of modification are:** transgenic, cis-genic, subgenic and multiple trait integration.

### Regulatory Framework

- Under India's regulatory framework, environmental release of GM crops requires clearance from the **Genetic Engineering Appraisal Committee (GEAC)** under the **Environment (Protection) Act framework and the 1989 rules** governing genetically engineered organisms.
- **Acts and rules** that regulate GM crops in India are:
  - Environment Protection Act, 1986 (EPA),
  - Biological Diversity Act, 2002,
  - Plant Quarantine Order, 2003,
  - GM policy under Foreign Trade Policy,
  - Food Safety and Standards Act, 2006,
  - Drugs and Cosmetics Rule (8th Amendment), 1988.

### Concerns

- **Biodiversity Risks:** GM crops can affect non-target organisms, promote monocultures, and cause gene flow to native crop varieties, threatening biodiversity.
- **Public Health concerns:** Antibiotic resistance markers in GM crops may reduce the efficacy of real antibiotics in humans, raising the risk of antibiotic-resistant **superbugs.**
- **Impact on farmers:** High seed costs, dependence on proprietary technology and limited availability of alternative seeds may increase farmers' dependence on private companies.
- **Corporate control over agriculture:** Patents and intellectual property rights over GM technology may concentrate control over seeds and agricultural inputs in a few companies.
- **Legal Inconsistencies:** The lack of transparency in issuing **No Objection Certificates (NOCs)** for field trials has been questioned by civil society groups.
  - They argue that public consultation, independent review, and parliamentary oversight are missing.

- **Trade and consumer choice:** Differences in GM food regulations across countries may complicate agricultural exports, while inadequate labelling and traceability can limit consumers' ability to make informed choices.

### Way Ahead

- **Strengthen Scientific Transparency:** Ensure independent, peer-reviewed assessments of GM crop safety and efficacy. Publish trial data in the public domain to build trust and credibility.
- **Promote Public Engagement:** Conduct open consultations with farmers, scientists, and civil society to address concerns.
- **Protect native crop** varieties through buffer zones and containment strategies.
- **Empower biosafety and ethics committees** with greater independence and accountability.

**Source: TH**

## CARBON CAPTURE, UTILISATION AND STORAGE(CCUS)

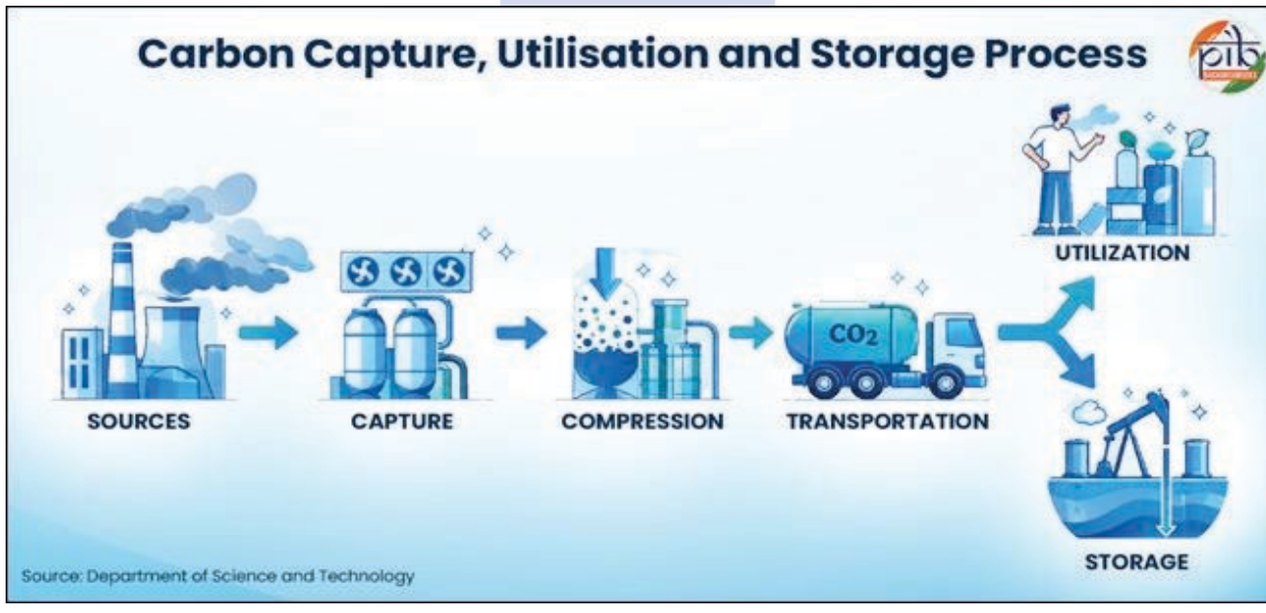
*NITI Aayog identified CCUS as critical for decarbonising hard-to-abate sectors, including steel, cement, oil and gas, petrochemicals, chemicals and fertilisers.*

### Carbon Capture, Utilisation and Storage(CCUS)

- It refers to a range of technologies that capture carbon dioxide ($CO_2$) emitted by industries such as steel, cement and power generation, preventing it from entering the atmosphere
- The captured $CO_2$ is either transferred into the earth or reused for industrial applications in various forms.

### CCUS Process and Stages

- **Capture of carbon**: Carbon Capture, Utilisation and Storage (CCUS) is the capture of CO 2 from industrial emissions and its cleaning, drying and compression.
- **From Capture to Transport** : The CO captured is then delivered by pipeline, ship or other appropriate means to utilisation facilities or storage sites.
- **Carbon Utilisation and Permanent Storage** : It can be used in applications such as enhanced oil recovery, food and drinks, urea, green methanol and concrete, or permanently sequestered deep underground in geologic formations such as depleted oil and gas reservoirs, deep saline aquifers and basaltic rocks to help reduce greenhouse gas emissions.




### Various Steps Taken

- The Government of India has undertaken initiatives spanning research, policy and industry to advance CCUS development and reduce emissions.
  - These measures strengthen the foundation for India's Net Zero target by 2070.
- **Union Budget 2026–27, CCUS Scheme:** Announced in February 2026, the Ministry of Finance allocated 20,000 crore over five years to promote carbon capture, utilisation and storage in five major industrial

sectors: Power, Steel, Cement, Refineries, and Chemicals.

- **Department of Science & Technology- CCUS R&D Roadmap:** Launched in December 2025, the roadmap provides strategic direction for CCUS research, funding, technology development and deployment, with a focus on commercial readiness, breakthrough technologies and enabling frameworks.
- **NITI Aayog CCUS Policy Framework & Mechanism:** Released in November 2022, the report examines CCUS as an emissions reduction strategy for deep decarbonisation of hard-to-abate sectors and outlines sector-specific policy interventions for its deployment.
- **National CCUS Centres:** Established in 2022 at IIT Bombay and JNCASR, Bengaluru, with backing from the Department of Science and Technology, these centres focus on CCUS research, technology development, pilot-scale demonstration and industry collaboration.
- **India's CCUS Initiative:** Spearheaded jointly by the Department of Science and Technology (DST) and the Department of Biotechnology (DBT), India launched a major research drive on CCUS.
  - As part of Mission Innovation, a global clean energy platform, India collaborated with 13 partner countries to advance technologies to capture, separate, safely store, and convert CO2 into useful value-added materials.
- **India launched its first cluster of five Carbon Capture** and Utilisation testbeds for the cement industry on 11th May 2025.
  - Led by the Department of Science and Technology (DST), the initiative brings leading cement companies and premier research institutions together under a Public-Private Partnership model to develop and deploy industrial CCU technologies.

**Source : PIB**

## GREY-ZONE WARFARE AND THE LAC

*The face-offs between Indian and Chinese troops at multiple locations along the LAC in Arunachal Pradesh highlighted the concerns of grey-zone warfare.*

### What is Grey-Zone Warfare (GZW)?

- It is a form of conflict that stays **below the threshold of conventional war** but aims to **achieve strategic objectives through ambiguity, deniability and coercion.**
- China's version draws on the idea of **"Unrestricted Warfare".** Its main tools are political action, economic pressure, cyber operations and non-state actors.
- The PLA also follows the **"Three Warfares": public opinion, psychological and legal warfare.**

### How does China use it on the LAC?

- **Infrastructure:** New highways such as G695 and G580, railway lines under construction, and upgraded airfields and heliports near the border.
- **"Nibble and negotiate":** Small changes on the ground through patrols and construction, which add up over time without triggering a strong response.
- **Border villages:** About 628 Xiaokang villages, mostly opposite Arunachal Pradesh, which can serve as forward posts. They are backed by China's 2022 land border law.
- **Renaming places:** Chinese names for places in Arunachal Pradesh, as a way of backing territorial claims through maps.
- **Wider alliances:** Economic and security ties across Asia, Africa and the Indian Ocean, including with Pakistan, to create two-front pressure.

### Why is it hard to counter?

- High-level meetings have eased tensions at some friction points, but the basic LAC disagreement remains.
- After 2020, the old Patrolling Points in Ladakh no longer work as shared reference points.
- Diplomatic warmth does not guarantee a calm border. China treats the boundary issue separately from wider ties.

### What can India do?

- A **clear national China strategy** that links military readiness, border management, infrastructure, diplomacy and the economy.
- **Better surveillance, intelligence**, rapid reinforcement and logistics.
- A simpler command structure. One view is that a **dedicated border force under Army operational control** would respond faster than the ITBP, which reports to the Ministry of Home Affairs.
- Credible deterrence on land and at sea, so that small Chinese gains become costly.

Source: IE

# NEWS IN BRIEF

## KHAJURAHO TEMPLES

*Archaeological Survey of India (ASI) is planning to rebuild the headless Vishnu statue at **Khajuraho's Javari Temple.***

### Khajuraho Temples

- The Khajuraho Group of Monuments is a group of **Hindu temples and Jain temples** in Chhatarpur district, Madhya Pradesh.
- They were built during the **Chandella dynasty** between 950 and 1050 AD, and sculptures represent gods, heavenly beings, ordinary life, and lovers, masterfully carved from locally available sandstone.
- They are a **UNESCO World Heritage Site,** and the temples are famous for their **nagara-style architectural symbolism and their erotic sculptures.**
- They continued to be an important religious center throughout the 14th century but eventually fell with the fall of the Chandela dynasty.
- It was rediscovered by **British engineer T.S. Burt in 1838** and recorded and conserved by Maharaja Pratap Singh, Alexander Cunningham and others.
- The first mention of Khajuraho and its temples is in the a**ccounts of Abu Rahyan al Biruni( 1022 CE) and Ibn Batuta (1335 CE).**
- The carvings on them reflect the four goals of life in Hinduism, viz, **dharma, kama, artha, moksha.**

### Key Features

- The temples are categorised into three groups, that is, Eastern, Western, and Southern.
  - The **western group** contains some of Khajuraho's most magnificent royal temples, including the Devi, Varaha, Lakshmana, Kandariya Mahadeva, Parvati, Vishvanatha and Bhairava temples.
  - **The western group,** which consists entirely of Brahmanical temples, is situated on the banks of the Sib-Sagar…" wrote Cunningham.
  - **The eastern group** contains the Javari temple, where the headless Vishnu idol is located, as well as temples dedicated to Hanuman and Shiva.
  - This group also includes a cluster of Jain temples protected within a modern compound wall to the south-east of the village.
  - **The southern group** includes the Duladeva and Chaturbhuja temples.

Source: IE

## AZERBAIJAN

*External Affairs Minister S Jaishankar's visit to Baku recently pointed to a reset in relations with Azerbaijan that had soured in the last few years.*

### Recent Diplomatic Engagement

- **Trade and investment:** Both sides identified opportunities to expand trade and energy cooperation, recognising the potential for greater economic engagement.
- **Energy cooperation:** The discussions focused on strengthening cooperation in the oil and energy sectors along with exploring additional areas of economic partnership.
- **Connectivity:** Both the countries agreed to coordinate more closely on the International **North–South Transport Corridor (INSTC).**
- **Capacity building:** India proposed increasing the participation of Azerbaijani professionals in the **Indian Technical and Economic Cooperation (ITEC)** programme.

### Azerbaijan

- It is located in **Asia** and is bordered by **four countries** – Russia, Georgia, Armenia and Iran.
  - The east of the country is bordered by the **Caspian Sea.**
  - Much of the north and west is covered by the **Caucasus Mountains.**



- Although Azerbaijan has a coast along the Caspian Sea, it is considered a **landlocked country** because neither it nor the Caspian Sea connect to the open ocean.
- **Baku, whose first oil wells were drilled in the 1840s,** is considered the **world's first oil town.**
- **The natural fire, known as Yanar Dağ**, has been blazing in Azerbaijan for at least 65 years.

**Source: IE**

## LIECHTENSTEIN

*PM Modi held bilateral talks with Liechtenstein's Hereditary Prince Alois at Hyderabad House, New Delhi.*

### About Liechtenstein

- Government: A small European monarchy. The Prince is head of state, and Hereditary Prince Alois acts as head of state on his behalf. It has a one-house parliament, the Landtag, and the Prime Minister is Brigitte Haas.
  - It abolished its military in 1868 and stayed neutral. Police handle internal security.
- Location: In the Alps, in the upper Rhine valley. It borders Switzerland and Austria.
- Doubly landlocked: It is one of only two such countries. It is landlocked, and so are all its neighbours. The other is Uzbekistan.




### Why does it matter?

- For Europe: It is a member of EFTA and the European Economic Area, which links it to both European and global markets.
- For India: It is a route into the European market and a source of investment. Its strengths in high-tech industry, finance and innovation fit India's push for investment and technology partnerships.

Source: TH

## ATAL VAYO ABHYUDAY YOJANA (AVYAY)

*The Atal Vayo Abhyuday Yojana (AVYAY) represents a comprehensive and evolving framework for addressing the multifaceted needs of India's ageing population.*

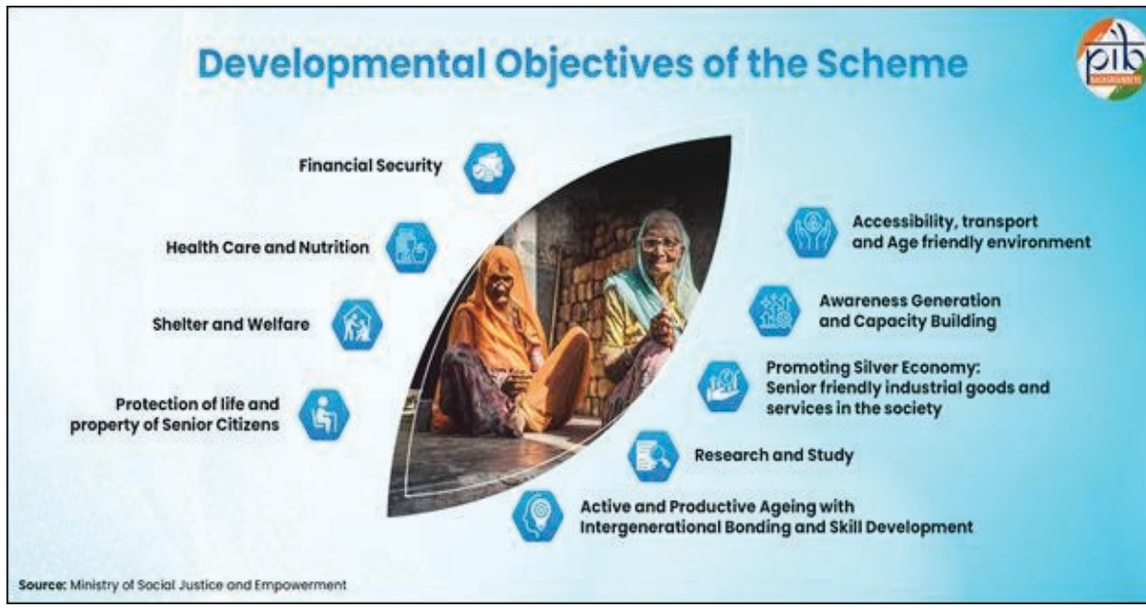
### About

- **Nodal Ministry:** Ministry of Social Justice and Empowerment (MoSJE).
- **Launch:** Introduced in 2021, AVYAY subsumed and expanded the earlier National Action Plan for Senior Citizens (NAPSrC), bringing multiple senior citizen welfare interventions under a single umbrella scheme.
- **Nature:** A Central Sector Scheme aimed at supporting senior citizens and promoting active and productive ageing.

### Do you know?

- India is undergoing a quiet demographic shift. As per **Census 2011**, the total population of **Senior Citizens (aged 60 and above) is 10.38 crores**.
- India's elderly population is projected to reach **23 crores by 2036**, underscoring the growing need for a comprehensive support system for senior citizens.

**Source: PIB**




## INFRASTRUCTURE INVESTMENT TRUSTS

***India's infrastructure investment trusts (InvITs)*** *are attracting more investors, creating a* ***potential avenue to channel domestic savings*** *into roads, power transmission networks and other infrastructure assets.*

### About India's infrastructure investment trusts (InvITs)

- Infrastructure investment trusts are **investment instruments that work like mutual funds**.
- **It enables direct investment of money** from individual and institutional investors in infrastructure projects to earn a small portion of the income as return.
    - **The InvIT is designed as a tiered structure** with Sponsor setting up the InvIT which in turn invests into the e**ligible infrastructure projects** either directly or via special purpose vehicles (SPVs).
- **Regulatory framework:** InvITs in India are regulated by the Securities and Exchange Board of India (SEBI) under the SEBI (Infrastructure Investment Trusts) Regulations, 2014.
- **Income distribution:** They distribute a substantial portion of their net distributable cash flows to investors, subject to SEBI regulations.
- **Tradability:** Listed InvIT units can be bought and sold on stock exchanges, providing investors with liquidity.

**Source: TH**

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