



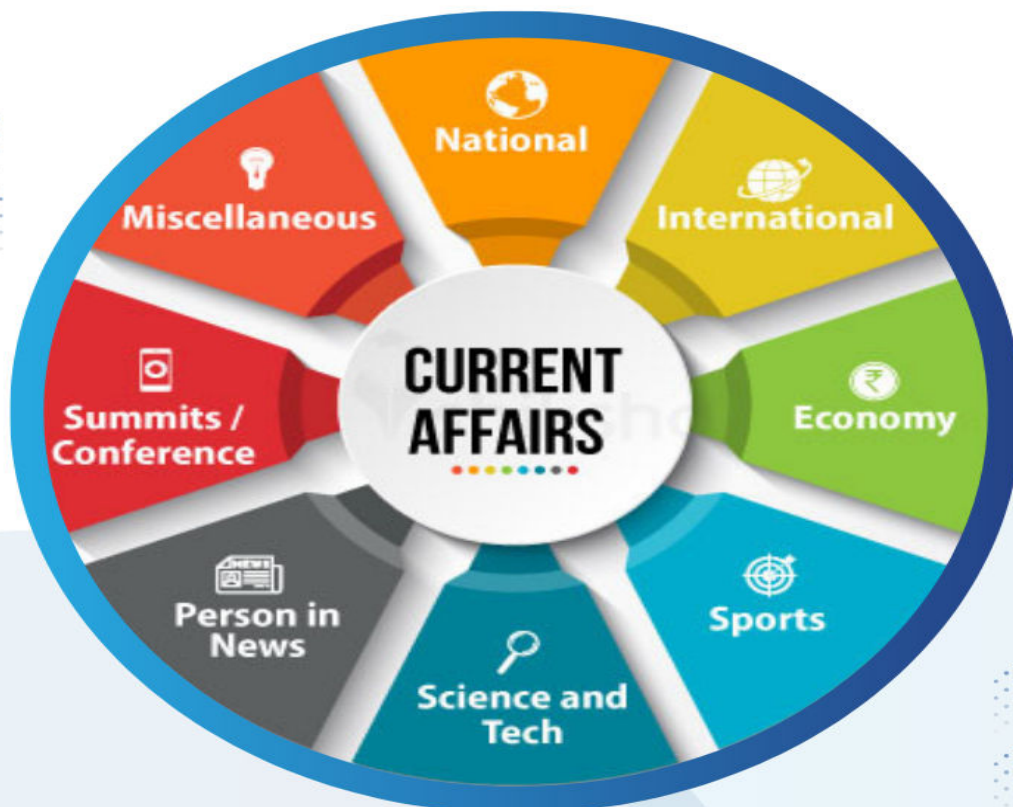
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VIDHVATH IAS KAS ACADEMY & STUDY CENTRE

DAILY CURRENT AFFAIRS

FOR UPSC CIVIL SERVICE EXAMINATION

DATE: 19/06/2026 (FRIDAY)



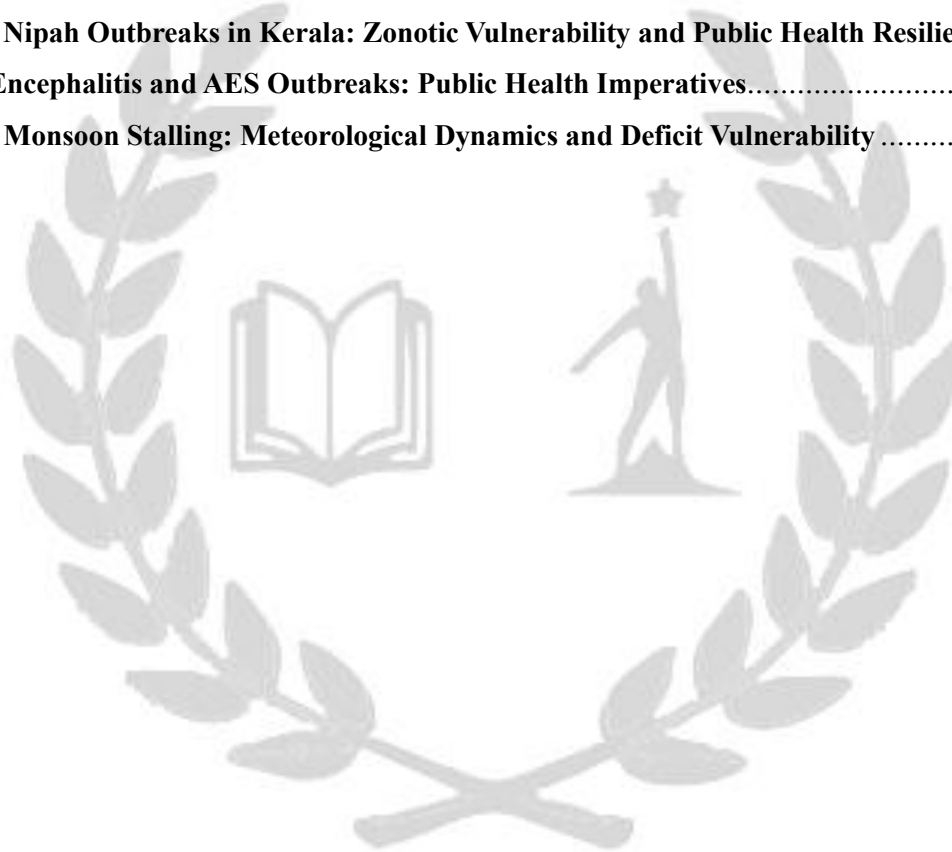
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Table of Contents

1. Building India's SpaceX: Potential and Pitfalls	2
2. Direct Tax Buoyancy and Fiscal Momentum in India	3
3. India-UK Ceta: Strategic Breakthrough in Bilateral Trade	4
4. West Asian Geopolitical Truce: De-escalation and Global Energy Security	5
5. The EWS Quota Debate: Balancing Inclusion and Eligibility Fairness	6
6. Privatisation of Governance: Analytical Lessons on State Capacity	7
7. AI Integration in Infrastructure: NHAI's Quality and Project Oversight Reforms	8
8. NFHS-6: Evaluating India's Health and Nutritional Trajectory	9
9. Beyond Headlines: Regulatory Shift from Tariffs to Non-Tariff Barriers	10
10. Recurrent Nipah Outbreaks in Kerala: Zoonotic Vulnerability and Public Health Resilience	12
11. Japanese Encephalitis and AES Outbreaks: Public Health Imperatives	13
12. Southwest Monsoon Stalling: Meteorological Dynamics and Deficit Vulnerability	14



VIDHVATH IAS ACADEMY



1. Building India's SpaceX: Potential and Pitfalls

Key Summary

- **SpaceX's Market Dominance:** Valued at \$2.5 trillion after its June 2026 public listing, SpaceX's near-monopoly stems from proprietary reusable rocket technology that drastically cut launch costs from \$54 million/kg to under \$3 million/kg.
- **Significance of Reusability:** Reusing booster stages (some over 25 times) prevents engineering destruction, slashes mission costs, democratizes space access for smaller entities, and strengthens US geopolitical influence.

Valuing rocket science

SpaceX is the only trillion-dollar private rocket-maker in the world, and India has a long way to catch up.

	Country	Valuation (\$bn)
SpaceX	US	2,527
Rocket Lab	US	67.5
Firefly	US	5.1
Relativity	US	4.5
Skyroot Aerospace	India	1.2
Agnikul Cosmos	India	0.5

The list does not include Jeff Bezos's Blue Origin and France-based ArianeGroup's Arianespace as the two are private and have not disclosed their financials.

- **India's Strategic Pivot:** India is targeting the lucrative small-satellite market (under 300kg) in Low Earth Orbit (LEO) using lighter, cost-effective, and rapidly deployable launch vehicles.
- **Domestic Private Sector Landscape:** Indian space-tech startups like Skyroot Aerospace (recently turned unicorn) and Agnikul Cosmos are pioneering 3D-printed engines and patented affordable propulsion technologies.
- **Challenges to Scalability:** To rival global giants, Indian firms must secure massive, sustained early-stage capital and achieve launch consistency to build international market trust.
- **Global Competition:** While SpaceX dominates, alternative players include Blue Origin (US), Arianespace (France), and legacy systems like Russia's Soyuz.

Key Definitions

- **Low Earth Orbit (LEO):** An orbit relatively close to Earth's surface, normally at an altitude of less than 1,000km but could be as low as 160km, primary for imaging and communication satellites.
- **Reusable Launch Vehicle (RLV):** A launch system designed to recover parts or the entirety of its rocket stages for subsequent missions, drastically lowering the cost per launch.

Constitutional and Legal Provisions

- **Article 246 (Seventh Schedule):** Entry 6 of the Union List empowers the Parliament of India to legislate exclusively on "Atomic energy and mineral resources necessary for its production" and implicitly governs outer space via residuary powers (Entry 97) and Union jurisdiction over strategic sectors.
- **Indian Space Policy 2023:** Institutionalized the role of the Indian National Space Promotion and Authorization Centre (IN-SPACE) as a single-window clearance nodal agency to promote, handhold, and authorize private sector space activities.
- **FDI Policy Liberalization (2024):** Allowed up to 100% Foreign Direct Investment (FDI) via automated routes in certain space segments (e.g., satellite manufacturing) to ease capital flow for startups.



Conclusion

Transitioning from a state-led model to a thriving private space ecosystem requires India to bridge the capital gap and master reusability. By leveraging IN-SPACE and cost-effective innovations, Indian startups can democratize commercial space delivery globally.

UPSC Relevance

- **GS Paper II:** Government policies and interventions for development in various sectors.
- **GS Paper III:** Science and Technology-indigenization of technology, space technology, and awareness in the fields of space.

2. Direct Tax Buoyancy and Fiscal Momentum in India

- **Revenue Surge:** India's net direct tax collections grew by 14.64% year-on-year to ₹5.21 trillion as of mid-June, outperforming the full-year budget targets for fiscal 2027.
- **Corporate Performance:** Growth is led by corporate tax receipts, which jumped 22.48% to ₹2.08 trillion, indicating strong corporate profitability and structural revival in business confidence.
- **Advance Tax Metrics:** Advance tax collections—a primary barometer of economic health—rose 15.30% to ₹1.78 trillion, driven by a 16.01% expansion in the corporate category.
- **Market Activity:** Securities Transaction Tax (STT) receipts surged by 44.9% to ₹188.56 billion, mirroring sustained capital market buoyancy and high retail participation in equity markets.
- **Fiscal Consolidation:** Gross collections reached ₹6.10 trillion while refunds grew minimally by 1.19% to ₹890.26 billion, providing the exchequer with vital fiscal cushion for developmental capital expenditure.

Key Definitions

- **Direct Tax:** A tax paid directly by an individual or organization to the imposing entity (e.g., Income Tax, Corporate Tax), which cannot be shifted to another party.
- **Tax Buoyancy:** An indicator measuring the efficiency and responsiveness of tax revenue growth relative to the growth in Gross Domestic Product (GDP).
- **Advance Tax:** Income tax paid in installments during the financial year instead of a lump sum at the end of the year, applicable when tax liability exceeds ₹10,000.

Constitutional and Legal Provisions

- **Article 265:** No tax shall be levied or collected except by authority of law, ensuring parliamentary oversight over fiscal extractions.
- **Article 270:** Governs the distribution of net proceeds of direct taxes between the Union and the States based on the recommendations of the Finance Commission.
- **Income Tax Act, 1961:** The statutory framework that regulates the levy, administration, collection, and recovery of direct income and corporate taxes in India.





Conclusion

The robust early revenue performance signals macroeconomic stability, enabling the government to maintain its fiscal deficit Glide Path while sustaining public infrastructure spending without relying on inflationary borrowings.

UPSC Relevance

- **GS Paper III:** Indian Economy and issues relating to planning, mobilization of resources, growth, development, and fiscal policy.

3. India-UK Ceta: Strategic Breakthrough in Bilateral Trade

- **Pact Activation:** The India-UK Comprehensive Economic and Trade Agreement (Ceta) and an accompanying social security pact will officially enter into force on 15 July, marking a landmark shift in bilateral commerce.
- **Steel Safeguards Secured:** India successfully insulated 85% of its steel exports from the UK's upcoming safeguard duties via country-specific quotas and the Authorised Use Scheme, protecting vital market access.
- **Tariff Advantages:** The agreement brings over 99% of Indian exports under zero-duty coverage, providing a 7-10% tariff advantage and boosting UK GDP by an estimated £4.8 billion in the long run.
- **Social Security Benefits:** The exemption period for social security contributions for Indian professionals has been extended from three to five years, expected to save over \$500 million for 75,000 Indian workers.
- **Strategic Flexibility:** The treaty includes robust institutional mechanisms to address emerging trade frictions like the UK's proposed Carbon Border Adjustment Mechanism (CBAM) without reopening the core text.



Key Definitions

- **Comprehensive Economic and Trade Agreement (Ceta):** A deep integration trade pact that reduces tariffs and addresses non-tariff barriers, services, investments, and regulatory cooperation between partner nations.
- **Carbon Border Adjustment Mechanism (CBAM):** A trade tool designed to impose carbon costs on carbon-intensive imports to prevent carbon leakage and protect domestic industries complying with strict climate targets.

Constitutional and Legal Provisions

- **Article 73:** Specifies that the executive power of the Union extends to matters with respect to which Parliament has power to make laws, giving the Central Government exclusive authority to negotiate and conclude international treaties.
- **Article 253:** Empowers Parliament to enact laws for implementing any treaty, agreement, or convention with another country, overriding the ordinary distribution of legislative powers between the Union and States.



- **Entry 14 (Union List):** Specifically covers entering into treaties and agreements with foreign countries and implementing of treaties, agreements, and conventions with foreign countries.

Conclusion

The ratification of the India-UK Ceta represents a major geopolitical and economic victory for New Delhi, establishing a resilient framework that balances immediate industrial protection with long-term services export growth.

UPSC Relevance

- **GS Paper II:** Bilateral, regional, and global groupings and agreements involving India and/or affecting India's interests.
- **GS Paper III:** Effects of liberalization on the economy, changes in industrial policy, and their effects on industrial growth.

4. West Asian Geopolitical Truce: De-escalation and Global Energy Security

- **Interim Diplomatic Breakthrough:** An interim pact between the US and Iran has initiated a 60-day negotiation window to permanently address Tehran's nuclear program and conclude recent military hostilities.
- **Reopening of Strait of Hormuz:** The agreement successfully lifts the maritime blockade on the Strait of Hormuz, a critical global chokepoint, restoring unhindered international crude oil shipments and stabilizing global supply chains.
- **Economic Lifeline for Tehran:** Under the terms, Iran secures immediate relief from primary energy sanctions, enabling the nation to export oil freely and access financial incentives conditional on nuclear compliance.
- **Stabilization of Energy Markets:** The cessation of conflict directly mitigates the global energy crisis, cooling volatile oil prices and allowing consumer nations to roll back emergency fuel supply protocols.
- **Strategic Implications for India:** As India relies heavily on West Asian crude imports, the resolution safeguards its maritime trade corridors, lowers import bills, and secures Indian investments in transit routes like the Chabahar port.

Key Definitions

- **Strategic Chokepoint:** A narrow, geographically constrained maritime passage through which high volumes of global trade or energy resources must pass, making it highly vulnerable to military blockades.
- **Strategic Fuel Reserves:** Emergency crude oil stockpiles maintained by nations to cushion their economies against sudden supply disruptions or geopolitical shocks in energy-producing regions.



Constitutional and Legal Provisions

- **Article 51 (Directive Principles of State Policy):** Mandates that the Indian State shall strive to promote international peace and security, maintain just and honorable relations between nations, and foster respect for international law.



- **United Nations Convention on the Law of the Sea (UNCLOS), 1982:** Codifies international maritime regulations, specifically guaranteeing the right of "transit passage" through international straits used for global navigation, such as the Strait of Hormuz.

Conclusion

The de-escalation in West Asia underscores the primacy of multilateral diplomacy over kinetic conflict. For net energy-importing nations like India, the permanent stabilization of regional shipping lanes remains vital to sustaining macroeconomic growth and shielding domestic markets from inflationary supply shocks.

UPSC Relevance

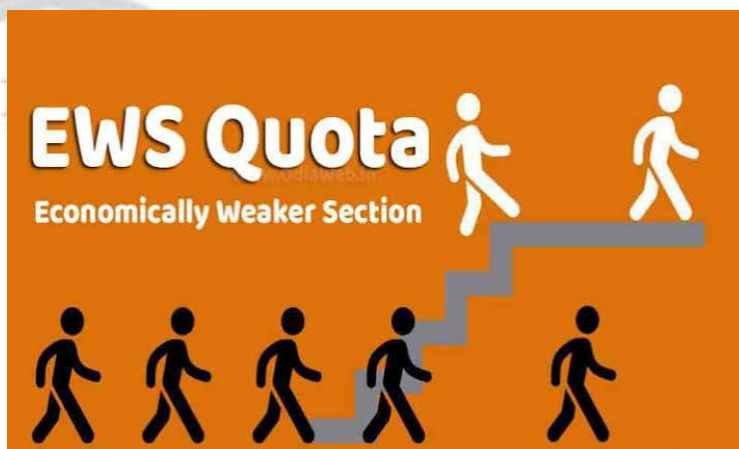
- **GS Paper II:** Effect of policies and politics of developed and developing countries on India's interests, and Indian diaspora.
- **GS Paper III:** Energy security, infrastructure, and mobilization of economic resources.

5. The EWS Quota Debate: Balancing Inclusion and Eligibility Fairness

- **Discrepancy in Beneficiary Profiles:** An investigation reveals a stark divergence within the Economically Weaker Section (EWS) category for the UPSC Civil Services Exam, where individuals from privileged backgrounds (IIT graduates, MNC employees, children of businessmen) share the same quota as children of security guards and railway porters.
- **Statistical Insights:** Out of 104 candidates selected under the 10% EWS quota, 67 attended premium coaching institutes with annual fees up to ₹2.65 lakh, 28 have parents running businesses, 10 held private/MNC jobs, and 14 are graduates from premier institutes like IITs and NITs.
- **The ₹8-Lakh Income Criterion:** The uniform gross annual income limit of ₹8 lakh has drawn scrutiny for being overly broad, potentially allowing individuals with substantial socio-economic capital to crowd out genuinely marginalized candidates.
- **Definition of Family:** According to the 2019 Office Memorandum, "Family" for EWS includes the candidate, parents, minor siblings, spouse, and minor children, which can mask the true economic power of extended or unrecorded household incomes.
- **Policy Implication:** The data highlights a systemic gap between the legislative intent of the EWS quota (uplifting the economically deprived) and its practical implementation, raising serious questions regarding the fairness of current verification parameters.

Key Definitions

- **Economically Weaker Section (EWS):** A sub-category of the General Category population in India having an annual family income below ₹8 lakh and not belonging to any existing reserved categories like SC, ST, or OBC.
- **Socio-Economic Capital:** The non-financial social assets, such as elite education, influential networks, and institutional access, that promote social mobility beyond mere liquid income.





Constitutional and Legal Provisions

- **103rd Constitutional Amendment Act, 2019:** Amended Articles 15 and 16 of the Constitution to permit the State to make special provisions, including up to 10% reservation in educational institutions and public employment, for the advancement of any economically weaker sections.
- **Article 15(6) and Article 16(6):** Explicitly enable reservations for EWS in addition to existing reservations, with economic weakness to be notified by the State based on family income and other indicators of economic disadvantage.
- **Janki Prasad Parimoo Case & Janhit Abhiyan v. Union of India (2022):** The Supreme Court upheld the validity of the 103rd Amendment by a 3:2 majority, affirming that economic criteria alone can form the basis of reservation, though the Court periodically questions the rationale behind the uniform ₹8-lakh ceiling.

Conclusion

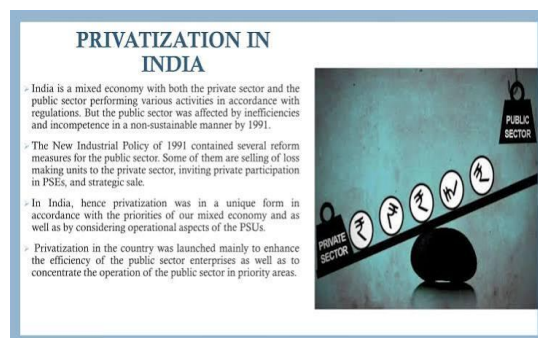
The emerging data underscores the necessity of a fine-tuned, multi-layered filtration mechanism for the EWS quota. To preserve the spirit of distributive justice, eligibility criteria must move beyond a flat income bar to integrate asset-based exclusions, preventing the cornering of affirmative benefits by the relatively affluent general category sections.

UPSC Relevance

- **GS Paper II:** Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions, and Bodies constituted for the protection and betterment of these vulnerable sections.
- **GS Paper II:** Indian Constitution—significant provisions, amendments, and judicial review.

6. Privatisation of Governance: Analytical Lessons on State Capacity

- **Erosion of State Monopoly:** The outsourcing of core sovereign functions, like revenue collection and civic enforcement, to private bouncers or vigilantes compromises the state's traditional monopoly on legitimate physical enforcement.
- **Extra-Constitutional Enforcement:** Private enforcement entities on public corridors (e.g., Delhi-Gurgaon Expressway) resort to coercion, using batons and lathis to extract fines, bypassing legal, due process mechanisms.
- **Perverse Incentives in Subcontracting:** Delegating public management to private actors—such as allowing citizens to capture and commodify stray animals—creates short-term extraction loops rather than structural, institutional solutions.
- **Rational Economic Behavior vs Public Interest:** Private operators and service providers (like cab drivers avoiding tolls) maximize individual utility ($\$Homo\ economicus$), causing systemic negative externalities like traffic bottlenecks and public safety hazards.
- **Rise of Vigilantism:** The outsourcing or abdication of administrative responsibilities normalizes non-state vigilante groups (e.g., moral or cow vigilantism), weakening formal rule-of-law frameworks.





Key Definitions

- **State Capacity:** The institutional, legislative, and physical ability of a government to accomplish its policy goals, enforce laws, collect revenues, and maintain a monopoly over enforcement within its territory.
- **Homo Economicus:** An economic model characterizing humans as rational, narrow self-interested actors who seek to maximize personal utility or profit.

Constitutional and Legal Provisions

- **Article 21:** Guarantees the protection of life and personal liberty. Allowing unauthorized private actors to exercise coercion or physical intimidation on public roads violates a citizen's right to safety and free movement.
- **Seventh Schedule (List II - State List):** Entry 1 (Public Order) and Entry 2 (Police) mandate that maintaining law, order, and physical enforcement is an exclusive sovereign function of state governments.
- **Indian Penal Code (IPC) / Bharatiya Nyaya Sanhita (BNS):** Provisions against wrongful restraint, extortion, and unlawful assembly apply directly to unauthorized private bouncers enforcing financial penalties on public roads.

Conclusion

Subcontracting governance functions to unregulated private entities undermines institutional integrity. For sustainable urban administration, state agencies must strengthen their own regulatory frameworks and public service delivery mechanisms rather than abdicating sovereign responsibilities to informal or coercive market actors.

UPSC Relevance

- **GS Paper II:** Governance, accountability, role of civil services in a democracy, and challenges to internal security.
- **GS Paper IV:** Public/Civil service values and Ethics in Public Administration.

7. AI Integration in Infrastructure: NHAI's Quality and Project Oversight Reforms

- **In-House AI Deployment:** The National Highway Authority of India (NHAI) has deployed a proprietary Artificial Intelligence (AI) system trained on its vast data repository of circulars, codes, and monthly reports to systematically review infrastructure projects.
- **Rectifying Detailed Project Reports (DPRs):** The AI system identifies deficiencies in highway design, faulty signages, and errors in DPRs by cross-referencing submissions against Indian Roads Congress (IRC) codes, checking cost variations that routinely plague large-scale projects.
- **Technical Schedule Analyzer:** NHAI has integrated a specialized Technical Schedule Analyzer tool that automatically reviews technical annexures (Schedules B and C) to enforce regulatory compliance, scoring report completeness and flagging defects by severity.





- **Margsarathi AI Agent:** A chat-based AI assistant, 'Margsarathi,' connected to NHAI's central datalake, enables field engineers to upload photos of problem-hit sites or query policy circulars to receive immediate, guidelines-compliant solutions.
- **Mitigating Governance Bottlenecks:** By parsing through hundreds of pages of Standard Operating Procedures (SOPs), the tool reduces administrative delays, eliminates manual errors by project consultants, and addresses a primary root cause of road accidents and cost overruns.

Key Definitions

- **Detailed Project Report (DPR):** A comprehensive blueprint outlining the technical, financial, and operational viability, alongside the exact physical scope and structural design, of an infrastructure project prior to its execution.
- **Datalake:** A centralized, scalable repository that allows an organization to store vast amounts of structured, semi-structured, and unstructured raw data for deep analysis and machine learning operations.

Legal and Institutional Framework

- **National Highways Authority of India Act, 1988:** An Act of Parliament that established NHAI as an autonomous statutory body responsible for the development, maintenance, and management of National Highways in India.
- **National Strategy for Artificial Intelligence:** Formulated by NITI Aayog, this framework advocates for the integration of AI in public service delivery and core infrastructure sectors to maximize economic impact and governance efficiency.
- **Indian Roads Congress (IRC):** The premier technical body of highway engineers in India, which sets national codes, standards, and technical specifications for road construction and safety.

Conclusion

The incorporation of AI by NHAI marks a significant transition toward technology-driven, preventative governance in infrastructure management. By automating technical audits and cross-referencing complex safety protocols, the state can significantly reduce public asset depreciation, fiscal leakages, and engineering errors.

UPSC Relevance

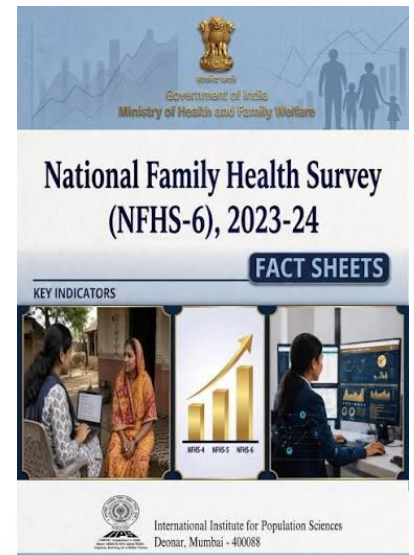
- **GS Paper II:** Governance, accountability, and the application of e-governance models to improve administrative transparency and structural efficiency.
- **GS Paper III:** Infrastructure (Highways), Science and Technology—developments and their applications in everyday governance and industrial growth.

8. NFHS-6: Evaluating India's Health and Nutritional Trajectory

- **Declining Stunting, Static Wasting:** NFHS-6 records a positive reduction in childhood stunting from 35.5% to 29.3% due to improved sanitation and housing, though wasting levels remain largely unchanged.
- **Robust Healthcare Delivery:** Institutional births reached 90% (58% in public facilities) and full immunization coverage among infants hit 87%, showcasing the strong community outreach of ASHA, ANM, and Anganwadi workers.



- **Critical Dietary Deficiencies:** Severe gaps remain in infant feeding practices, with only 50% of newborns breastfed within the first hour and a mere 15% of children aged 6-23 months receiving a nutritionally adequate diet.
- **Maternal Time Poverty:** The triple burden of formal, informal, and unpaid domestic chores creates an unaddressed constraint, forcing mothers to substitute optimal child feeding with suboptimal care due to the absence of rural crèches.
- **The Processed Food Shift:** Consumer expenditure reveals a structural shift away from cereals toward commercial, affordable processed foods, creating an illusion of dietary diversity while worsening hidden hunger and micro-nutrient deficiencies.



Key Definitions

- **Stunting:** Low height-for-age, reflecting chronic or long-term undernutrition and recurrent infections.
- **Wasting:** Low weight-for-height, indicating acute or rapid weight loss typically associated with recent nutritional deficit or severe illness.
- **Time Poverty:** A lack of sufficient time to balance economic work and unpaid reproductive or care responsibilities, disproportionately affecting female labor force participants.

Constitutional and Legal Provisions

- **Article 39(f):** Directs the State to ensure children are given opportunities to develop in a healthy manner and protected against material abandonment.
- **Article 47:** Mandates the State to raise the level of nutrition, standard of living, and public health as among its primary duties.
- **National Food Security Act (NFSA), 2013:** Legalizes the right to food and nutritional security, guaranteeing targeted entitlements to pregnant women, lactating mothers, and children under 14 through schemes like PM-POSHAN and ICDS.

Conclusion

While India's healthcare delivery infrastructure has made monumental strides, overcoming the nutritional bottleneck demands a strategic shift toward preventative counseling during the first 1000 days, community-led crèches, and cross-sectoral tracking at the Gram Sabha level.

UPSC Relevance

- **GS Paper II:** Issues relating to the development and management of Social Sector/Services relating to Health, Education, and Human Resources.
- **GS Paper III:** Issues of poverty, hunger, and inclusive growth.

9. Beyond Headlines: Regulatory Shift from Tariffs to Non-Tariff Barriers

- **Diminishing Role of Tariffs:** While trade diplomacy historically focused on customs duties, average tariffs among WTO members halved since 1995. Success in modern global trade is no longer determined by headline numbers but by regulatory compliance.



- **Proliferation of NTBs:** Non-tariff barriers (NTBs) now affect nearly 90% of global commerce, representing a sixfold increase over three decades. In 2025 alone, over 7,700 NTB notifications were submitted to the WTO.
- **Asymmetric Global Deployment:** Regulatory protectionism varies significantly among major economies, with NTBs covering approximately 94% of imports entering the European Union (EU), 77% in the US, and nearly 45% in India.
- **Structural Pitfalls in Indias FTAs:** India's historical FTA utilization rate stands low at 25% (compared to 70-80% in developed nations) because of dense NTBs, such as prolonged pharmaceutical market approvals in Japan or restrictive customs procedures in Thailand.
- **Evolution in Trade Frameworks:** India's newer trade pacts, such as the UAE CEPA and the India-EFTA TEPA (in force since October 2025), legally bind signatories to clear NTB blockages by mandating mutual recognition of testing standards and laboratory certificates.



Key Definitions

- **Non-Tariff Barriers (NTBs):** Semi-transparent policy measures other than ordinary customs tariffs that can potentially economic-impact international trade in goods, changing quantities traded, prices, or both.
- **Preferential Tariff Utilisation Rate:** The proportion of total exports that actually claim and benefit from lower tariff concessions under a Free Trade Agreement, indicating the practical efficacy of the trade deal.

Constitutional and Legal Provisions

- **Article 246 (Seventh Schedule):** Entry 41 of the Union List grants the Parliament of India exclusive jurisdiction over "Trade and commerce with foreign countries; import and export across customs frontiers."
- **Foreign Trade (Development and Regulation) Act, 1992:** Provides the core statutory framework for the development and regulation of foreign trade by facilitating imports into and augmenting exports from India.
- **WTO TBT and SPS Agreements:** International legal texts under the WTO—specifically the Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary Measures (SPS) agreements—that regulate how nations can deploy product standards without creating disguised obstacles to trade.

Conclusion

The economics of global commerce have transitioned from fiscal barriers to technical and environmental checkpoints. For India to enhance its export competitiveness, trade strategy must pivot from basic tariff bargaining toward harmonizing quality standards and securing mutual recognition pacts.

UPSC Relevance

- **GS Paper II:** Bilateral, regional, and global groupings and agreements involving India and/or affecting India's interests.



- **GS Paper III:** Indian Economy and issues relating to planning, mobilization of resources, growth, development, and international trade.

10. Recurrent Nipah Outbreaks in Kerala: Zoonotic Vulnerability and Public Health Resilience

- **Perennial Environmental Reservoir:** The Indian flying fox bat (*Pteropus medius*) functions as the permanent natural reservoir for the Nipah virus (NiV) in Kerala, with viral RNA consistently detected in regional bat colonies.
- **Spatio-Temporal Spillover Dynamics:** Spillover risks peak systematically between April and September due to the convergence of fruit-harvesting cycles, heightened bat foraging, breeding seasons, and elevated viral shedding.
- **Ecological and Anthropogenic Triggers:** Kerala's dense population coupled with severe habitat fragmentation along the Western Ghats forest fringes forces wildlife into closer contact with human settlements, exacerbating the zoonotic interface.
- **Broad Pathogenic Landscape:** Beyond NiV, Kerala's unique tropical ecology supports a diverse multi-pathogen risk profile, hosting high-threat pathogens (HTPs) like Kyasanur Forest Disease (KFD), leptospirosis, and avian influenza.
- **One Health Institutionalization:** In response to recurring events, Kerala institutionalized a "One Health" framework featuring a 2.5-lakh volunteer-led community surveillance network and established the dedicated One Health Centre for Nipah Research and Resilience at Kozhikode.
- **Clinical and Diagnostic Evolution:** Progressing from the nosocomial (hospital-acquired) transmission errors of 2018, the state deployed automated clinical algorithms, expanded its Virus Research and Diagnostic Laboratory (VRDL) network, and initiated localized monoclonal antibody development.



Key Definitions

- **Zoonotic Spillover:** The critical transmission bottleneck where a pathogen overcomes structural barriers to pass from a domestic or wild animal reservoir into a human host.
- **Nosocomial Transmission:** An infection acquired specifically within a healthcare facility or hospital setting, not present or incubating at the time of the patient's admission.
- **One Health:** An integrated, unifying systemic approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems.

Constitutional and Legal Provisions

- **Article 47 (Directive Principles):** Places a binding moral obligation on the State to regard the raising of the level of nutrition, standard of living, and the improvement of public health as among its primary administrative duties.
- **Seventh Schedule (List II - State List):** Entry 6 vests the primary legislative and executive mandate regarding "Public health and sanitation; hospitals and dispensaries" within state governments.
- **Epidemic Diseases Act, 1897:** The principal statutory framework empowering states to take extraordinary preventative measures and prescribe regulations to contain dangerous epidemic outbreaks.



Conclusion

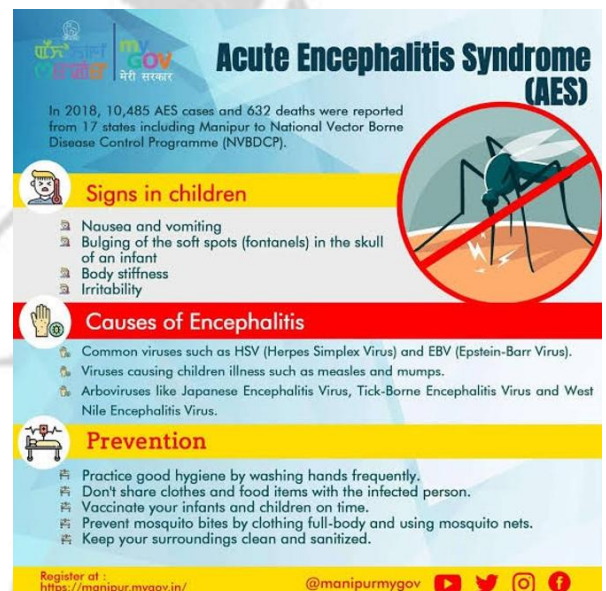
The containment of recurrent Nipah spillovers in Kerala illustrates that while absolute ecological prevention of virus shedding from natural reservoirs remains biologically unfeasible, robust real-time localized surveillance combined with systemic multi-sectoral coordination can successfully block wider human-to-human pandemics.

UPSC Relevance

- **GS Paper II:** Governance, statutory interventions, and issues relating to the development and management of Social Sector/Services relating to Health.
- **GS Paper III:** Science and Technology—developments, emergency medical research, biotechnology, and ecological biodiversity challenges.

11. Japanese Encephalitis and AES Outbreaks: Public Health Imperatives

- **Disproportionate Disease Burden:** Assam constitutes nearly 62% of all Japanese Encephalitis (JE) deaths in India recorded since 2018, establishing the region as a high-endemic zone for vector-borne neurological illnesses.
- **Mortal Impact in 2026:** As of mid-June 2026, the state's National Health Mission (NHM) unit confirmed seven deaths due to laboratory-verified JE, alongside 32 fatalities attributed to Acute Encephalitis Syndrome (AES).
- **Spatio-Temporal Patterns:** Outbreaks display strict seasonality, consistently manifesting between May and October and reaching maximum transmission density during the monsoon peak of July and August.
- **Epidemiological Differentiation:** Public health authorities emphasize that AES and JE are distinct clinical conditions; JE acts as a specific etiologic driver of AES, meaning all JE cases fall under AES, but not all AES cases are caused by the JE virus.
- **Vector Dynamics and Transmission:** The JE virus is predominantly transmitted to humans via the bite of infected *Culex* mosquitoes, which proliferate heavily in rural, waterlogged paddy-cultivation landscapes common across Assam.



Key Definitions

- **Acute Encephalitis Syndrome (AES):** A broad clinical umbrella term characterizing an acute onset of fever and associated neurological manifestation, such as mental confusion, disorientation, delirium, or seizures.
- **Japanese Encephalitis (JE):** A specific mosquito-borne viral zoonosis caused by a flavivirus that structurally targets the central nervous system, inducing severe inflammation of the brain parenchyma.

Constitutional and Legal Provisions

- **Article 21:** The Right to Life implicitly encompasses the right to clean environment and basic public health safety, placing an obligation on governance systems to manage endemic mortality.



- **Article 47:** Mandates the State to raise the level of nutrition and standard of living of its people, identifying the improvement of public health as a foundational governance responsibility.
- **National Vector Borne Disease Control Programme (NVBDCP):** The overarching central administrative framework that integrates the prevention and control of vector-borne diseases, including JE, via the National Health Mission.

Conclusion

Addressing Assam's systemic vulnerability to JE demands a coordinated approach combining synchronized vector control, early diagnostic screening within the pediatric window, and universal coverage of the JE vaccine under India's Universal Immunization Programme to break the seasonal mortality pattern.

UPSC Relevance

- **GS Paper II:** Government policies and interventions for development in various sectors and issues arising out of their design and implementation; Issues relating to development and management of Social Sector/Services relating to Health.
- **GS Paper III:** Science and Technology—developments, public health vectors, and indigenous disease elimination protocols.

12. Southwest Monsoon Stalling: Meteorological Dynamics and Deficit Vulnerability

- **Sub-Nominal Performance:** India's southwest monsoon registered a significant 38% cumulative rainfall deficit between June 1 and June 17, reflecting an early-season deceleration across major agricultural belts.
- **Geographical Asymmetry:** Following its onset over Kerala on June 4, the monsoon advanced along the west coast but stalled over Maharashtra after June 8, with the Arabian Sea branch underperforming relative to the Bay of Bengal branch.
- **Severe Regional Deficits:** Meteorological subdivisions in western India experienced acute rainfall departures by mid-June, with Konkan and Goa at -81%, Madhya Maharashtra at -80%, Vidarbha at -72%, and Marathwada at -62%.
- **Atmospheric Blockades:** The stagnation is primarily driven by the weakening of Arabian Sea monsoonal winds, which allowed dry, warm northerly and northwesterly winds to dominate the region and act as physical barriers to moisture advance.
- **Absence of Synoptic Systems:** The progress was further impeded by a weakened cross-equatorial flow over the western Indian Ocean and a total absence of supporting systems like offshore troughs, low-pressure areas, or cyclonic circulations.
- **Unfavorable Global Drivers:** Planetary-scale atmospheric oscillations, specifically the Madden-Julian Oscillation (MJO), remained in an unfavorable phase over the Indian Ocean, failing to provide the convective trigger necessary to sustain the cloud band.

Key Definitions

- **Southwest Monsoon:** A seasonal reversal of wind patterns over the Indian subcontinent driven by differential heating of land and sea, bringing over 70% of India's annual precipitation between June and September.
- **Offshore Trough:** An elongated region of low atmospheric pressure parallel to the coast that enhances convergence and moisture lifts, leading to heavy precipitation over coastal zones.



- **Madden-Julian Oscillation (MJO):** An eastward-moving oceanic-atmospheric convective band of clouds and rain that circulates the globe along the equator every 30 to 60 days, significantly modulating monsoon intensity.

Institutional and Regulatory Framework

- **India Meteorological Department (IMD):** Established in 1875 under the Ministry of Earth Sciences, it serves as the principal government agency responsible for meteorological observations, weather forecasting, and seismology.
- **Disaster Management Act, 2005:** Provides the statutory basis for managing climate-induced risks, enabling the National Disaster Management Authority (NDMA) to issue binding protocols for drought mitigation and agricultural contingency planning.

Conclusion

The stalling of the monsoon over western India underscores the vulnerability of rain-fed agrarian economies to intra-season variability. Mitigating these shifts requires upgrading predictive modeling systems and strengthening local micro-irrigation frameworks to cushion crop cycles from early-season dry spells.

UPSC Relevance

- **GS Paper I:** Important Geophysical phenomena (earthquakes, Tsunami, Volcanic activity, cyclone etc.), geographical features and their location-changes in critical geographical features.
- **GS Paper III:** Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System-objectives, functioning, limitations, revamping; issues of food security and buffer stocks.