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Thursday, July 16, 2026

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IMPORTANT INSIGHTS

Supreme Court Reaffirms Due Process in Citizenship Determination, Sets Aside 27 Gauhati High Court Judgments on Foreigner Declarations

Recent Developments:

- The **Supreme Court** has set aside **27 judgments** of the **Gauhati High Court** that had upheld **Foreigners Tribunal (FT)** orders declaring individuals as foreigners in Assam.
- The Court held that **citizenship or foreigner status can be determined only through a fair, lawful, and reasonable procedure**, consistent with **Article 21** of the Constitution.
- All matters have been **remanded to the respective Foreigners Tribunals** for fresh adjudication after giving the appellants a meaningful opportunity to present their case.

Background of the Case:

Origin of the Dispute:

- The appeals arose from **27 individuals in Assam** who had been declared foreigners through **ex parte proceedings**, where decisions were passed in their absence.
- One of the lead cases involved **Sabitri Dey** and **Sambhu Dey**, who were declared illegal migrants by the then **Illegal Migrants (Determination) Tribunal** in **1997** after they failed to appear before the tribunal.
- The tribunal relied mainly on the **Enquiry Officer's report**, as no written statement or documentary evidence was produced before it.
- The petitioners later contended that they had **never received effective notice** and became aware of the tribunal's order only in **2019**.

Proceedings Before the Gauhati High Court:

- The petitioners challenged the tribunal's order by contending that:
  - The proceedings violated the **principles of natural justice**.
  - No **legal aid** or **amicus curiae** was provided.
  - The findings were based largely on **hearsay evidence** instead of substantive proof.
  - They possessed **government-issued documents** supporting their claim to Indian citizenship.
- In **2020**, the Gauhati High Court dismissed the petitions after observing that:
  - The petitioners had failed to appear before the tribunal.
  - No written statement or documentary evidence had been produced.
  - The challenge had been filed after an unexplained delay of nearly **23 years**.
  - **Section 9 of the Foreigners Act, 1946** places the burden of proving citizenship upon the individual concerned.

Supreme Court's Key Observations:

Citizenship Must Be Determined Through Fair Procedure:

- The Court held that **citizenship involves profound constitutional, civil, and human rights consequences**, making procedural fairness indispensable.

- The Court observed that **no individual can be deprived of citizenship except through a fair, lawful, and reasonable process**, as required under **Article 21**.
- The Bench clarified that procedural lapses alone cannot justify deprivation of citizenship where substantive rights are involved.

Greater Scrutiny of Ex Parte Orders:

- The Court expressed concern regarding declarations of foreigner status through **ex parte proceedings**, particularly when individuals claim lack of knowledge about the proceedings.
- Before confirming such declarations, tribunals must ensure:
  - Proper service of notice upon the concerned person.
  - A genuine opportunity to produce evidence.
  - Compliance with the principles of natural justice.

Natural Justice is Fundamental:

- The Court reaffirmed that **audi alteram partem** (hear the other side) is an indispensable element of a fair adjudicatory process.
- The requirement becomes even more stringent where the consequences may include **detention, deportation, separation from family, or statelessness**.

Merits Must Prevail Over Technicalities:

- The Court observed that where individuals claim to possess **government-issued documents** establishing Indian citizenship, such evidence must be examined on merits.
- Citizenship disputes should be decided on **substantive documentary evidence** rather than being rejected solely because of earlier procedural defaults.

Section 9 of the Foreigners Act Does Not Override Due Process:

- The Court accepted that **Section 9** places the burden of proving citizenship upon the concerned individual.
- However, it clarified that the statutory burden **does not dilute the constitutional obligation** of tribunals to conduct fair proceedings consistent with natural justice and due process.

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Fresh Adjudication Ordered:

- The Supreme Court remanded all **27 cases** to the concerned **Foreigners Tribunals**.
- The appellants must be provided an effective opportunity to:
  - File written statements.
  - Produce documentary evidence.
  - Present witnesses wherever necessary.
  - Be heard before fresh orders are passed.

Foreigners Tribunals in India:

About Foreigners Tribunals:

- **Foreigners Tribunals (FTs)** are **quasi-judicial bodies** constituted under the **Foreigners (Tribunals) Order, 1964**, issued under the **Foreigners Act, 1946**.
- Their primary function is to determine whether a person is a **foreigner** under Indian law.

- They are used extensively in **Assam**, particularly in matters relating to citizenship verification and illegal migration.

Burden of Proof:

- Under **Section 9 of the Foreigners Act, 1946**, the burden of proving Indian citizenship rests upon the person whose nationality is questioned.
- Nevertheless, tribunals remain bound by constitutional requirements of fairness, impartiality, and reasoned decision-making.

Constitutional and Legal Provisions:

Constitutional Provisions:

- **Articles 5–11** deal with citizenship at the commencement of the Constitution and empower Parliament to regulate citizenship by law.
- **Article 21** guarantees that no person shall be deprived of life or personal liberty except according to a **procedure established by law**, which the Supreme Court has interpreted to mean a **fair, just, and reasonable procedure**.
- **Article 14** guarantees equality before law and protection against arbitrary State action.

Statutory Framework:

- **Citizenship Act, 1955** governs acquisition, determination, and termination of Indian citizenship.
- **Foreigners Act, 1946** regulates the entry, presence, and exit of foreigners in India and empowers authorities to determine foreigner status.
- **Foreigners (Tribunals) Order, 1964** provides the legal framework for constitution and functioning of Foreigners Tribunals.

Constitutional Significance of the Judgment:

Protection of Due Process:

- The judgment reinforces that **citizenship determination cannot be reduced to a procedural formality**, especially where fundamental rights are at stake.

Strengthening Natural Justice:

- The ruling strengthens procedural safeguards by requiring tribunals to provide meaningful opportunities before declaring an individual a foreigner.

Balancing Sovereignty and Individual Rights:

- The Court recognised the **State's legitimate interest** in preventing fraudulent citizenship claims while simultaneously ensuring that constitutional guarantees are not compromised.

Impact on Foreigners Tribunals:

- The decision is expected to encourage **greater procedural diligence**, proper appreciation of documentary evidence, and stricter compliance with natural justice by Foreigners Tribunals in Assam.

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Value Addition for UPSC:

Important Constitutional Doctrines:

- **Procedure Established by Law**.
- **Due Process through Judicial Interpretation**.
- **Audi Alteram Partem**.
- **Principles of Natural Justice**.
- **Reasoned Administrative Decision-Making**.

Relevant Supreme Court Cases:

- **Maneka Gandhi v. Union of India (1978):** Expanded **Article 21** by holding that the procedure established by law must be **fair, just, and reasonable**.
- **Sarbananda Sonowal v. Union of India (2005):** Struck down the **Illegal Migrants (Determination by Tribunals) Act, 1983**, leading to citizenship determination in Assam being governed by the **Foreigners Act, 1946**.
- **National Human Rights Commission v. State of Arunachal Pradesh (1996):** Affirmed that **Article 21** protects every person, including non-citizens, against arbitrary deprivation of life and liberty.

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India Ranks Among Top 10 Globally in Internet Blackout Preparedness, Yet Submarine Cable Dependence Remains a Key Vulnerability

Recent Developments:

- **India** ranked **9th globally** among nearly **100 countries** in preparedness to withstand a major **internet disruption**, according to a study by **TRG Datacenters**, a United States-based digital infrastructure provider.
- **The United States** secured the **1st position** with a vulnerability score of **0**, followed by **Indonesia** and the **United Kingdom**.
- India obtained a **vulnerability score of 23.4**, reflecting comparatively strong **digital resilience**, although dependence on a limited number of international submarine cable routes remains a significant concern.
- The ranking highlights the growing strategic importance of **digital infrastructure resilience**, **cybersecurity**, and **network redundancy** in ensuring uninterrupted digital connectivity.

India's Performance in Internet Blackout Preparedness:

Overall Ranking and Vulnerability Score:

- India ranked **9th** globally for its ability to withstand a large-scale internet disruption.
- The study uses a **vulnerability score**, where a **lower score indicates stronger resilience** against digital infrastructure failures.

Submarine Cable Connectivity:

- India is connected to the global internet through **22 submarine fibre-optic cable systems**, the lowest among the top ten ranked countries.

- In comparison:
  - **United States** – **115** submarine cables.
  - **Indonesia** – **72** submarine cables.
  - **United Kingdom** – **65** submarine cables.
- A relatively lower number of international cable routes reduces **route diversity** and increases dependence on common infrastructure.

Internet Exchange Points:

- India has **40 Internet Exchange Points (IXPs)** that enable domestic internet service providers and networks to exchange traffic directly.
- Internet Exchange Points:
  - Improve **internet speed** by reducing routing distance.
  - Lower network costs.
  - Reduce dependence on foreign transit networks.
  - Maintain domestic connectivity during international cable disruptions.

Electricity Infrastructure:

- Around **99.5%** of India's population has access to electricity.
- Reliable electricity supports uninterrupted functioning of:
  - **Data centres**.
  - **Cable Landing Stations**.
  - **Telecommunication networks**.
  - **Internet Exchange Points**.

Cybersecurity Preparedness:

- India received a **cybersecurity readiness score of 98.5 out of 100**, indicating strong capability to protect critical digital infrastructure against cyber threats and network disruptions.
- Strong cybersecurity reduces the likelihood of disruptions arising from malicious attacks.

Internet Usage:

- Approximately **70%** of India's population uses the internet.
- High internet penetration increases the economic, governance, and social consequences of prolonged internet disruptions.

Strengths and Vulnerabilities of India's Digital Infrastructure:

Major Strengths:

- India's resilience is supported by:
  - A wide network of **Internet Exchange Points**.
  - Near-universal electricity availability.
  - High cybersecurity preparedness.
  - Rapid expansion of domestic **data centre** infrastructure. India's operational data centre capacity has increased from **375 MW in 2020** to over **1500 MW** by **2025**, with further growth expected.

Key Vulnerabilities:

- Limited **submarine cable diversity** creates dependence on a small number of international routes.
- Multiple telecom operators may rely upon:
  - Common submarine cables.
  - Shared cable landing stations.
  - Common power infrastructure.
  - Shared terrestrial fibre routes.
- Such shared infrastructure creates **single points of failure**, increasing systemic risk during disruptions.

Evidence Highlighting India's Exposure:

Red Sea Submarine Cable Incident:

- During **September 2025**, damage to submarine cables near **Saudi Arabia** slowed internet services across **India**, **Pakistan**, and the **United Arab Emirates**.
- The incident demonstrated that disruptions occurring outside India's territorial waters can still affect domestic digital connectivity.
- Although complete outages were avoided through traffic rerouting, users experienced increased latency and slower internet speeds.

Internet Blackout:

Meaning:

- An **internet blackout** refers to the complete or partial loss of internet connectivity across a locality, region, or country.
- It may affect international connectivity, domestic networks, or both, depending on the nature of the disruption.

Major Causes:

- Damage to **submarine fibre-optic cables**.
- **Cyberattacks** targeting critical digital infrastructure.
- Large-scale **power failures**.
- Hardware or software failures.
- **Natural disasters** such as earthquakes and tsunamis.
- Deliberate sabotage or armed conflict.
- Human activities such as ship anchors and fishing operations damaging submarine cables.

Components of Internet Infrastructure:

Submarine Fibre-Optic Cables:

- More than **99% of international internet data traffic** is carried through **submarine telecommunication cables**, making them the backbone of the global digital economy.
- These cables connect continents and support:
  - International communication.
  - Banking and financial transactions.
  - Cloud computing.

- Digital commerce.
- Government services.

Cable Landing Stations:

- Cable Landing Stations are facilities where submarine cables connect with terrestrial communication networks.
- They distribute international internet traffic into domestic fibre networks.

Internet Exchange Points:

- Internet Exchange Points allow internet service providers to exchange domestic traffic locally instead of routing it through foreign networks.
- Strong domestic exchange infrastructure improves network resilience during international disruptions.

Data Centres:

- Data centres store, process, and distribute digital information.
- A geographically distributed network of data centres reduces dependence on distant facilities and strengthens disaster recovery capabilities.

Traffic Rerouting During Cable Failures:

How Rerouting Works:

- When one submarine cable fails, internet traffic is redirected through:
  - Alternative submarine cables.
  - Different cable landing stations.
  - Other Internet Exchange Points.
  - Backup terrestrial fibre networks.
- Traffic rerouting usually prevents complete internet outages but may lead to:
  - Higher latency.
  - Reduced internet speed.
  - Network congestion.

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Impact of a Major Internet Blackout:

Economic Impact:

- Disruption of:
  - Digital payments.
  - Banking services.
  - Stock markets.
  - E-commerce.
  - Cloud-based businesses.

Governance Impact:

- Interruptions in:
  - Digital governance platforms.

- Public service delivery.
- Emergency response systems.
- Law enforcement communication.

Social Impact:

- Reduced access to:
  - Online education.
  - Telemedicine.
  - Social communication.
  - Remote working platforms.

Measures to Strengthen India's Digital Resilience:

Infrastructure Measures:

- Diversify international **submarine cable routes**.
- Establish additional **Cable Landing Stations** across different coastal locations.
- Expand domestic **optical fibre networks**.
- Promote geographically distributed **Internet Exchange Points**.
- Increase regional **data centre** capacity.

Operational Measures:

- Develop robust **disaster recovery mechanisms**.
- Conduct regular **network failover testing**.
- Ensure genuine **route diversity** across telecom operators.
- Strengthen protection of critical digital infrastructure through continuous cybersecurity monitoring.

Policy Measures:

- Promote public-private investment in resilient digital infrastructure.
- Enhance international cooperation for protection and rapid repair of submarine cable systems.
- Integrate digital infrastructure resilience into national **critical infrastructure protection** strategies. Recent international recommendations also emphasize coordinated action to improve submarine cable resilience and protect essential digital services.

Relevance for India:

Strategic Importance:

- India's expanding **Digital Public Infrastructure**, growing **digital economy**, increasing cloud adoption, and expanding **artificial intelligence** ecosystem require highly resilient communication infrastructure.
- Reliable internet connectivity is increasingly essential for **economic growth**, **national security**, **financial stability**, and **digital governance**.

Value Addition for UPSC:

Important Terms:

- **Internet Blackout**.
- **Digital Resilience**.
- **Submarine Fibre-Optic Cable**.
- **Cable Landing Station**.
- **Internet Exchange Point (IXP)**.
- **Route Diversity**.
- **Network Redundancy**.
- **Critical Information Infrastructure**.
- **Disaster Recovery**.
- **Failover Mechanism**.

Important Institutions and Initiatives:

- **Indian Computer Emergency Response Team (CERT-In)** is the national agency for responding to cybersecurity incidents.
- **National Critical Information Infrastructure Protection Centre (NCIIPC)** protects critical information infrastructure under the **Information Technology Act, 2000**.
- **BharatNet** aims to expand high-speed broadband connectivity to rural India.
- **Digital India Programme** seeks to strengthen digital infrastructure as a core utility for governance and public service delivery.

West Asia Tensions Renew India's Push Towards Biogas to Strengthen Energy Security and Reduce Import Dependence

Recent Developments:

- The recent escalation of conflicts in **West Asia** has renewed concerns over India's **Liquefied Petroleum Gas (LPG)** supply because nearly **90%** of India's LPG imports transit through the strategically important **Strait of Hormuz**.
- In response, the Government of India has intensified efforts to promote **Biogas** and **Compressed Biogas (CBG)** as indigenous, renewable alternatives capable of enhancing long-term **energy security** and reducing dependence on imported fossil fuels.

Biogas and India's Energy Security Architecture:

What is Biogas?

- **Biogas** is a **renewable**, **carbon-neutral** gaseous fuel produced through the biological decomposition of biodegradable organic matter under oxygen-free conditions.
- It primarily consists of **Methane (CH_4)**, **Carbon Dioxide (CO_2)** and small quantities of other gases.
- After purification and compression, biogas is converted into **Compressed Biogas (CBG)**, which is chemically equivalent to **Compressed Natural Gas (CNG)** and can be used as its direct substitute.

Importance for India's Energy Security:

- India imports nearly **85%** of its crude oil requirement, making the economy highly vulnerable to external geopolitical disruptions and volatile energy markets.
- Expanding domestic **CBG** production can diversify India's energy basket, strengthen energy self-reliance, and reduce foreign exchange expenditure on fossil fuel imports.

Key Facts and Statistics:

Energy Import Dependence:

- India meets around **85%** of its crude oil demand through imports, exposing the country to supply disruptions and global price fluctuations.

Feedstock Market Trends:

- The administered price of **maize-based biofuels** recorded a **Compound Annual Growth Rate (CAGR)** of **11.7%** between **FY22** and **FY25**.
- Higher procurement prices have encouraged excessive maize cultivation, affecting crop diversification and food security.

Financial Support under GOBARdhan:

- Under the **GOBARdhan** initiative, financial assistance of up to **₹50 lakh per district** is available for establishing community and cluster-based biogas plants.

Pipeline Infrastructure Support:

- The Government has allocated **₹994 crore** under the **Development of Pipeline Infrastructure (DPI) Scheme** to connect CBG plants with the **City Gas Distribution (CGD)** network and the national gas grid.

Formation of Biogas:

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Anaerobic Digestion Process:

- Biogas is produced when microorganisms decompose animal dung, crop residues, food waste and sewage in the complete absence of oxygen.

Hydrolysis and Acidogenesis:

- Complex organic compounds such as carbohydrates, proteins and fats are converted into simpler soluble compounds and volatile fatty acids through microbial activity.

Methanogenesis:

- **Methanogenic Archaea** convert volatile fatty acids and hydrogen into methane, which forms the principal energy component of biogas.

Purification and Compression:

- Raw biogas undergoes purification to remove **Carbon Dioxide**, **Hydrogen Sulphide (H_2S)** and moisture.
- The methane concentration is increased to more than **90%**, after which the gas is compressed to produce **Compressed Biogas (CBG)**.

Strategic Importance of Biogas:

Reducing Fossil Fuel Dependence:

- **CBG** can directly replace fossil-based **CNG** in transport and industrial applications using locally available feedstock.
- Indigenous production reduces vulnerability to disruptions at global maritime chokepoints.

Supporting Clean Cooking Energy:

- Purified **Biomethane** can be supplied through **Piped Natural Gas (PNG)** networks for domestic cooking.
- Mandatory blending obligations are expected to gradually integrate **CBG** into urban gas distribution systems.

Promoting Decentralised Rural Energy:

- Rural biogas plants can generate electricity for local agricultural processing units and off-grid communities.
- Community-based plants under the **GOBARdhan** initiative also support local energy security.

Producing Organic Fertilisers:

- Digestion leaves behind nutrient-rich **Bio-slurry**, which functions as an organic fertiliser.
- Bio-slurry improves soil fertility, enhances soil organic carbon and reduces dependence on chemical fertilisers.

Supporting Circular Economy:

- Biogas production converts agricultural residues, animal waste and municipal organic waste into valuable energy and fertilisers.
- The process simultaneously addresses waste management, resource efficiency and greenhouse gas mitigation.

Major Government Initiatives:

GOBARdhan Scheme:

- **GOBARdhan (Galvanising Organic Bio-Agro Resources Dhan)** is a flagship **Waste-to-Wealth** initiative promoting scientific management of biodegradable waste through biogas and CBG production.
- The scheme integrates support from multiple ministries for feedstock collection, plant establishment, pipeline connectivity and bio-fertiliser utilisation.

SATAT Initiative:

- **SATAT (Sustainable Alternative Towards Affordable Transportation)** was launched in **2018** to promote commercial production of **Compressed Biogas** and its marketing through Oil Marketing Companies.
- The initiative initially targeted establishment of **5,000 CBG plants**, although implementation has progressed slower than expected.

Mandatory CBG Blending:

- The **National Biofuels Coordination Committee** approved phased mandatory blending of **CBG** in **CNG** for transport and **PNG** for domestic consumers.
- Blending obligations begin at **1%** and are planned to increase progressively to **5%** by **FY29**.

Challenges Facing the Biogas Sector:

Feedstock Collection Constraints:

- Seasonal availability of crop residues and dispersed livestock holdings increase transportation costs and complicate biomass aggregation.
- Limited availability of specialised biomass collection machinery further delays project implementation.

Food Security Concerns:

- Attractive pricing for selected biofuel feedstocks encourages monocropping, reducing cultivation of pulses and oilseeds.
- Such distortions may increase dependence on imports of edible oils and other food commodities.

High Capital Requirement:

- Modern purification systems, corrosion-resistant equipment and compression facilities require substantial initial investment.
- Small developers often face difficulties in obtaining institutional finance and meeting technical compliance requirements.

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Limited Pipeline Connectivity:

- Many rural biogas plants remain distant from **City Gas Distribution** networks.
- Inadequate pipeline infrastructure forces producers to transport CBG by road, increasing costs and reducing commercial viability.

Slow Project Implementation:

- Although numerous Letters of Intent have been issued under **SATAT**, commissioning of commercial CBG plants has remained slower than originally envisaged because of logistical, financial and regulatory constraints.

Way Forward:

Prioritise Agricultural Waste over Food Crops:

- Feedstock policy should focus primarily on crop residues, animal manure and municipal organic waste instead of food grains.
- This approach can simultaneously strengthen energy security and protect food security.

Replicate the Ethanol Blending Model:

- Long-term purchase guarantees, fiscal incentives and robust monitoring mechanisms similar to the **Ethanol Blending Programme (EBP)** can accelerate CBG adoption.
- India's ethanol blending in petrol reached **20%** by **late 2025**, demonstrating the effectiveness of coordinated policy support.

Strengthen Financial Incentives:

- Accelerated depreciation benefits, tax incentives and concessional financing can attract greater private investment into commercial biogas infrastructure.

Improve Infrastructure:

- Fast-track utilisation of infrastructure allocations for biomass aggregation machinery and pipeline connectivity.
- Expand direct connections between rural biogas plants and the national gas grid to reduce transportation costs.

Promote Research and Innovation:

- Develop efficient digestion technologies, advanced purification systems and improved biomass logistics to enhance plant productivity and commercial viability.

Conclusion:

- **Biogas** offers India a strategic opportunity to simultaneously enhance **energy security**, strengthen **waste management**, support **rural incomes**, reduce **greenhouse gas emissions**, and promote a **circular economy**.
- Sustained policy support, reliable infrastructure, diversified feedstock utilisation and greater private participation will be essential to transform biogas into a major pillar of India's clean energy transition.

Value Addition for UPSC:

Important Terms:

- **Biogas**.
- **Compressed Biogas (CBG)**.
- **Compressed Natural Gas (CNG)**.
- **Piped Natural Gas (PNG)**.
- **Anaerobic Digestion**.
- **Methanogenesis**.
- **Bio-slurry**.

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- **Circular Economy**.
- **Waste-to-Wealth**.
- **Energy Security**.

Important Schemes and Institutions:

- **GOBARdhan (Galvanising Organic Bio-Agro Resources Dhan)**.
- **SATAT (Sustainable Alternative Towards Affordable Transportation)**.
- **National Biofuels Coordination Committee (NBCC)**.
- **City Gas Distribution (CGD)** Network.
- **Development of Pipeline Infrastructure (DPI) Scheme**.
- **Ministry of Petroleum and Natural Gas (MoPNG)**.
- **Ministry of New and Renewable Energy (MNRE)**.

India Achieves Near-Universal Birth and Death Registration, Strengthening Civil Registration System for Evidence-Based Governance

Recent Developments:

- According to the latest data released by the **Office of the Registrar General and Census Commissioner of India**, the country officially registered over **99%** of its estimated births and deaths during **2024**.
- **Birth registration** reached **99.1%**, while **death registration** increased to **99.4%**, marking a significant improvement in India's **Civil Registration System (CRS)** over the past decade.
- The achievement strengthens India's capacity to generate reliable **vital statistics**, improve governance, and support evidence-based policymaking.

Civil Registration System (CRS):

What is the Civil Registration System?

- The **Civil Registration System (CRS)** is a continuous, compulsory, and permanent system for recording **births**, **deaths**, and **stillbirths** occurring across the country.
- It provides the most important source of **vital statistics**, enabling estimation of **fertility**, **mortality**, **sex ratio at birth**, and population dynamics.
- The system is implemented under the **Registration of Births and Deaths Act, 1969**, which came into force in **1970** and was substantially amended through the **Registration of Births and Deaths (Amendment) Act, 2023**.

Institutional Framework:

- The **Office of the Registrar General and Census Commissioner of India**, functioning under the **Ministry of Home Affairs**, coordinates and monitors the Civil Registration System at the national level.
- Registration of births and deaths is primarily the responsibility of State Governments and Union Territory Administrations through designated local registrars.

Registration Process:

- Births and deaths should ordinarily be registered within **21 days** of occurrence.
- In hospitals and health institutions, the **Medical Officer-in-Charge** or an authorised official reports the event.
- For home-based events, responsibility rests with the head of the household or another legally prescribed informant.

Progress Towards Near-Universal Registration:

Improvement in Registration Coverage:

- Registration coverage has improved steadily over the past several decades:
  - **Up to 2000:** Birth registration stood at approximately **56%**, while death registration remained around **48%**.
  - **2014:** Birth registration increased to nearly **86.6%**, while death registration reached **72.5%**.
  - **2024:** Birth registration reached **99.1%**, and death registration reached **99.4%**.

State-wise Progress:

- During **2024**:
  - **18 States and Union Territories** achieved **100% birth registration**.
  - **21 States and Union Territories** achieved **100% death registration**.
- States such as **Kerala**, **Arunachal Pradesh**, **Himachal Pradesh**, and **Goa** had already achieved universal birth registration during the early **2000s**.

Significance of Near-Universal Registration:

Reliable Vital Statistics:

- A complete **Civil Registration System** provides continuous and accurate demographic information essential for evidence-based public policy.
- It supports reliable estimation of fertility rates, mortality rates, life expectancy, infant mortality, and population growth.

Public Health Planning:

- Registration data enables governments to:
  - Monitor disease patterns.
  - Assess the effectiveness of health programmes.
  - Identify vulnerable population groups.
  - Plan vaccination and maternal-child health interventions.
- During the **COVID-19 pandemic**, timely death registration assisted governments in identifying high-risk districts and allocating health resources.

Monitoring Environmental Health Risks:

- Continuous mortality data helps assess seasonal mortality associated with:
  - Heat waves.
  - Air pollution.

- Extreme weather events.
- Disease outbreaks.

Supporting Decentralised Governance:

- District-level and sub-district-level registration data supports local planning far more effectively than national-level estimates.
- Local governments can design targeted interventions based on actual demographic changes.

Legal Identity and Welfare Delivery:

- Birth certificates establish legal identity and facilitate access to:
  - Education.
  - Aadhaar enrolment.
  - Passport issuance.
  - Voter registration.
  - Government welfare schemes.
- Death certificates are essential for:
  - Pension settlement.
  - Insurance claims.
  - Property succession.
  - Banking procedures.
  - Inheritance matters.

Other Sources of Population Data in India:

Population Census:

- Conducted every **10 years**, the Census provides comprehensive demographic information but cannot generate annual estimates.

Sample Registration System (SRS):

- The **Sample Registration System (SRS)** provides continuous estimates of births, deaths, fertility, and mortality through a nationally representative sample.
- It has historically been India's principal source for annual demographic estimates.

Household Surveys:

- Surveys such as the **National Family Health Survey (NFHS)** provide valuable demographic and health indicators but do not produce annual district-level estimates.

Importance of CRS Compared to Other Sources:

- Unlike the Census or household surveys, the **Civil Registration System** generates continuous, event-based demographic information throughout the year.
- A complete CRS therefore fills a critical gap in India's demographic information system.

Factors Behind Rapid Improvement:

Factors Driving Birth Registration:

- Expansion of institutional deliveries through government health programmes.
- Birth certificates becoming mandatory for:
  - School admissions.
  - Identity documents.
  - Welfare benefits.
  - Aadhaar enrolment.

Factors Driving Death Registration:

- Expansion of institutional healthcare access through public health insurance.
- Wider coverage under **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY)** increased formal reporting of deaths.
- Death certificates became essential for pensions, insurance settlements, inheritance, banking, and property transfer.

Role of Digitalisation:

- The **Registration of Births and Deaths (Amendment) Act, 2023** strengthened digital registration mechanisms.
- The amendment enabled a digitally integrated birth registration system linked with educational institutions and public services.

Administrative Factors:

- Improvements also resulted from:
  - Greater public awareness.
  - Better institutional healthcare.
  - Improved registration infrastructure.
  - Enhanced administrative capacity at the State level.

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Challenges Remaining:

Regional Disparities:

- Registration coverage continues to vary significantly across States and between rural and urban areas.

Delayed Registration:

- Many births and deaths are still registered after the prescribed **21-day** period, reducing the usefulness of real-time demographic information.

Under-registration of Infant Deaths:

- During **2024**, nearly **84.2%** of registered infant deaths occurred in urban areas, while only **15.8%** were reported from rural areas.

- Considering higher infant mortality and larger populations in rural India, the figures indicate substantial under-registration of infant deaths in rural regions.

Medical Certification of Cause of Death:

- Registration of death does not automatically ensure **Medical Certification of Cause of Death (MCCD)**.
- Many deaths continue to lack medically certified causes, limiting the usefulness of CRS for epidemiological research, disease surveillance, and public health planning. The Government is also working to strengthen the **Medical Certification of Cause of Death** system alongside CRS improvements.

Measurement Limitations:

- Completeness of CRS death registration is estimated using **Sample Registration System** data.
- Since several studies indicate undercounting within the Sample Registration System itself, actual completeness of CRS registration may differ from current estimates.

Way Forward:

Improve Data Quality:

- Future reforms should focus not only on universal coverage but also on:
  - Timely registration.
  - Accurate demographic records.
  - Better verification mechanisms.
  - High-quality digital databases.

Strengthen Medical Certification:

- Expand institutional medical certification of deaths to improve disease surveillance and mortality analysis.

Reduce Regional Disparities:

- Strengthen registration infrastructure in underserved districts and rural areas through greater administrative capacity and public awareness.

Develop Internal Migration Database:

- India can consider establishing a systematic mechanism for recording internal migration to improve urban planning, welfare targeting, disaster management, and labour market analysis.

Enhance Digital Integration:

- Further integrate CRS databases with other digital governance platforms while ensuring privacy, cybersecurity, and responsible data governance.

Conclusion:

- India's achievement of near-universal **birth** and **death registration** represents a major milestone in strengthening administrative governance and demographic statistics.

- Sustained improvements in **data quality**, **timeliness**, **medical certification**, and **digital integration** will enable the **Civil Registration System** to become a robust foundation for evidence-based policymaking and inclusive governance.

Value Addition for UPSC:

Important Terms:

- **Civil Registration System (CRS).**
- **Vital Statistics.**
- **Stillbirth Registration.**
- **Sample Registration System (SRS).**
- **Medical Certification of Cause of Death (MCCD).**
- **Vital Events.**
- **Demographic Transition.**
- **Population Register.**
- **Evidence-Based Governance.**

Important Acts and Institutions:

- **Registration of Births and Deaths Act, 1969.**
- **Registration of Births and Deaths (Amendment) Act, 2023.**
- **Office of the Registrar General and Census Commissioner of India (ORGI).**
- **Ministry of Home Affairs (MHA).**
- **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY).**
- **Sample Registration System (SRS).**
- **National Family Health Survey (NFHS).**

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West Asia Tensions Renew Strategic Focus on Compressed Biogas for India's Long-Term Energy Security Transition

Recent Developments:

- Continued geopolitical tensions in **West Asia** have highlighted India's energy vulnerability due to its heavy dependence on imported hydrocarbons.
- Renewed concerns over disruptions in the **Strait of Hormuz**, through which nearly **90%** of India's **LPG** imports transit, have strengthened policy focus on **Compressed Biogas (CBG)** as a domestic, renewable alternative fuel.
- Despite sustained policy support through initiatives such as **SATAT**, **GOBARdhan**, and the **CBG Blending Obligation**, the pace of implementation remains considerably below targets, prompting calls for stronger financial incentives, infrastructure expansion, and waste-based feedstock utilisation.

India's Energy Vulnerability:

Dependence on Imported Hydrocarbons:

- India imports nearly **85%** of its crude oil requirement, making the economy highly vulnerable to global supply disruptions and price volatility.
- A substantial share of India's hydrocarbon imports originates from **West Asia**, exposing the country to geopolitical conflicts in the region.
- Although India has diversified crude oil suppliers over the years, around **90%** of **LPG** imports continue to pass through the **Strait of Hormuz**, making uninterrupted maritime trade essential for national energy security.

Implications for Energy Security:

- Disruptions in international supply chains can adversely affect fuel availability, inflation, fiscal stability, transportation, industrial production, and household energy consumption.
- Strengthening domestic renewable fuels has therefore become an important component of India's long-term **Energy Security Strategy**.

Biogas and Compressed Biogas (CBG):

What is Biogas?

- **Biogas** is a renewable gaseous fuel produced through the **Anaerobic Digestion** of organic materials such as cattle dung, agricultural residues, municipal organic waste, food waste, and sewage.
- It primarily consists of **Methane (CH_4)**, **Carbon Dioxide (CO_2)**, and trace gases.

What is Compressed Biogas (CBG)?

- After purification and compression, biogas is converted into **Compressed Biogas (CBG)**.
- **CBG** is chemically equivalent to **Compressed Natural Gas (CNG)** and can directly replace fossil-based natural gas in transport, industries, and domestic applications.
- Since it is produced from renewable biomass, **CBG** is considered a **Carbon-Neutral Fuel**.

Advantages of Biogas:

Energy Security:

- Domestic production of **CBG** reduces dependence on imported crude oil and natural gas.
- It diversifies India's energy basket and improves resilience against international supply disruptions.

Environmental Benefits:

- Biogas converts agricultural residues and organic waste into clean energy, reducing methane emissions from uncontrolled decomposition.
- It supports India's commitments under the **Paris Agreement** and contributes towards achieving **Net Zero** emission goals.

Waste Management:

- Biogas promotes scientific utilisation of cattle dung, crop residues, municipal organic waste, food waste, and sewage.
- It reduces open dumping, stubble burning, and associated environmental pollution.

Rural Economy:

- Biogas plants generate additional income for farmers through biomass supply.
- Production of **Bio-slurry** provides nutrient-rich organic manure that improves soil health while reducing dependence on chemical fertilisers.

Multiple End Uses:

- **CBG** can be utilised for:
  - Electricity generation.
  - Industrial heating.
  - Household cooking.
  - Transportation fuel.
  - Injection into the **City Gas Distribution (CGD)** network.

Government Initiatives:

SATAT Initiative:

- The **Sustainable Alternative Towards Affordable Transportation (SATAT)** initiative was launched in **2018** to establish **5,000** commercial **CBG** plants across the country.
- As of **3 June 2026**, only **132** plants had become operational, highlighting a significant implementation gap.

GOBARdhan Scheme:

- The **Galvanising Organic Bio-Agro Resources Dhan (GOBARdhan)** Scheme promotes conversion of organic waste into wealth through biogas and bio-fertiliser production.
- Financial support includes:
  - Grants up to **₹50 lakh** per district for community biogas plants.
  - **₹564 crore** for biomass collection machinery.
  - **₹994 crore** for pipeline infrastructure connecting **CBG** plants with the gas grid.

Mandatory CBG Blending:

- In **2023**, the **National Biofuels Coordination Committee (NBCC)** approved mandatory blending of **CBG** in the **CGD** sector.
- The blending obligation begins at **1%** during **FY26** and will gradually increase to **5%** by **FY29**.

Budget Announcement:

- The **Union Budget 2024-25** announced phased mandatory blending of **CBG** in **CNG** used for transportation and **Piped Natural Gas (PNG)** supplied for domestic cooking.

Ground Reality and Implementation Status:

Slow Progress:

- Despite ambitious policy targets, actual commissioning of commercial **CBG** plants remains limited.
- According to Government data released during **August 2025**, only **36** medium-sized biogas plants had been established under the **MNRE Biogas Programme** during the preceding three years.

Implementation Gap:

- The gap between policy announcements and project execution indicates persistent structural constraints requiring targeted policy intervention.

Major Challenges:

Infrastructure Deficit:

- Inadequate biomass collection systems, transportation facilities, pipeline connectivity, and storage infrastructure increase project costs.

Financial Constraints:

- High initial capital requirements discourage private investment.
- Small developers face difficulties in accessing institutional finance and affordable credit.

Technology Costs:

- Advanced purification, compression, and quality control technologies require substantial investment and specialised technical expertise.

Limited Private Sector Participation:

- Uncertain commercial returns and regulatory delays reduce investor confidence in the sector.

Lessons from International Experience:

Germany's Experience:

- Germany significantly expanded biogas production through the **Renewable Energy Sources Act, 2000**, which guaranteed long-term producer income.
- However, generous incentives encouraged extensive cultivation of maize exclusively for biogas production.
- Excessive dependence on maize reduced crop diversity and created concerns regarding food security.
- The Government subsequently imposed limits on maize utilisation as feedstock for biogas plants.

Denmark's Model:

- Denmark aims to replace conventional natural gas with biomethane by **2030**.
- The country discourages cultivation of dedicated energy crops for biogas production.

- Livestock manure, agricultural residues, and organic waste constitute the principal feedstock, thereby avoiding competition with food production.

Emerging Challenges for India:

Changing Cropping Pattern:

- The **Economic Survey 2025-26** observed rapid expansion in maize cultivation.
- Maize productivity increased from approximately **2.56 tonnes/hectare** in **FY16** to **3.78 tonnes/hectare** in **FY25**.

Food Security Concerns:

- Attractive administered pricing for maize-based ethanol has encouraged farmers to shift away from pulses, oilseeds, millets, soybean, and cotton.
- Such crop substitution could increase India's dependence on imports of edible oils and pulses while reducing agricultural diversification.

Feedstock Competition:

- Excessive dependence on food crops for biofuel production may create long-term conflicts between **Energy Security** and **Food Security**.

Way Forward:

Prioritise Waste-Based Feedstock:

- Agricultural residues, cattle dung, municipal organic waste, and sewage should remain the primary feedstock for biogas production.
- Food crops should be avoided wherever possible to safeguard national food security.

Strengthen Financial Incentives:

- Government support may include:
  - Accelerated depreciation.
  - Tax holidays.
  - Interest subvention.
  - Viability Gap Funding.
  - Long-term purchase guarantees.

Expand Infrastructure:

- Accelerate development of biomass aggregation systems, storage facilities, pipeline connectivity, and **City Gas Distribution** infrastructure.

Improve Access to Finance:

- Simplify institutional lending procedures for small developers and provide dedicated financing mechanisms for renewable gas projects.

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Replicate Ethanol Blending Success:

- India increased ethanol blending in petrol from **1.5%** in **2014** to **20%** by **December 2025**, achieving the target five years ahead of schedule.
- Similar policy consistency, assured procurement, and infrastructure support could accelerate **CBG** adoption.

Strengthen Circular Economy:

- Promote integrated waste management systems combining renewable energy production, organic fertiliser generation, methane mitigation, and sustainable agriculture.

Conclusion:

- **Compressed Biogas** offers India a strategic opportunity to simultaneously strengthen **Energy Security**, reduce fossil fuel imports, improve waste management, enhance rural incomes, and support climate commitments.
- Achieving these objectives will require sustained policy support, faster infrastructure development, stronger private investment, and prioritisation of waste-based feedstock over food crops to balance both **Energy Security** and **Food Security**.

Value Addition for UPSC:

Important Terms:

- **Biogas**.
- **Compressed Biogas (CBG)**.
- **Compressed Natural Gas (CNG)**.
- **Piped Natural Gas (PNG)**.
- **Anaerobic Digestion**.
- **Bio-slurry**.
- **Carbon-Neutral Fuel**.
- **City Gas Distribution (CGD)**.
- **Circular Economy**.
- **Energy Security**.

Important Schemes and Institutions:

- **Sustainable Alternative Towards Affordable Transportation (SATAT)**.
- **Galvanising Organic Bio-Agro Resources Dhan (GOBARdhan)**.
- **National Biofuels Coordination Committee (NBCC)**.
- **Ministry of New and Renewable Energy (MNRE)**.
- **National Policy on Biofuels, 2018**.
- **Pradhan Mantri JI-VAN Yojana**.
- **Global Biofuels Alliance**.

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QUESTIONS

1. Based on the latest Supreme Court jurisprudence, what is the correct legal position for this individual?

(1) The individual has lost all remedies because Section 9 of the Foreigners Act, 1946, places an absolute burden of proof that cannot be re-examined once an order is passed.

(2) The individual can challenge the order on the grounds of violation of Article 21, as the deprivation of citizenship requires a fair, lawful, and reasonable procedure.

(3) The High Court or Supreme Court can set aside the order and direct the tribunal to reconsider the case on its merits, providing a fresh opportunity to file written statements and produce witnesses.

(4) The presence of a procedural default or delay in discovering the order completely invalidates their government-issued citizenship documents automatically.

Which of the statements given above holds true?

(A) 1 and 4 only

(B) 2, 3, and 4 only

(C) 2 and 3 only

(D) 1, 2, and 3 only

2. Consider the following statements regarding global internet infrastructure and internet blackout preparedness:

(1) A higher digital vulnerability score signifies better preparedness to withstand a digital breakdown.

(2) Internet Exchange Points (IXPs) are designed to route domestic traffic through foreign networks.

(3) Rerouting data traffic through alternative landing stations ensures that latency remains completely unchanged.

(4) High domestic internet usage mathematically reduces a country's economic vulnerability during blackouts.

(5) Submarine fibre-optic cables carry the overwhelming majority of international internet traffic.

Which of the statements given above is/are correct?

(A) 5 only

(B) 1, 2, and 5 only

(C) 3 and 4 only

(D) 1, 2, 3, and 4 only

3. With reference to alternative fuel production and strategic energy corridors, consider the following terms:

(1) Methanogenesis

(2) Cryogenic Scrubbing

(3) Strait of Hormuz

(4) Feedstock Market Distortion

Which of the terms given above are directly associated with the biochemical enrichment process of raw biogas and the maritime chokepoint vulnerabilities of India's energy architecture?

(A) 1 and 3 only

(B) 2 and 4 only

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(C) 1, 2, and 3 only

(D) 1, 2, 3, and 4

4. If a state administration heavily expands the outreach of public health insurance platforms like PM-JAY and enforces post-delivery monetary benefit transfers directly linked to institutional stays, which of the following systemic changes would naturally manifest in the CRS indicators?

(1) A structural drop in the overall timeline required to detect seasonal mortality shifts.

(2) A rapid closing of the historical statistical gap that existed between birth registrations and death registrations.

(3) An automatic correction of the regional disparities caused by differing state administrative capacities.

(4) A rise in both birth and death registration percentages due to enhanced formal health-system interaction and documentation requirements.

Select the correct answer using the code given below:

(A) 1, 2, and 4 only

(B) 1 and 3 only

(C) 2, 3, and 4 only

(D) 2 and 4 only

5. Consider the following conceptual pairs regarding resource vulnerabilities and economic distortions:

Concept / Model	**Practical Systemic Bottleneck Explained**
(1) Danish Model Shift	Prioritizing food crops over animal manure for energy production.
(2) Measurement Circularity	Assessing administrative data coverage using flawed sample surveys.
(3) Biomass Supply Chain Friction	Logistical delays in collecting crop residues from fragmented holdings.
(4) Cultivation Trap Phenomena	Using tax incentives like accelerated depreciation to lower private risks.

How many of the pairs given above are correctly matched?

(A) Only one pair

(B) Only two pairs

(C) Only three pairs

(D) All four pairs

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ANSWER KEY

1 – Answer (C), 2 – Answer (A), 3 – Answer (C), 4 – Answer (D), 5 – Answer (B)

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Being well-informed reflects adaptability, awareness, and intellectual curiosity—qualities that are highly valued in a competitive environment. A strong grasp of contemporary issues enhances confidence, widens perspective, and prepares individuals to tackle real-world challenges effectively, ultimately opening the door to better opportunities and long-term personal and career advancement.

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