

### GEOSYNCHRONOUS SATELLITE LAUNCH VEHICLE (GSLV)



- It is a space launch vehicle designed, developed, and operated by the Indian Space Research Organization (ISRO) to launch satellites and other space objects into Geosynchronous Transfer Orbits (GTOs).
- GSLV has the capability to put a heavier payload in orbit than the Polar Satellite Launch Vehicle (PSLV).
- GSLV is 49.13 m tall and the tallest among all other vehicles of ISRO.
- It is a **three-stage vehicle** with a **lift-off mass of 420 tonnes**.
  - The first stage comprises an S139 solid booster with 138-tonne propellant and four liquid strap-on motors, with 40-tonne propellant.
  - The second stage is a liquid engine carrying 40-tonne of liquid propellant.
  - The **third stage** is the indigenously built **Cryogenic Upper Stage (CUS)** carrying 15-tonne of **cryogenic propellants**.
- The **GSLV improves on the performance of the PSLV** (Polar Satellite Launch Vehicle) by the **addition of liquid strap-on boosters** and a **cryogenic upper stage**.
- The **solid first and liquid second stages** are **carried over from the PSLV**, while the cryogenic upper stage is being supplied by Russia until India has developed an indigenous version.

#### Variants of GSLV:

- **GSLV Mk I:**
- The first-generation GSLV with a **payload capacity of carrying 2-2.5 ton satellites** to GTO.
  - It used the **Russian-supplied cryogenic upper stage**, as it had early difficulty with mastering indigenous cryogenic technology.
  - It conducted around 5 flights from 2001-2010, including suborbital tests, with the **last launch in 2010**.

- **GSLV Mk II:**
  - It is an enhanced variant with an **indigenously developed cryogenic upper-stage engine and stage.**
  - It is capable of **carrying payloads** to GTO around the **2.5-ton class.**
  - The **first successful launch** occurred in **2014.**
- **GSLV Mk III:** The GSLV Mk III, also known as LVM-3, is the **most advanced and powerful variant** in the GSLV series, currently in service with a **payload capacity of up to 4 tons** to GTO.
- **Performance of GSLV:**
  - The GSLV has **launched** various satellites, including **communication satellites** like **INSAT and GSAT**, as well as **spacecraft from the NavIC and IDRSS series, into GTO.**
  - Notable missions include the launch of the **South Asia Satellite in 2017**, a satellite for military applications in 2018, and the **Chandrayaan-2** moon mission in 2019.

### e-SHRAM PORTAL



- It was launched by the **Ministry of Labour and Employment** on 26th August 2021 to support and empower the unorganized workforce.
- It is designed to create a **comprehensive National Database of Unorganised Workers (NDUW).**
- It is the **first-ever national database of unorganised workers** including migrant workers, construction workers, gig and platform workers, etc.
- The **Ministry of Electronics and Information Technology's (MEITY's) Bhashini project** has been **leveraged to upgrade** the eShram portal with **22 languages.** The previous version was available only in English, Hindi, Kannada, and Marathi.

### Objectives:

- Establish a centralized database of unorganized workers for effective policy implementation.
- **Enhance access to social security schemes and benefits** for workers in sectors such as agriculture, construction, domestic work, and street vending.
- **Facilitate job matching and skill development**
- Strengthen labor market resilience by integrating unorganized workers into the formal economy.
- **Promote financial inclusion through direct benefit transfers and digital payments.**
- **Eligibility for Registering on E-Shram Portal:**
  - Be aged between **16 and 59 years**.
  - Be **employed in the unorganized sector**, including self-employed individuals, daily wage laborers, and gig workers.
  - **Possess an Aadhaar card, a valid mobile number linked to Aadhaar, and a bank account.**
  - **Not be a member of the Employees' Provident Fund Organization (EPFO) or Employees' State Insurance Corporation (ESIC).**
- **Features:**
  - **Universal Account Number (UAN):** Registered workers receive a UAN linked to their Aadhaar, enabling seamless access to benefits.
  - **Single Registration Process:** The portal streamlines the registration process, requiring minimal documentation such as Aadhaar and bank account details. The ease of self-registration is also available to the beneficiaries.
  - **Multilingual Support:** Workers from diverse regions can access the portal in multiple Indian languages, ensuring inclusivity.
  - **Grievance Redressal Mechanism:** A dedicated helpline and support system address workers' queries and grievances promptly.

### FIVE YEARS OF NEP: ASSESSING THE SHIFT IN INDIAN EDUCATION

- The NEP 2020 aimed to transform India's education system. While complete implementation is ongoing, key reforms have begun to take root.
- **Shift in School Structure and Curriculum**
  - The traditional 10+2 structure has been replaced by a **5+3+3+4 system**: foundational (pre-primary to class 2); preparatory (classes 3–5); middle (6–8), and secondary (9–12).
  - The 2023 National Curriculum Framework laid out outcomes for each stage.
  - NCERT released new textbooks (classes 1–8), merging subjects like history and geography into single volumes. Books for classes 9–12 are awaited.
- **Early Childhood Education Gets a Boost**
  - NEP aims for universal pre-primary education by 2030. NCERT's Jaadui Pitara kits and a national ECCE curriculum are now in use.
  - Delhi, Karnataka, and Kerala are enforcing a minimum age of six for class 1, improving readiness but reducing enrolments.
- **Foundational Learning Under NIPUN Bharat**
  - Launched in 2021, NIPUN Bharat targets literacy and numeracy by class 3.
  - A recent survey shows 64% average language proficiency and 60% in math—progress, but still below universal goals.
- **Credit-Based Flexibility Introduced**
  - To allow flexibility in higher education, the NEP introduced the Academic Bank of Credits (ABC) and the National Credit Framework (NCrF).
  - Learners can exit after one, two, or four years with a certificate, diploma, or degree. CBSE is piloting this credit model in schools as well.
- **CUET for Uniform College Admissions**
  - The CUET, launched in 2022, standardizes college admissions nationwide, reducing the need for multiple entrance exams, in line with NEP's goals.

- **Expanding Global Footprint of Indian Campuses**
  - Institutes like IIT Madras (Zanzibar), IIT Delhi (Abu Dhabi), and IIM Ahmedabad (Dubai) have set up global campuses.
  - Meanwhile, international universities, including the University of Southampton, are entering India, with 12 more awaiting approval.

### NEP 2020: Key Reforms Still in Progress

- While several aspects of the National Education Policy (NEP) 2020 have seen implementation, others are still evolving.
- These reforms aim to reduce academic pressure, promote flexibility, and encourage inclusive, student-centric learning environments.
- **Reimagining Board Exams**
  - To lower the pressure of high-stakes assessments, the NEP proposes flexible board exams. Starting 2026, CBSE will allow class 10 students to appear for board exams twice a year.
- **Progress Cards with a Holistic Approach**
  - NCERT's PARAKH unit developed new-style report cards including peer and self-assessments. However, most boards have not adopted this approach yet.
- **Slow Rollout of Four-Year Undergraduate Degrees**
  - The NEP promotes four-year undergraduate programs with flexible exit options after each year.
  - While central universities and the state of Kerala have begun implementation, progress is slow in other regions due to faculty shortages and inadequate infrastructure in many colleges.
- **Emphasis on Mother Tongue as Medium of Instruction**
  - NEP recommends teaching students in their mother tongue at least until class 5 to enhance comprehension and cognitive growth. Meanwhile, NCERT is developing textbooks in more Indian languages to support this multilingual shift.

### INDIA NOTIFIES ENVIRONMENT PROTECTION RULES TO ADDRESS CHEMICALLY CONTAMINATED SITES

- India has taken a major step toward formalising its response to chemically contaminated sites.
- Recently, the **Ministry of Environment, Forest and Climate Change** notified the **Environment Protection (Management of Contaminated Sites) Rules, 2025** under the **Environment Protection Act**.
- For the first time, India has codified the procedures to identify, assess, and remediate sites where historical dumping of hazardous chemicals has polluted soil, groundwater, or surface water, posing long-term risks to public health and ecosystems.

#### Understanding Contaminated Sites

- According to the **Central Pollution Control Board (CPCB)**, contaminated sites are locations where hazardous and other wastes have been historically dumped, often prior to the enforcement of proper regulatory mechanisms.
- Such sites typically include:
  - Defunct industrial landfills
  - Waste storage and chemical spill sites
  - Abandoned chemical handling facilities
- India has identified **103 such sites**, but remedial operations have been initiated in only seven.

#### Scope and Exemptions

- While comprehensive, the rules exclude certain categories already covered by other legislation:
  - **Radioactive waste** (under the Atomic Energy Act)
  - **Mining-related contamination** (governed separately)
  - **Marine oil pollution**
  - **Municipal solid waste dump sites**

- This ensures that regulatory overlap is avoided, and specialised agencies continue to govern complex waste streams.

### Challenges in Implementation

- While the rules provide a legal foundation, successful implementation will hinge on:
  - **Scientific capacity** for hazardous chemical assessment
  - **Institutional coordination** between the State Boards, CPCB, and district administrations
  - **Funding support**, especially where no liable party is available
  - **Public awareness** and community participation in reporting pollution
- Capacity-building at the district and state levels will be critical to make the framework actionable.

### THE YARLUNG TSANGPO PROJECT - STRATEGIC, ECOLOGICAL, AND GEOPOLITICAL IMPLICATIONS FOR INDIA

- Recently, Chinese Premier Li Qiang **launched construction of a massive hydropower project** on the **Yarlung Tsangpo River in Tibet**, close to the **Indian border**.
- The Yarlung Tsangpo project's scale, lack of transparency, ecological threats, and strategic ramifications have **raised serious concerns for India**, especially as no prior consultation was conducted with lower riparian states like India and Bangladesh.

### Project Overview and Strategic Location:

- **Project cost and scale:**
  - Estimated at 1.2 trillion yuan (US\$167.8 billion), it involves five cascade hydropower plants in Medog County, approximately 30 km from India's Arunachal Pradesh border.
  - **Expected annual generation** will be 300 billion kWh, more than thrice the designed capacity (88.2 billion kWh) of the Three Gorges Dam in China, currently the largest in the world.
- **Engineering features:**

- It would involve drilling 4-6 tunnels of 20 km each, diverting up to 50% of the river's flow.
- It is located in a **high seismic zone** (Zone V) – Eastern Himalayan Syntaxis.

### Environmental and Hydrological Concerns:

- **Disruption of Brahmaputra flow:**
  - The project would **alter natural hydrology and seasonal flow**, especially in the lean season.
  - It will **impact aquatic biodiversity**, fisheries, sediment load, and ecosystem services.
  - The construction of five massive hydropower plants in cascade is likely to involve **reservoir-like structures**, even though it is claimed to be a run-of-the-river project.
- **Flood risk:** Sudden or unannounced water release during heavy rainfall or earthquakes could lead to catastrophic downstream flooding.
- **Seismic vulnerability:**
  - Project area prone to earthquakes due to Himalayan Frontal Thrust and Medog Fault.
  - **Past Chinese engineering failures** (e.g., Neelum-Jhelum in PoK) raise safety concerns.

### Conclusion:

- The Yarlung Tsangpo project is not just an ecological and hydrological threat but a strategic challenge.
- India must **shift from passive diplomacy to proactive engagement**, emphasizing transboundary water governance, sovereign rights, and ecological security.
- The time has come for India to **build pressure** through diplomatic, technical, and international legal instruments while enhancing domestic preparedness.

### MAJULI ISLAND



- It is the world's largest river island **located in Assam**.
- The island is **formed by the Brahmaputra River** in the south and the **Kherkutia Xuti**, a branch of the Brahmaputra, joined by the Subansiri River in the north.
- Most of the islanders belong to three tribes-**Mishing, Deori and Sonowal Kachari**, with the non-tribal Assamese comprising the rest.
- The island's landscape is characterised by lush **greenery, water bodies and paddy fields**.
- Rice cultivation is the primary livelihood for the residents of Majuli, with several unique varieties of rice, **such as Komal Saul and Bao Dhan**, grown in the region.
- The island has also been the hub of **Assamese neo-Vaishnavite culture**, initiated around the 16th century by the great Assamese saint-reformer Srimanta Sankerdeva and his disciple Madhavdeva.
  - They initiated the tradition of Satras (monastic institutions), and these Satras have preserved Sattriya dance, literature, bhaona (theatre), dance forms, mask making, and boat-making.
- Apart from Satras or Vaishnavite monasteries, **Majuli is famous for mask-making** and has a tradition of pottery making.