
Prelims Exam Topics

GLOBAL PATTERNS OF AVIAN ELEVATIONAL MIGRATION

Context

A global study published in Science Advances challenges the traditional "temperature-niche" theory, proving that mountain birds migrate primarily to optimize their seasonal energy budgets rather than simply seeking cooler climates.

Key Findings of the Study

- **Energy Over Temperature:** The study reveals that avian movement is driven by an "energy budget" (the finite energy a bird allocates to finding food, thermoregulation, and reproduction) rather than a simple preference for specific temperatures.
- **Counter-Gradient Movement:** In many regions, birds move **upslope during winter** into colder areas, contradicting the long-standing belief that they only migrate to escape heat or seek warmth.
- **Widespread Tropical Migration:** Elevational migration is prevalent even in equatorial tropics where seasonal temperature fluctuations are minimal, proving that temperature is not the primary catalyst for movement.
- **Resource Tracking:** Bird distributions closely match the "greenness" of the environment, indicating that they move to track the seasonal abundance of fruits and insects across different elevations.
- **Competition Factor:** Migration is often triggered by population density; as resources in a "favorable" spot are depleted by competitors, birds disperse to higher or lower elevations to maintain their energy balance.
- **Future Climate Shifts:** Under worst-case climate scenarios for 2100, the model predicts an average **upslope shift of 129 meters**, as birds adjust their ranges to follow shifting resource distributions.

HECTOCOTYLUS

Context

New research shows Hectocotylus is more than just a sperm delivery tool.

About Hectocotylus

- It is a male octopus's specialized arm
- Scientists previously viewed the hectocotylus primarily as a mechanical appendage for gamete delivery.
- The new study shows the arm specifically detects progesterone, a hormone present in the female octopus's skin and reproductive tract.
- Researchers identified a specialized receptor called CRT1 on the arm that triggers mating behavior.

About octopuses

- An octopus is a **cephalopod mollusk**, belonging to the same broader family as clams and snails, but with a highly evolved nervous system and no shell.
- They do not have "tentacles" (which usually have suckers only at the tips). Octopus arms have suckers along their entire length.
- **Blue Blood:** Their blood is copper-based and blue. This helps them transport oxygen in cold, deep water.
- **Three Hearts:** Two hearts pump blood to the gills. The third heart circulates it to the rest of the body.

- **Decentralized Brain:** Two-thirds of an octopus's neurons are in its arms. Each arm can "think" and act on its own.
- They use **chromatophores** to change color and texture in milliseconds.

GST 2.0

Context

- The **Justice Kurian Joseph Committee** on Union-State Relations released a landmark report advocating for **GST 2.0**.
- The report warns that the current GST framework has eroded the fiscal autonomy of States and needs a second generation of reforms to restore the federal balance and fix the broken digital tax backbone.

History of GST in India

- **Blueprint:** The idea was first proposed in 2000; however, it took **16 years** of political negotiation to pass the **101st Constitutional Amendment Act (2016)**.
- **Launch:** It was officially rolled out on **July 1, 2017**, fundamentally altering India's fiscal federalism by granting simultaneous taxing powers to the Union and States under **Article 246A**.
- **Compact:** States surrendered their power to tax the sale of goods in exchange for a **five-year compensation guarantee (which expired in June 2022)**.

Recent GST Reforms in India

- **Next Generation GST Reforms (2025):** Announced by the Prime Minister on August 15, 2025, to simplify the tax structure further.
- **Three-Tier Rate Structure:** In September 2025, the GST Council approved a transition to a simplified three-slab system: 5%, 18%, and 40%.
- **Threshold Revisions:** The tax-free threshold for apparel and footwear was raised to ₹2,500 (from ₹1,000) to provide relief to lower-income consumers.
- **Micro-Classification Rationalization:** Incoherent tax differences (like different rates for plain vs. packaged buns) were eliminated to reduce the absurdity in tax administration.
- **Compensation Extension:** While the revenue guarantee for states ended in 2022, the Compensation Cess was extended until March 31, 2026, primarily to service Union borrowings taken during the pandemic.

Need for GST 2.0

- **Fiscal Cliff for States:** Since the compensation guarantee expires in 2022, States like Punjab and Kerala face revenue shortfalls of 36% to 50%, yet they lack the power to adjust rates to meet local needs.
- **Broken Digital Architecture:** The original digital handshake (invoice matching) failed. The current reliance on self-declared GSTR-3B returns has led to massive frauds and an unsettled IGST black box.
- **Union Veto in GST Council:** The current voting weight (1/3rd for Union, 2/3rd for States) gives the Union a de facto veto, turning a federal negotiation forum into an appendage of the Union Executive.
- **Erosion of Legislative Autonomy:** Under GST, State Assemblies have lost control over 44% of their own-tax revenue, reducing elected legislatures to mere passive ratifiers of executive decisions.
- **Compliance Burden on MSMEs:** GST has relocated complexity from the state to the market. Small firms now spend significantly more time and money on compliance compared to large enterprises.

Way Ahead

- **Reforming Voting Weights:** Reduce the Union's vote share to 20% or move to a one member, one vote model to treat the Union as an equal partner rather than a dominant promoter.
- **Rotational Chairpersonship:** Rotate the GST Council Chair every year among the Union and State Finance Ministers (following the EU model) to democratize the agenda-setting process.
- **Limited Rate Flexibility:** Allow States to vary their SGST component within a narrow band (e.g., +/- 2%) to provide them with fiscal agency during local crises.
- **Decentralizing GSTN:** Transition the GST Network to a federated architecture (like UPI), allowing States to build their own front-end portals for better data access and audit.
- **Independent Dispute Authority:** Establish a GST Dispute Settlement Authority chaired by a retired Supreme Court judge to resolve Union-State fiscal conflicts neutrally.

STAGFLATION

Context

The ongoing conflict between the **US-Israel and Iran in April 2026** has triggered a pernicious energy supply and price shock, leading to fears of a return to 1970s-style stagflation.

Basic

- **Stagflation** is a rare and challenging economic condition characterized by the simultaneous occurrence of stagnant economic growth (or recession), high unemployment, and high inflation.
- The term, coined by British politician Iain Macleod, describes the worst of both worlds, where prices rise rapidly even as the economy shrinks or stalls.

How It Occurs?

- Stagflation typically arises from a negative supply shock.
- In a normal economy, prices and quantity move along a curve. However, during a shock (like a war or pandemic), the entire supply curve shifts to the left.
- This shift means that at the same price level, producers can only supply a smaller quantity of goods (Q1 instead of Q0) due to higher input costs or broken logistics.
- The result is a new equilibrium where the price is higher (P1), but the actual output/growth is lower.

Factors Impacting Stagflation

- **Energy Supply Disruptions:** Sudden stoppages in oil or gas (e.g., closure of the Strait of Hormuz) create sudden stops in industrial activity.
- **Input Cost Surges:** Rapid increases in the price of raw materials, petrochemical feedstocks, and fertilizers (crucial for modern Indian agriculture).
- **Supply Chain Breakages:** Wars and geopolitical tensions that physically block trade routes rather than just increasing the price of transit.
- **Monetary Policy Lag:** When central banks are slow to react or have already exhausted their ammunition (low interest rates) before the shock hits.

Is Stagflation a Real Risk Today

- The possibility of stagflation depends on the magnitude and duration of the supply shock.

- The ongoing US-Israel vs Iran conflict has created a severe shock.
- Unlike 2022 (mainly a price shock), the current crisis is both a price and supply shock, making it more serious.
- The issue is not just high prices but also availability of energy (oil, gas, LPG).
- Shortages can lead to sudden stoppage of industrial activity and long-term economic disruptions.

Features of Stagflation

- **Low/Negative GDP Growth:** As seen in 1974, when the US and UK saw growth rates of -0.5% and -1.7% respectively.
- **Double-Digit Inflation:** Concurrent with low growth, consumer price inflation often exceeds 10% (reaching as high as 24.2% in the UK in 1975).
- **High Unemployment:** Stagnant growth leads to business closures (especially MSMEs) and job losses.
- **Ineffectiveness of Traditional Tools:** Normal textbook fixes for inflation usually worsen stagnation, and vice-versa.

Methods to Control Stagflation:

- **Supply-Side Reforms:** Since stagflation is a supply-side problem, the primary solution is restoring broken supply chains and increasing production capacity.
- **Energy Diversification:** Shifting away from volatile fossil fuels toward renewables or electric cooking/transport to insulate the economy from oil shocks.
- **Targeted Fiscal Support:** Providing specific relief to vulnerable sectors (like MSMEs or farmers) rather than broad-based stimulus which could fuel further inflation.
- **Balanced Interest Rate Hikes:** Central banks must carefully raise rates to anchor inflation expectations without choking what little growth remains in the economy.

PROPOSAL FOR USING REPTILE ALONG THE INDIA–BANGLADESH BORDER

Context

- Following **directions from the Ministry of Home Affairs (MHA)**, the **BSF** has asked its field units to explore the feasibility of deploying **reptiles such as snakes and crocodiles in along the India–Bangladesh border**

About the India–Bangladesh Border

- **Length:** India shares a **4,096.7 km border with Bangladesh** (one of the longest land borders India has).
- **States Covered:** Passes through **West Bengal, Assam, Meghalaya, Tripura and Mizoram**.
- **Terrain Challenges:** Includes **rivers, flood-prone plains, wetlands, hills and densely populated settlements**, making continuous fencing difficult.
- **Border Fencing Status:**
 - **3,326 km approved for fencing**
 - **~2,954 km fenced so far**
 - **~371 km still unfenced** (mainly riverine or disputed areas).

- **Security Concerns:** Border faces issues such as **illegal migration, cattle smuggling, human trafficking, and cross-border crime.**
- **Technological Surveillance:** India uses **floodlighting, smart fencing, sensors, drones and river patrols** to monitor vulnerable areas.

About the Reptile Fencing Proposal

- **Concept:** BSF has been directed to **explore using reptiles (snakes/crocodiles)** in riverine gaps where physical barriers are difficult.
- **Objective:** Create **natural deterrence in unfenced river stretches** to discourage infiltration and criminal activities.
- **Operational Trigger:** Proposal follows **security review meetings at BSF headquarters** focusing on innovative border management.
- **Alternative Measures Under Consideration:** Authorities are also considering **non-physical barriers such as technological surveillance systems** in riverine and low-lying areas.

CHINA PUSHES IRAN WAR DIPLOMACY

Context

- Despite China's active diplomatic efforts to mediate the **U.S.–Israel–Iran conflict**, the **United States has shown little interest in Beijing's mediation.**

What Are the Mediation Efforts by China

- **Five-Point Peace Proposal:** China, along with Pakistan, proposed a **five-point framework calling for ceasefire, diplomatic dialogue, and reopening the Strait of Hormuz** to ensure maritime stability.
- **Engagement with Global Institutions:** China sought support from **European Union and United Nations members** to build international backing for diplomatic solutions.
- **Opposition to Military Escalation:** China opposed proposals at the **United Nations Security Council to authorise force to reopen the Strait of Hormuz**, arguing that such steps could escalate the conflict.
- **Regional Diplomatic Visits:** China dispatched **special envoys and held consultations with Gulf states** to promote ceasefire and maintain regional stability.

Why China Is Mediating

- **Energy Security Concerns:** China imports significant oil from West Asia (**Iran accounts for ~13% of Chinese oil imports**), making stability in the region critical for energy security.
- **Protection of Maritime Trade:** The **Strait of Hormuz carries nearly one-fifth of global oil trade**, disruption of which could raise global energy prices and affect Chinese industry.
- **Global Leadership Ambitions:** China aims to project itself as a **responsible global power and alternative diplomatic actor to the United States.**
- **Economic Stability:** China's **export-driven economy depends on stable global energy prices and uninterrupted shipping routes.**
- **Strategic Narrative:** China seeks to portray itself as a **champion of diplomacy and multilateralism**, contrasting with what it portrays as U.S. military interventionism.

Why the United States Is Not Interested in China's Mediation

- **Strategic Rivalry:** The United States is reluctant to allow Beijing to gain diplomatic influence in West Asia (Middle East).
- **Control Over Conflict Diplomacy:** The United States prefers to **retain control over negotiations and security arrangements** in the region rather than rely on third-party mediation.
- **Distrust of China's Neutrality:** Washington believes China maintains **close economic and strategic ties with Iran**, raising doubts about its neutrality as a mediator.
- **Perception of Symbolic Diplomacy:** Some analysts view China's proposals as **largely rhetorical or symbolic rather than detailed peace plans**, reducing U.S. confidence in their effectiveness.

How China escaped the early consequences of the Iran War

- **Strategic Petroleum Reserves:** Large **Strategic Petroleum Reserves (~120 days of oil storage)** buffer supply shocks during disruptions (e.g., Strait of Hormuz crisis).
- **Diversified Import Routes:** Oil and gas pipelines from **Russia and Central Asia (~20% imports; ~900,000 barrels/day from Russia)** reduce reliance on sea routes.
- **Global Supply Diversification:** State oil firms (**Sinopec, CNPC, CNOOC**) secured energy assets in **Africa and West Asia (Sudan, Angola)** to diversify sources.
- **Electric Vehicle Transition:** Rapid EV adoption reduces oil demand (**~50% of car sales in China in 2025 were electric vehicles**).
- **Renewable Expansion:** Large investments in **solar, wind, nuclear and energy efficiency** support long-term energy transition.
- **Energy Mix Diversification:** China balances **coal, renewables, nuclear and gas**, reducing dependence on imported oil.
- **Lower Energy Demand:** Economic slowdown (**~4.5% GDP growth target in 2026; construction slowdown**) moderates energy consumption.
- **Geopolitical Supply Links:** Stable ties with **Russia and Central Asia** ensure alternative supply routes beyond maritime chokepoints.

UNLIMITED EXECUTIVE TENURE IN INDIA

Context

The recent milestone of Narendra Modi surpassing Pawan Kumar Chamling in elected office highlights a structural feature. While democratic legitimacy is derived from electoral mandates, prolonged incumbency raises concerns about concentration of executive power and its implications for institutional balance.

Constitutional framework governing prime ministerial tenure

- **Appointment and Legitimacy (Article 75):** The Prime Minister is appointed by the President based on majority support in the Lok Sabha, ensuring democratic grounding of executive authority
- **Collective Responsibility:** The Council of Ministers remains accountable to the Lok Sabha, with the Prime Minister as its leader
- **Flexible Tenure:** The doctrine of "pleasure of the President" functions in practice as tenure dependent on parliamentary majority, not fixed duration

- **Absence of Term Limits:** The Constitution permits indefinite continuation in office, distinguishing India from presidential systems
- **Accountability Mechanisms:** Removal is ensured through loss of majority via no-confidence motions or defeat in key legislative votes
- **Resignation Norms:** Constitutional conventions require resignation upon losing majority support
- **Dissolution Power:** The Prime Minister can advise dissolution of the Lok Sabha to seek a fresh mandate
- **Judicial Restraint:** Courts refrain from intervening in matters of legislative confidence, upholding parliamentary supremacy

Shifts in accountability and global comparisons

- **Anti-Defection Law impact:** Introduced through the Tenth Schedule of the Indian Constitution (52nd Amendment, 1985), it enforces party discipline but limits independent legislative action
- **Weakened Oversight:** Reduced scope for dissent diminishes the effectiveness of no-confidence motions
- **Centralisation of Power:** Loyalty shifts from electorate to party leadership, strengthening executive dominance
- **Constitutional Intent:** Thinkers like B. R. Ambedkar emphasised continuous accountability via Parliament over fixed term limits
- **Global Perspective:** Countries like the United States impose term limits (22nd Amendment), while others like Brazil and Colombia constitutionally restrict executive tenure
- **Scholarly Insight:** Research shows that term limits alone are insufficient without strong institutional safeguards

SUPPORT TO ANGANWADI WORKERS IN RAJASTHAN

Context

The Government of Rajasthan has transferred ₹1,000 each to about 1.22 lakh Anganwadi workers through Direct Benefit Transfer (DBT) to support uniform expenses. Additional measures such as honorarium hikes, nutrition schemes, and digital support have also been announced.

About Anganwadi workers

- **Frontline functionaries:** Anganwadi workers function under the Integrated Child Development Services (ICDS) and operate Anganwadi centres at the village level.
- **Child nutrition and health:** Provide supplementary nutrition, immunization support, and health check-ups. They act as the first point of contact for child health services.
- **Pre-school education:** Deliver early childhood care and education for children aged 3–6 years. This builds a foundation for formal schooling.
- **Maternal care and awareness:** Educate mothers on nutrition, hygiene, and childcare. This improves overall family health outcomes.
- **Implementation of welfare schemes:** Assist in delivering various government schemes at the grassroots level. They bridge the gap between the state and the community.

Legal status of Anganwadi workers

- **Not regular Government Employees:** Anganwadi workers are classified as “scheme-based workers”, not permanent government staff. They receive honorarium instead of a fixed salary.

- **Judicial Interpretation:** The Supreme Court of India has held that they are voluntary workers engaged under welfare schemes. Hence, they are not entitled to the same service benefits as government employees.
- **Constitutional Linkages:** Their work is aligned with key Directive Principles of State Policy:
 - **Article 39(f):** Protection and development of children.
 - **Article 47:** Duty of the State to improve nutrition and public health.
- **Demand for recognition:** Workers have long demanded regularisation and better wages. This reflects the gap between their responsibilities and service conditions.

Rajasthan government's support to Anganwadi workers

- **Financial Assistance through DBT:** Uniform allowance support: ₹1,000 has been directly credited to each Anganwadi worker's bank account.
 - This ensures transparency and reduces leakages while helping workers meet basic work-related expenses.
- **10% rise in honorarium:** Applicable to Anganwadi workers, helpers, and mid-day meal cooks.
 - This step aims to improve their financial security and acknowledge their contribution to social welfare.
- **Hot milk provision under Amrit Aahar Yojana:** Children aged 3–6 years receive hot milk five days a week
 - This improves child nutrition and helps address issues like undernourishment and stunting.
- **Renovation of Anganwadi centres:** Upgradation of buildings to create a better learning and care environment.
 - This promotes digital record-keeping, better monitoring, and efficient service delivery
- **Involvement in local planning:** Workers are encouraged to contribute suggestions under village-ward development campaigns.
 - This ensures that grassroots realities are reflected in policy-making and planning

Significance for governance and development

- **Human capital formation:** Early childhood care directly impacts long-term development.
- **Women empowerment:** Provides employment opportunities to rural women.
- **Last-mile delivery:** Ensures welfare schemes reach the most vulnerable sections.
- **Inclusive growth:** Focus on nutrition and early education reduces inequalities.

Mains Exam Topics

THE RECYCLABILITY TRAP: INDIA'S 2026 SHIFT IN PLASTIC WASTE GOVERNANCE

Context

Recent amendments to India's Plastic Waste Management Rules signal a strategic shift toward market-based flexibility and recycled content mandates.

Key features of the Plastic Waste Management (Amendment) Rules, 2026

- **Mandatory Recycled Content:** For the first time, the rules mandate a specific percentage of recycled plastic in new packaging. For 2025-26, targets are set at **30% for Category I (Rigid)**, **10% for Category II (Flexible)**, and **5% for Category III (Multi-layered)**.
- **Compliance Flexibility (Carry-Forward):** Companies that fail to meet their 2025-26 recycling targets are permitted to carry forward the shortfall for up to **three subsequent years**, provided they fulfill at least **one-third** of the deficit annually.
- **Tradable EPR Certificates:** The rules formalize a market-based mechanism where companies exceeding their targets can sell **Extended Producer Responsibility (EPR) certificates** to those facing a shortfall, facilitating a flexible national compliance grid.
- **Phased Targets for Reuse:** Beyond recycling, the rules introduce mandatory **reuse obligations** for rigid plastic packaging, such as a 70% reuse target for large water carboys and 10% for smaller containers (0.9–4.9 liters) by 2025-26.
- **Centralized Digital Tracking:** All Producers, Importers, and Brand Owners (PIBOs) must register and file annual returns on a **centralized online portal** managed by the Central Pollution Control Board (CPCB) to ensure transparency in waste processing claims.
- **Environmental Compensation (EC):** A "Polluter Pays" regime is established where financial penalties are levied for non-compliance. These funds are earmarked for collection, shared out for recycling infrastructure, and end-of-life disposal projects.
- **Exemptions for Safety Standards:** The rules provide a critical exclusion where recycled content targets do not apply if they conflict with **food safety regulations (FSSAI)** or other specific healthcare quality standards.
- **Defined Plastic Categorization:** To streamline processing, plastic is strictly divided into four categories: **Category I (Rigid)**, **Category II (Flexible/Single Layer)**, **Category III (Multi-layered)**, and **Category IV (Compostable plastics)**, each with distinct trajectory benchmarks.

Key Challenges

- **The Recycling Paradox:** The very qualities that make plastic ubiquitous, its low cost, flexibility, and adaptability, make it economically difficult to incentivize its collection and reuse compared to materials like metal.
- **Compliance Dilution:** The 2026 amendments allow companies to carry forward recycling shortfalls for up to three years. This "elasticity" effectively pushes 2025-26 targets into 2028-29, potentially weakening the urgency for immediate action.

- **Stagnant Collection Rates:** While the EPR goal was 100% collection by 2024-25, government data suggests actual rates hover between 50%-60%. The lack of new, higher collection targets for 2025 and beyond suggests a plateau in enforcement.
- **Verification Gaps:** There is currently no robust public evidence or official reckoning to confirm that companies are meeting their 100% collection obligations, leading to a reliance on potentially inflated self-declarations.
- **Market-Logic Risks:** The introduction of "trading certificates" shifts the problem from an environmental mandate to a market commodity, allowing firms to "buy" their way out of compliance without necessarily reducing their own physical plastic footprint.

Way Forward

- **Strict Accountability for Shortfalls:** While flexibility is provided through the "one-third annual deficit" rule, regulators must ensure that "carrying forward" does not become a permanent loophole for avoiding environmental responsibility.
- **Data Transparency & Auditing:** The government must move beyond self-reported data. Independent, third-party audits of the CPCB (Central Pollution Control Board) portal are essential to verify that 100% collection is actually happening on the ground.
- **Strengthening Category III Processing:** Specific focus and higher incentives are needed for Multi-layered Plastics (Category III), which are the hardest to collect and recycle but often comprise the bulk of consumer litter.
- **Standardizing Recycled Content:** As mandates for recycled content (like the 30% rule for rigid plastics) kick in, the government must standardize the quality of "recycled resin" to ensure it meets safety and durability benchmarks, especially for non-food applications.
- **Incentivizing the Informal Sector:** Since a vast majority of plastic collection in India is done by the informal waste-picking community, the EPR framework must formally integrate these workers to ensure the "trading certificates" reflect actual grassroots labor.

INDIA'S LOOMING GROUNDWATER CRISIS

Context

A recent parliamentary committee report has flagged a grave environmental challenge, revealing that India is the world's largest consumer of groundwater, accounting for 25% of the global total, exceeding the combined usage of the United States and China.

Key Findings of the Report

- **Global Lead in Extraction:** India extracts approximately **230–250 cubic kilometers** of groundwater annually.
- **Agricultural Dominance:** Nearly **90% of extracted groundwater** is used for agriculture.
- **Critical Water Table Depletion:** The committee noted that in several states, the rate of extraction far exceeds the rate of natural recharge.
 - Over **14% of assessment units** in India are classified as "over-exploited," while others are rapidly reaching "critical" stages.

- **Quality Deterioration:** As water tables sink, the concentration of geogenic contaminants like **Arsenic and Fluoride** increases, posing severe public health risks to rural communities dependent on hand pumps.

Key Challenges in Management

- **Fragmented Governance:** Water is a **State subject** under the Indian Constitution, leading to a lack of a unified national regulatory framework.
 - Coordination between the Central Ground Water Board (CGWB) and state agencies remains weak.
- **The Energy-Water Nexus:** The provision of free or highly subsidized power for irrigation removes any financial incentive for farmers to conserve water, leading to "tragedy of the commons" scenarios.
- **The Indian Easements Act, 1882:** The colonial-era law creates a significant legal hurdle by linking **groundwater rights to land ownership**.
 - This prevents the government from effectively regulating private extraction and treats a shared, fluid resource as private property.
- **Climate Change Impact:** Erratic monsoon patterns and shorter, more intense rainy seasons reduce the "soak time" required for natural aquifers to recharge, even when total rainfall remains normal.
- **Lack of Real-Time Data:** While monitoring has improved, the committee highlighted the need for more digital water-level recorders to provide granular, real-time data for local planning.

Way Forward

- **Crop Diversification:** Shifting away from water-intensive crops in semi-arid zones toward millets, pulses, and oilseeds is essential to reducing the agricultural water footprint.
- **Incentivizing Micro-Irrigation:** Scaling up the **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** to promote drip and sprinkler irrigation can reduce water usage by up to 50%.
- **Community-Led Recharge:** Expanding models like the **Atal Bhujal Yojana**, which involves village-level "Water Security Plans" and traditional structures like *Johads* and *Baolis* for rainwater harvesting.
- **Conjunctive Use of Water:** Integrating the use of surface water (canals/rivers) with groundwater to ensure that aquifers are only tapped when surface sources are insufficient.
- **Legislative Reform:** Moving toward a "Public Trust" doctrine where groundwater is viewed as a common resource rather than an extension of land ownership rights.