

Indian Army unveiled comprehensive defence modernisation roadmap

The roadmap aims at transforming Indian Army's capabilities across multiple domains and prepare it for the challenges of future warfare.

Key Highlights of Modernisation Roadmap

- **Advanced Weapon Systems:** Development of **ultra-fast and highly manoeuvrable weapon systems**, including hypersonic glide vehicles, hypersonic air-breathing engines (HEBs), and advanced fourth, fifth, and sixth-generation missiles.
 - ⌚ Highlights need to **transition from conventional dump category ammunition to smart, precision-guided munitions** such as loitering munitions.
 - ⌚ Advancing efforts in **directed energy weapons**, such as high-energy lasers and microwave systems, for counter-drone operations, missile defence, and anti-satellite capabilities.
- **Cyber & Electronic Warfare (EW):** Aiming **spectrum dominance** through developing next-generation cyber defence tools, autonomous EW solutions, and resilient satellite systems.
- **Soldier-Centric Modernization:** Equip soldiers with exoskeletons, human augmentation systems, smart body armour, and augmented reality-based battlefield management systems.
 - ⌚ Also includes **integration of AI-powered helmets, smart apparel, and real-time health monitoring** to enhance battlefield effectiveness.
- **Logistics & Infrastructure:** **Modernizing supply chains through AI, blockchain, and IoT** integration to create green, sustainable, cyber-resilient logistics systems.
- **Synergy:** Synergy between **three key stakeholders: Military**, which must clearly define operational needs; **Policymakers**, who must create enabling frameworks; and **Industry**, which must innovate and deliver tailored solutions.

India's Initiatives for modernisation of armed forces

- **Long term Modernisation Planning** through 10 Years Integrated Capability Development Plan (ICDP).
- **Raising of niche capability structures** in terms of Defence Space Agency, Defence Cyber Agency & Armed Forces Special Operations Division.
- **Innovations for Defence Excellence (iDEX)** supporting startups with **funding up to ₹1.5 crore**.
- **Atmanirbharta in defence manufacturing** through initiatives such as positive indigenisation lists, SRIJAN portal, liberalization of FDI in defence R&D.

Rio de Janeiro Declaration adopted in 17th BRICS Summit held in Rio de Janeiro, Brazil

The theme of the summit was **Strengthening Global South Cooperation for a More Inclusive and Sustainable Governance**.

Key highlights of the Summit

- **Adopted BRICS Leaders' Framework Declaration on Climate Finance:** For ensuring accessible, timely and affordable climate finance for developing countries and enabling just transition pathways.
- **Adopted BRICS Leaders' Statement on the Global Governance of Artificial Intelligence:** To foster responsible development, deployment, and use of AI technologies in compliance with national regulatory frameworks and UN Charter.
- **Launched BRICS Partnership for the Elimination of Socially Determined Diseases:** Focusing on tackling root causes of health disparities such as poverty and social exclusion.
- **Other Highlights:**
 - ⌚ Reaffirmed support for **multilateralism** and called for **reforms of Bretton Woods institutions** to reflect the voice of Global South.
 - ⌚ Reiterated **support for reform of UN system** including increased role of India and Brazil in UN Security Council.
 - ⌚ **Condemned all forms of terrorism**, including the attack in Pahalgam, Jammu & Kashmir.
 - ⌚ Emphasized **"African solutions to African problems"** in conflict resolution across Africa (e.g., Sudan, Horn of Africa).
 - ⌚ Highlighted contribution of **nuclear-weapon-free zones** for strengthening nuclear non-proliferation.
 - ⌚ Supported **India's candidacy to host COP 33 of UNFCCC** in 2028.

Related News

Board of Governors of New Development Bank (NDB) officially admitted **Colombia and Uzbekistan** as borrowing members of NDB.

About NDB

- **Genesis:** Established in 2015 as a Multilateral Development Bank by BRICS countries.
- **Purpose:** Mobilising resources for infrastructure and sustainable development projects in Emerging Markets Economies and Developing Countries (EMDCs).
- **Headquarter:** Shanghai, China.
- **Members:** Brazil, Russia, India, China, South Africa, Bangladesh, UAE, Egypt, Algeria.
 - ⌚ **Uruguay** is a prospective member.

AERB Grants License for Operation of India's First 700 MWe Pressurised Heavy Water Reactor (PHWR)

Atomic Energy Regulatory Board (AERB) has granted licence for two indigenously developed 700 MW PHWR (Units 3 and 4) at the **Kakrapar Atomic Power Station** in Gujarat.

About PHWR

- First stage of **India's Three-Stage Nuclear Programme** is based on PHWR.
- **Fuel & by-product:** It uses **natural uranium** (which is 99.28 percent uranium-238 by concentration) to generate electricity **while producing plutonium-239** as a by-product.
 - ⊕ **Plutonium-239** will be used create a **Uranium-Plutonium Mixed Oxide (MOX)** fuel which would subsequently be used as fuel for a Fast Breeder Reactor (FBR).
 - ⊕ **FBR** will be used in 2nd stage of **Nuclear Programme**.
- **Coolant & Moderator:** In it, **Heavy water (D₂O)** or **deuterium** is used as both its **coolant** and **neutron moderator**.
- **Advantages:** It uses **thin walled pressure tubes** instead of **large pressure vessels** used in pressure vessel type reactors. This ensures that accidental rupture will have a much less severity.



History of PHWR Development

- The programme began in the late **1960s** with **Rajasthan Atomic Power Station (RAPS-1; 220 MWe)** under Indo-Canadian cooperation.
- After Canada withdrew support in **1974** following **Pokhran-1**, India was forced to develop it indigenously.
- India then developed a standardized 220 MWe indigenous design starting with **Narora Atomic Power Station (NAPS)** in Uttar Pradesh.

Atomic Energy Regulatory Board (AERB)

- **Established:** by President in 1983 as per the provision of the Atomic Energy Act, 1962.
- Regulatory authority of **AERB** is derived from rules & notifications promulgated under **Atomic Energy Act and Environment (Protection) Act, 1986**.
- **Mission:** To ensure the use of ionizing radiation and nuclear energy in India **does not cause undue risk to the health of people and the environment**.

World Bank Places India among World's Most Equal Societies

According to the World Bank's **spring 2025 Poverty and Equity Brief**, India is the **fourth most equal country** in the world after the **Slovak Republic, Slovenia** and **Belarus** on the basis of **Gini Index** score.

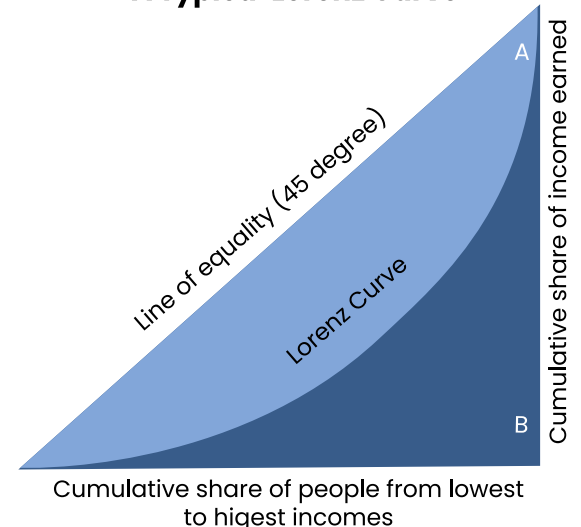
India's Global Standing in Equality

- Achieved **greater income equality** with **Gini score of 25.5 (2022-23)**, improvement from **28.8 (2011-12)**.
- It has better performed than **G7** and **G20 country** (E.g. China (35.7) and United States (41.8)).
 - ⊕ India falls into the '**moderately low**' **inequality category** (Gini scores between 25 and 30), and is only a fraction away from **joining the "low inequality" group**.
- Brief also highlighted that **Extreme poverty** (living on less than \$2.15 per day) fell from **16.2% in 2011-12** to **2.3% in 2022-23**, lifting **171 million people above this line**.
 - ⊕ Under **WB's revised extreme poverty** threshold of **\$3.00 per day**, the 2022-23 poverty rate would be adjusted to 5.3%.

About Gini Index

- **Measures** the extent to which the **distribution of income or consumption** among individuals or households within an economy **deviates from a perfectly equal distribution**.
 - ⊕ A Gini index of **0** represents **perfect equality**, while an index of **100** implies **perfect inequality**.
- Graphically Gini Index can be **explained by the Lorenz curve**.
 - ⊕ A **Lorenz curve** plots the **cumulative percentages of total income** received against **the cumulative number of recipients**, starting with the poorest individual or household.

A Typical Lorenz Curve



National Biobank inaugurated at the CSIR-Institute of Genomics and Integrative Biology (IGIB)

The newly launched facility marks a significant stride towards building India's own **longitudinal health database**.

- It will enhance India's capabilities in **precision medicine** and **biomedical research**.

About National Biobank

- **Launched under:** Phenome India Project.
 - ⊕ It is based on the **UK Biobank model**, but customized for Indian diversity.
- **Purpose:** It will aid in early diagnosis, improve therapeutic targeting, and bolster the fight against complex diseases such as diabetes, cancer, cardiovascular ailments, and rare genetic disorders.
 - ⊕ It will **generate high-resolution data** that can **power AI-driven diagnostics** and **gene-guided therapies**.
- **Coverage:** It will collect comprehensive genomic, lifestyle, and clinical data from **10,000 individuals**.

About Phenome India Project

- It is officially called as **Phenome India-CSIR Health Cohort Knowledgebase (PI-CheCK)**.
- **Launched by:** Council of Scientific and Industrial Research (CSIR) in 2023.
- **Objective:** It is designed to be a long-term, data-rich study tracking the health trajectories of individuals over several years.

What is Phenome?

- **Phenome** is the entire set of **phenotypes** in a cell, tissue, organ, organism or species.
- **Phenotype** refers to the **observable physical characteristics** of an **organism**.
 - ⊕ These include the organism's **appearance, development, and behavior**.
 - ⊕ An organism's **phenotype** is determined by its **genotype** (set of genes the organism carries) as well as by **environmental influences** upon these genes.

Prime Minister visits Brazil after concluding visit to Argentina, and Trinidad and Tobago

The visit is the part of **diplomatic tour** covering **Latin American and Caribbean (LAC) countries** with a focus on boosting ties with the Global South.

- **Latin and Caribbean (LAC) region** consists of mainly three regions i.e. **South America, Central America and the Caribbean Region** and comprises **45 countries**.

India and LAC Region

- **Economic Ties:** Total trade with LAC stood at **USD 35.73 billion** (with exports worth USD 14.50 billion) during **2023-24**.
 - ⊕ **Trade Target:** India targets **US \$ 100 billion bilateral trade by 2027-28**.
 - ⊕ **Export-Import:** LAC ranks **8th among India's import sources** while India ranks **9th among LAC's exporting partners**.
 - ◆ **Major Imports:** Extractive and agricultural products like crude and petroleum products, pearls and precious stones, and vegetable oils.
 - ◆ **Major Exports:** Manufactured commodities like motor vehicles, chemical products, mineral fuels etc.
- **Trade Agreements:** Preferential Trade Agreement with MERCOSUR, Comprehensive Economic Partnership Agreement with Chile, FTA negotiations with Peru etc.
- **Energy and Infrastructure:** LAC is a supplier of critical minerals like gold, copper, and lithium.
- **Regional Blocs:** India has **strong partnership** with Regional Blocs such as Community of Latin American and Caribbean States (CELAC), Central American Integration System (SICA) and CARICOM (Caribbean Community).



Also in News



National Company Law Appellate Tribunal (NCLAT)

Recently, NCLAT held that **Insolvency & Bankruptcy Code (IBC), 2016** cannot override **Prevention of Money Laundering Act 2002**.

About NCLAT

- Constituted under the **Companies Act, 2013** for hearing appeals against the orders of **National Company Law Tribunal(s) (NCLT)**.
 - ⊕ It also acts as **Appellate Tribunal** for hearing appeals against the orders passed **Insolvency and Bankruptcy Board of India, Competition Commission of India (CCI), and National Financial Reporting Authority**.
- **Principal bench:** New Delhi.



Fugitive Economic Offenders Act, 2018

A Delhi court declared the U.K.-based arms **consultant, a fugitive economic offender** under the **Fugitive Economic Offenders Act, 2018**.

About Fugitive Economic Offenders Act, 2018

- It defines a **Fugitive Economic Offender (FEO)**.
 - ⊕ He/she is an Individual with an **arrest warrant** for a **scheduled offence** who has **left India to avoid prosecution** or refuses to return from abroad.
 - ⊕ **Scheduled Offence:** Offences specified in the Schedule with total value of ₹100 crore or more.
- To be declared a **FEO**, the concerned authority **must submit an application** with a **Special Court**.
 - ⊕ A Court of Session designated as a Special Court under the **Prevention of Money-laundering Act, 2002**.



National Medical Commission (NMC)

NMC has notified the **Medical Institutions (Qualifications of Faculty) Regulations, 2025**.

- Regulations have been issued by **Post Graduate Medical Education Board (PGMEB)**, autonomous body under the NMC.

About NMC

- It is **India's premier regulatory body** overseeing medical education and practice
- Genesis:** Constituted under **National Medical Commission Act, 2019**.
⊕ It superseded the **Medical Council of India (MCI)**.
- Functions:** Lay down policies for regulating medical institutions, medical researches and medical professionals, etc.



Seine River

Paris in France opened the Seine River to public swimming for first time since 1923.

- This came after an extensive **clean-up operation spurred by the Paris Olympics** last year, in which the river was used as a venue for certain swimming events.
- Earlier, the river was **contaminated with E. coli** from untreated sewage discharge from Paris' sewage system.

About Seine River

- It is the **second longest river** in France after the Loire River.
- Originating** 30km northwest of **Dijon**, it flows northwest through **Paris**, emptying into the **English Channel at Le Havre**.



3I/ATLAS

NASA funded ATLAS (Asteroid Terrestrial-impact Last Alert System) survey telescope in Chile discovered an **interstellar Comet** named 3I/ATLAS.

- 3I/ATLAS is an **active comet** and if it heats up sufficiently as it nears Sun, it could begin to sublimate – a process in which frozen gases transform directly into vapour, carrying dust and ice particles into space to form a glowing coma and tail.
- It is **only the third** of its kind ever observed, following the famous **11/Oumuamua** in 2017 and **2I/Borisov** in 2019.



Tokara Islands

More than 1,000 earthquakes have rattled the Tokara Islands in southern Japan.

- Japan is **one of the world's most seismically active countries**, sitting on top of four major tectonic plates along the western edge of the Pacific "ring of fire".

About Tokara Island

- It is an **archipelago** in Japan, south of Kyushu and north of Amami Islands.
- Toshima** (Japan's longest village) is located here.



Dudhwa Tiger Reserve

Leopard population in the Dudhwa Tiger Reserve (DTR) has grown by 198.91% since 2022.

About DTR

- Location:** In Terai region of Uttar Pradesh, along Indo-Nepal Border.
- It includes **Dudhwa National Park** and two wildlife sanctuaries - **Katerniaghat and Kishanpur**.
- It is a typical **Tarai-Bhabar habitat of the upper Gangetic plains** Bio-geographic province and consists of **vast alluvial plain**.
- Rivers:** Mohana, Suheli, Joraha, Nagro etc.
- Fauna:** Tiger, Leopard, Rhinoceros, Swamp Deer, Elephant, Sambar, Hog deer, Sloth Bear etc.



Aadhaar-based face authentication (FaceAuth)

Himachal Pradesh became the **first state** to introduce **Aadhaar-based face authentication (FaceAuth)** for distribution of ration under **Public Distribution System (PDS)**.

About Aadhaar-based face authentication

- Face authentication has been introduced by Unique Identification Authority of India (UIDAI) as an **additional mode of authentication**.
⊕ Other modes of authentication include **OTP-based, fingerprint and iris-based**.
- Face authentication is based on a **1:1 matching** which means that the **facial image captured during authentication** is matched with the facial image which is stored in the **Repository against the Aadhaar Number**.

Personality in News

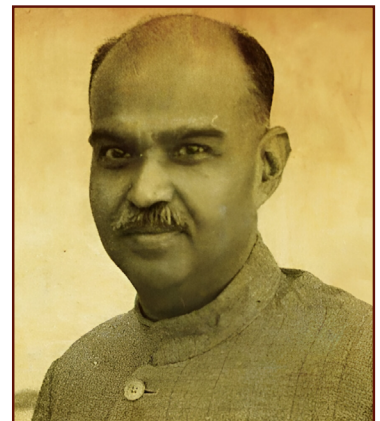


Dr. Syama Prasad Mookerjee

Prime Minister paid tribute to **Dr. Syama Prasad Mookerjee** on his 125th birth anniversary.

About Dr. Syama Prasad Mookerjee (1901 - 1953)

- Born in Calcutta.
- He became the **youngest Vice-Chancellor** of the **University of Calcutta**.
- Contributions**
- In 1940, he became the acting President of the All-India Hindu Mahasabha.
- Elected to the Constituent Assembly**.
- Joined the interim government under **Jawaharlal Nehru** as **Minister for Industry and Supply**.
⊕ He laid the foundation for India's industrial growth by establishing institutions like the **Chittaranjan Locomotive Factory**, etc.
- ⊕ He was given the title '**The lion of Parliament**'.
- Founded the **Bharatiya Jana Sangh (1951)**.
- Key literary work:** Autobiographical **Leaves from a Diary, A Phase of the Indian Struggle**, etc.
- Values:** Leadership, empathy, social harmony, nationalism, cultural distinctiveness etc.



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI