P L RAJ UPSC MONTHLY MAGAZINE – COMPILATION

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1. Education for the Visually Impaired

This section details the framework and initiatives for inclusive education for persons with visual impairment, focusing on achieving dignity, independence, and equal opportunity.

1. Empowerment Through Education

Foundation of Empowerment - For persons with disabilities, education is the foundation of empowerment, fostering independence, self-advocacy, and civic participation.

Benefits - It breaks the cycle of dependency, enhances employability, and promotes social inclusion.

Cornerstone Policies - India's vision is supported by the NEP 2020 and the Rights of Persons with Disabilities (RPwD) Act, 2016, both emphasizing inclusive, barrier-free education.

2. Legal and Policy Framework

RPwD Act, 2016 - Mandates inclusive education, accessibility, and reasonable accommodation. Sections 16-17 specifically require schools to adapt curricula, train teachers, and provide assistive technologies.

NEP 2020 - Calls for barrier-free access, curriculum adjustments, and comprehensive teacher training to support visually impaired students.

Rehabilitation Council of India (RCI) Act, 1992 - Governs the training and certification of special educators, ensuring professional support for visually impaired learners.

3. Major Government Schemes

Samagra Shiksha Abhiyan - Promotes inclusive education from pre-primary to Class XII, providing assessment, aids, and special educators for Children with Special Needs (CWSN).

SIPDA (Scheme for Implementation of the RPwD Act) - Offers financial assistance for barrier-free infrastructure, skill training, and assistive technologies.

ADIP (Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances) Scheme (Revised 2024) - Provides mobility aids like Braille kits, smart canes, and accessible mobile phones to enhance independence.

NAP-SDP (National Action Plan for Skill Development of Persons with Disabilities) - Targets skilling 2.5 million PwDs with training, mentorship, and placement support.

4. Key Enablers for Inclusive Education

Accessible Learning Materials (DALM Project) - Provides Braille, tactile, audio, and digital formats. Over 115 crore Braille pages were produced since 2015-16, benefiting 1.58 lakh students.

Assistive Technologies - Devices like Braille displays, OCR tools, AI-powered reading aids, and smart canes convert visual data into tactile, auditory, or magnified formats. These are distributed under the ADIP Scheme.

Qualified Educators - Mandated by Section 17(c) of the RPWD Act, RCI develops curricula and maintains the Central Rehabilitation Register (CRR) for certified professionals.

Barrier-Free Infrastructure (Accessible India Campaign) - Drives universal accessibility, including ramps, tactile paving, audio cues, and Braille signage across educational spaces.

5. Recent Developments (Last 10 Years)

1. RPwD Act, 2016 was enacted, legally mandating inclusive education.
2. Science stream education was introduced at NIEPVD's Model School in 2024, promoting inclusion in STEM fields.
3. DALM Project (2023 update) expanded to include talking books, e-pub, and large-print formats. Flexible assessment guidelines were introduced for visually impaired students.

2. Cultivating Creativity and Enterprise

This chapter focuses on the shift from rote learning to fostering critical thinking, creativity, and entrepreneurship, aligning education with the goals of Viksit Bharat @2047 and Industry 5.0.

1. Preparing for Industry 5.0

Focus Areas - Education must align with demands driven by AI, robotics, and machine learning, focusing on interdisciplinary learning, emotional intelligence, and a human-centric approach.

Ecosystem Building - Building innovation ecosystems within institutions empowers students with real-world problem-solving abilities.

2. AICTE Initiatives for Innovation

The All-India Council for Technical Education (AICTE) promotes innovation through several initiatives -

Smart India Hackathon (SIH) - World's largest open innovation model, engaging 15 lakh+ students.

KAPILA (Kalam Program for IP Literacy and Awareness) - Led to a 247% rise in patent filings.

Institution's Innovation Councils (IICs) - Over 16,300 councils nurturing an innovation culture across India.

National Innovation and Start-up Policy (NISP) - Adopted by over 3,000 institutions to promote entrepreneurship.

3. Innovation at the School Level

The National Policy for Promoting Innovations in Schools fosters skills among 250 million students in 1.5 million schools.

School Innovation Ambassador Training Program (SIATP) - Trained 26,800 teachers in five domains - Design Thinking, Idea Generation, Entrepreneurship, IPR, and Finance & HR.

School Innovation Councils (SICs) - Established in over 20,000 schools, fostering local problem-solving.

Design Thinking and Innovation (DTI) module - A structured module with 1.3 lakh students enrolled in 2,400 schools.
IDE Bootcamps - Trained thousands of participants in schools and higher education through hands-on exposure and mentorship.

4. Towards a New Educational Era

Vision - These efforts are shaping an innovation-driven academic ecosystem that aligns with the goals of Atmanirbhar Bharat and Viksit Bharat @2047.
Redefinition - Education is redefined as "Shiksha for Innovation"—focusing not just on acquiring knowledge but also on creating, experimenting, and innovating.

3. Indian Knowledge System (IKS) in Education

By integrating Indian Knowledge Systems (IKS) into all levels of education, aligning modern learning with cultural heritage and SDG 4 (Quality Education).

1. Understanding IKS

Definition - IKS is India's vast body of indigenous intellectual and cultural heritage, spanning 5,000 years, preserved across regions and languages.
Scope - It includes tacit knowledge (experience/tradition) and explicit knowledge (texts/theories), covering spiritual, scientific, artistic, and social domains.
The *Bharatiya Gyana Parampara* - A living tradition that has evolved while retaining cultural roots.

2. IKS under NEP 2020

NEP 2020 recognizes IKS as essential for holistic education and encourages the infusion of Knowledge of India (KoI) across all stages and subjects.
Curriculum - Must be rooted in the Indian context, ethos, and heritage.
Pedagogy - Uses local stories, arts, sports, and examples to enhance relatability and creativity.
Learning - Aims to make learning experiential and culturally grounded by integrating indigenous traditions, philosophy, language, and science.

3. Subject-Wise IKS Integration (NCF 2023)

The National Curriculum Framework (NCF) 2023, formulated by NCERT, operationalizes IKS integration -
Art Education - Draws on Natyashastra, Shilpashastra, and Chitrasutra; students learn *raga*, *tala*, *laya*, *rasa*, and *bhava*.
Mathematics - Introduces India's contributions (zero, negative numbers, geometry, algebra), highlighting figures like Aryabhata and Ramanujan.
Science - Highlights India's advancements in astronomy, metallurgy, medicine, chemistry, and space research.
Social Sciences - Encourages pride in *Bharatiyata*, exploring India's democratic ideals and values like ahimsa and coexistence.
Physical Education - Integrates traditional sports like Yoga, Mallakhamb, wrestling, and archery.

4. Significance

Revitalizing IKS is about harmonizing tradition with modernity, fostering -
Holistic Learning - Integrating ethics, science, and creativity.
Identity - Building cultural pride and national identity among learners.
Innovation - Promoting critical thinking rooted in indigenous wisdom.
Alignment - Aligning education with Atmanirbhar Bharat and global standards.

4. Skill-Based Education

This section details the transformation of vocational education under NEP 2020, aiming to mainstream skill-based learning from Grade 6 onwards and bridge the education-employability gap.

1. Integration of Skills in School Education

Grades 6-8 - Students undertake 10-day 'bagless' internships with local artisans (potters, carpenters), promoting hands-on learning.

Grades 9-12 - Structured skill training through partnerships with ITIs, polytechnics, and industries, leading to certification.
Core Goal - To ensure every student gains exposure to and learns at least one vocation.

2. Key Reforms and Growth

Curriculum - National Curriculum Framework (NCF) integrates vocational components.
Digital Platforms - SWAYAM and DIKSHA expand access to virtual skill learning.
Scope - Includes Lok Vidya (traditional knowledge) alongside modern sectors like AI, Robotics, and IoT.
Expansion - Schools offering NSQF-aligned vocational subjects increased by 51% (from 12,292 in 2021-22 to 18,610 in 2023-24).
Focus Shift - Shifted from "Education for All" to "Skills for All," with a mandatory employability skills module.

3. State-Level Implementation Examples

Rajasthan - Vocational education integrated into 1,867 schools; 2.56 lakh students trained in 15 trades (2022-23).
Himachal Pradesh - Adopted '10 Bagless Days' in 2,500+ schools and implemented a 48-hub model for shared resources.
Maharashtra - Proposed mandatory internships for all industries receiving state incentives under its new Industrial Policy.

4. Challenges and Way Forward

Challenge	Way Forward (Solution)
Dropout Rate (14.1% at secondary level)	Mainstream vocational education into school timetables with clear mandates.
Societal Stigma and Academic-Vocational Divide	Shift societal perceptions through campaigns, teacher sensitisation, and promoting the dignity of labour.
Outdated Curricula and Slow Alignment	Dynamic curricula developed via continuous industry-academia collaboration.
Trainer Shortages	Develop skilled trainers by establishing state-level vocational educator cadres with certification.
Gendered Stereotypes	Encourage girls into non-traditional sectors through annual counselling and aspiration mapping.

Mains Practice Question

1. Discuss the progress made and challenges faced in mainstreaming vocational and skill-based education and fostering an innovation culture to bridge the education-employability gap.
2. Furthermore, critically examine the strategy and significance of integrating the Indian Knowledge System (IKS) into the school curriculum under the NEP 2020 and NCF 2023 framework. (15 Marks)

KURUKSHETRA

1. Rashtriya Poshan Maah and POSHAN Abhiyaan

This chapter discusses India's evolving nutrition policy, anchored by the community-led POSHAN Abhiyaan and its annual focal point, Rashtriya Poshan Maah.

1. Evolution of Nutrition Policy

Initial Program - Integrated Child Development Services (ICDS, 1975) was one of the world's largest community-based programs for children under six, pregnant women, and lactating mothers.
POSHAN Abhiyaan (2018) - Marked a paradigm shift by focusing on the first 1,000 days of life (from conception to a child's second birthday).
Three-pronged Approach - Jan Andolan (community-led behavior change), Digital Monitoring (via POSHAN Tracker), and Capacity Building (training 1.4 million Anganwadi Workers via ILA).
Mission Poshan 2.0 (2021) - Integrated POSHAN Abhiyaan, Anganwadi Services, and the Scheme for Adolescent Girls, serving nearly 10 crore beneficiaries across all states and UTs.

2. Rashtriya Poshan Maah - The SBCC Engine

Role - Introduced in September 2018, it is the annual focal point of a year-round Social Behaviour Change Communication (SBCC) and service delivery framework.
SBCC Strategy (Three-Tier) -
Mass Media - TV, radio, and digital platforms for large-scale outreach.
Mid-Media - Local radio, wall paintings, folk performances, and school activities for community engagement.
Interpersonal Counselling - Home visits by Anganwadi Workers using digital tools.
Evolution of Themes - Has evolved from initial awareness drives (2018) to focusing on Thematic Weekly Activities (2021), Panchayat-led initiatives (2022), the Life-cycle Approach (2023), and Swasth Naari, Shashakt Parivar (2025).

3. Significance and Challenges

Significance - Fosters Behavioural Transformation, acts as a Convergence Platform (aligning Health, Education, Panchayati Raj, etc.), ensures Community Ownership, and enables Technology-Enabled Governance.
Challenges - Regional Disparities (higher prevalence in tribal/rural areas), Behavioural Inertia (deep-rooted food practices and gender biases), Supply Chain Gaps, and Convergence Deficit across states.
Way Forward - Strengthen Last-Mile Delivery through technology, Engage Men in family nutrition, Promote Local Food Systems, and Institutionalise SBCC.

2. Nourishing India's Future

This chapter focuses on critical developmental stages and emerging threats - Infant and Young Child Feeding (IYCF), Early Childhood Care and Education (ECCE), and tackling the twin threat of **Obesity**.

1. Infant and Young Child Feeding (IYCF)

First 1,000 Days - This period (conception to age two) determines lifelong health, cognitive ability, and productivity.
Exclusive Breastfeeding (0-6 months) - Scientifically proven to be a superfood that reduces infant mortality, infections, and malnutrition. MoWCD promotes optimal feeding through Anganwadi home visits and SBCC.
Complementary Feeding (6-24 months) -
WHO advises 2-3 small meals (6-8 months) and 3-4 meals + 1-2 nutritious snacks (9-24 months).
Dietary diversity is crucial, including cereals, pulses, milk, eggs, fruits, and vegetables, while limiting sugar, salt, and oils. The Annaprashan Diwas initiative promotes local, low-cost recipes.
Responsive Feeding - Involves emotional bonding and interactive feeding, which builds healthy food preferences and reduces undernutrition and obesity risks.

2. Early Childhood Care and Education (ECCE)

Constitutional Mandate - The 86th Constitutional Amendment (2002) inserted Article 45 (ECCE for children up to six), and the RTE Act (2009) extended free pre-school education for children above three years.
Anganwadi Network - Remains the world's largest early childhood development program, reaching 46% of India's under-six population. It was universalised in 2009.
Poshan Bhi Padhai Bhi (PBPB) Initiative (2023) - Integrates play-based, inclusive ECCE at Anganwadi Centres.
Training - 14 lakh Anganwadi Workers are being trained.
Curricula - Navchetana (birth-3 years) and Aadharshila (3-6 years) provide national frameworks.
Digital Support - The Poshan Tracker app provides daily ECCE activity videos and voice notes.
Recognition - Children receive an ECCE Certificate, linked to APAAR ID and UDISE databases for school continuity.

3. Advancing Nutrition Literacy to Tackle Obesity

The Emerging Challenge - Overnutrition and obesity are emerging as twin threats, driven by sedentary lifestyles, digital habits, and the dominance of processed foods and beverages in consumption patterns.
Impacts - Leads to early-onset diabetes, cardiac risks, PCOS, cancers, and reduced productivity.

Policy Response - The 8th Poshan Maah (2025) emphasizes nutrition literacy. Key messages include - Limiting salt, sugar, and oils.
Practicing mindful eating and ensuring adequate sleep.
60 minutes of daily physical activity or yoga.
Intervention - MoWCD introduced "Oil and Sugar Boards" at Anganwadi Centres to visually prompt moderation.

3. Nutrition Sensitive Agriculture (NSA) in Rural India

This chapter focuses on integrating farming and nutrition to address India's nutrition paradox—high agricultural output despite severe malnutrition—by promoting dietary diversity and economic equity.

1. India's Nutrition Paradox and Burden

The Paradox - India is the world's largest milk producer but faces severe malnutrition, ranking 105/127 on the Global Hunger Index 2024 ("serious" category).
Rural Burden - 35.5% of children under 5 are stunted. 40% of rural children under five are anaemic (vs 28% urban). Monotonous cereal-based diets erode nutritional outcomes.
Economic Loss - Malnutrition costs India 4% of its GDP annually (approx. $1.4 trillion).

2. Concept and Core Elements of NSA

Definition - NSA strengthens agricultural systems to improve nutrition outcomes through diversification, equity, and health linkages.
Key Components -
Crop Diversification - Promoting millets, pulses, fruits, and vegetables.
Biofortification - Developing crops like Zinc-rich wheat and iron-fortified millets. Example - Rice - CR Dhan 310 (10.3% protein in polished grain).
Women's Empowerment - Crucial, as women form 70-80% of the agricultural workforce but own less than 13% of land.
Health Linkages - Nutrition education and convergence with public health schemes.
Potential Impact - World Bank (2022) estimates NSA could reduce child stunting by 20% by 2030.

3. Implementation and Impact

Policy Integration - NSA is integrated into POSHAN Abhiyaan and the Biofortification Mission (2022-25).
Successful Initiatives -
ICAR "Seeds for Nutrition" (2020) - Distributed 50 million seed packets; resulted in a 30% rise in iron-fortified millet cultivation in Rajasthan.
UNICEF "Nutrition-Smart Villages" (Bihar) - Dietary diversity rose from 3.5 to 4.7 food groups.
Case Studies - NSA districts in Kerala show 15% lower stunting than Bihar. Odisha saw a 16% reduction in anaemia using iron-fortified crops.

4. Challenges and Way Forward

Challenges - NSA receives only 5% of agriculture budgets. Only 40% of targeted districts have operational NSA plans. Persistent gender inequities and weak inter-ministerial convergence.
Way Forward - Expand digital and AI-based crop-nutrition advisories. The National Agriculture Policy 2025 (draft) proposes ₹2.5 lakh crore to scale NSA, targeting 50% dietary diversity coverage by 2030.

4. Digital Transformation in Healthcare

This chapter outlines how digital innovations are making healthcare accessible, efficient, and equitable, especially in rural India, with key focus on the Ayushman Bharat Digital Mission (ABDM).

1. Context and Global Precedent

Digital Surge - India has seen a surge in digital health innovations (telemedicine, EHRs, health-tech startups).
COVID-19 Catalyst - The pandemic accelerated digital health adoption, with India's CoWIN platform serving as a global model.
Telemedicine Growth - The eSanjeevani platform delivered over 150 million consultations, making it the world's largest telemedicine initiative.

2. National Digital Initiatives (ABDM Ecosystem)

ABDM (2021) - Seeks to create a unified digital health infrastructure.
Pillars - Includes the Health Facility Registry, Healthcare Professionals Registry, Ayushman Bharat Health Account (ABHA), and Unified Health Interface (UHI).
Progress - As of August 2025, over 3.3 lakh facilities and 4.7 lakh professionals are registered.
Regulation - The Digital Personal Data Protection Act (2023) and Health Ministry guidelines safeguard patient data and consent.

3. Digital Health and Rural India

Addressing Health Gaps - Digital tools are crucial, given the high rural malnutrition burden (35.5% stunting, 57% women anaemic).
Frontline Empowerment - Apps empower ASHA and Anganwadi workers to track anaemia and immunisation in real time.
POSHAN Tracker - Integrates nutrition data for targeted interventions.
Innovation - Pilot "Health ATMs" (digital kiosks with diagnostic tools) in Uttar Pradesh and Bihar are bridging rural health gaps.

4. Challenges and Way Forward

Challenges - Connectivity gaps (rural internet penetration is 38% vs 70% urban), Provider adaptation (lack of digital training), Privacy risks, and Fragmentation.
Way Forward - Build interoperable EMRs with open APIs, strengthen capacity building for ASHAS, ANMs, and clinicians, and integrate nutrition and health data into national dashboards.

DOWN TO EARTH

1. Redefining The Global South's Clean Tech Landscape

According to a report by the Net Zero Industrial Policy Lab (NZIPL), there is a transformative surge of Chinese capital — exceeding $220 billion since 2022 — which is flowing across 54 countries, focusing on key sectors such as batteries, solar, wind, new energy vehicles (NEVs), and green hydrogen.

Unprecedented Pace and Scale of Investment

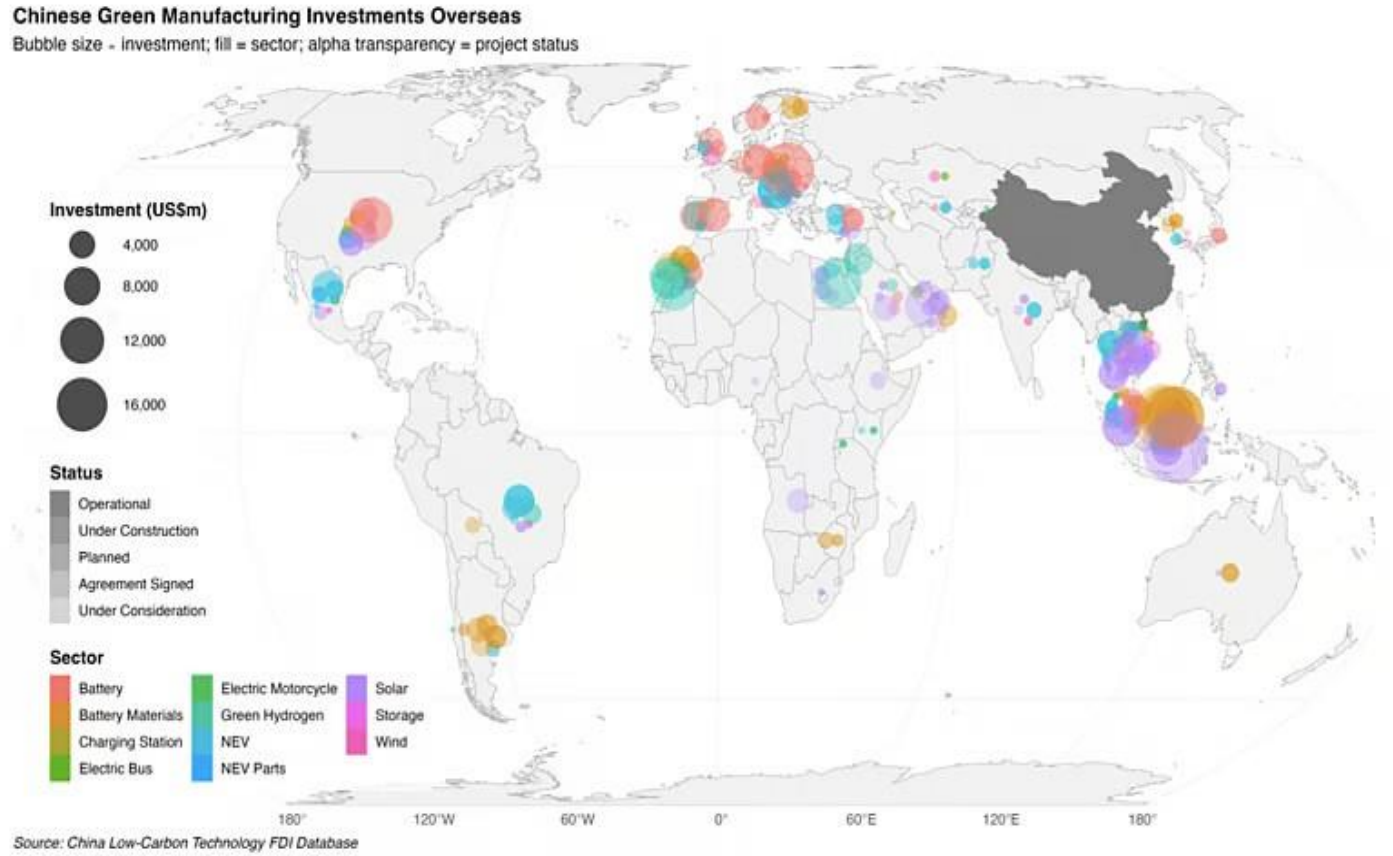
The report emphasizes that China's overseas cleantech financing has now surpassed the US Marshall Plan's inflation-adjusted total ($200 billion in 2024 dollars), underscoring the scale of its global industrial footprint. Significantly, three-quarters of these projects are located in emerging markets, positioning the Global South as a central hub in the energy transition. Drawing from the China Low Carbon Technology FDI database — which catalogs 461 projects from 2011 to mid-2025 — the NZIPL report reveals an extraordinary acceleration since 2022 - Over 80% of all projects were launched post2022, amounting to $210 billion (88% of total pledged capital). 2024 alone saw a record 165 project announcements. More than 60 megaprojects each exceed $1 billion in committed investment, signaling longterm industrial expansion. It reflects a shift from early solar-heavy investments to a full-spectrum clean tech strategy, covering the entire value chain — from raw materials to advanced manufacturing.

Strategic Investment Breakdown

Battery Materials Manufacturing ($62 Billion) - Now the single largest category, battery material projects underscore China's drive to secure upstream supply chains, particularly across Southeast Asia and Latin America's Lithium Triangle (Chile, Bolivia, Argentina).
Battery Production ($49 Billion) - Concentrated in Europe, this investment wave supports the continent's expanding EV ecosystem, with Hungary emerging as a major hub.
Solar Manufacturing ($57 Billion) - Distributed across 135 projects globally, these initiatives reinforce China's long-standing dominance in solar value chains.

Green Hydrogen ($27 Billion) - Primarily located in MENA countries, these projects — averaging $2 billion each — are pioneering renewable hydrogen capacity for export markets.

EV & Wind Sectors - Investments remain geographically diverse but exclude the U.S., reflecting caution amid rising trade barriers and geopolitical tensions.



Motivations Behind China's Clean-Tech Expansion

The report identifies three primary motivations driving Chinese firms' global strategy -

Access to raw materials - Indonesia's nickel reserves have made it a top destination for battery material processing.

Access to local markets - Countries like Hungary attract downstream production to serve European demand.

Access to third-country markets - Morocco leverages duty-free EU access, while Southeast Asia benefits as a re-export hub.

Emerging Trends - From Rapid Expansion to Strategic Consolidation

The pace of growth appears to be moderating in 2025, with 68 new projects announced in the first half of the year, signaling a phase of consolidation and strategic recalibration. Amid trade restrictions and sanctions risks, Chinese firms are increasingly adopting 'light-asset' strategies — such as technology licensing, contract manufacturing, and OEM partnerships — to maintain market access without heavy capital exposure. It suggests that while physical construction may slow, commercial engagement and technological diffusion are likely to continue expanding.

Implications for Host Governments and Global Partners

For developing economies, this capital influx presents a historic opportunity to attract green industrialization and clean infrastructure investment. However, success will depend on -

Creating tailored investment incentives;

1. Integrating resource advantages into Chinese supply chains;
2. Expanding infrastructure capacity to support megaprojects.

3. International partners must also adapt trade and climate finance policies to respond effectively to China's accelerating outward green manufacturing drive.

2. Suicide In India's Farm Sector In 2023 - NCRB Report

Recent NCRB's 2023 report (NCRB's Accidental Deaths and Suicides in India 2023 Report) highlighted a troubling persistence of suicides among farmers and agricultural labourers.

Key Findings from the NCRB (2023)

Over 10,000 suicides were recorded among individuals engaged in farming-related activities. Maharashtra, Karnataka, and Telangana continue to report the highest numbers.

Agricultural laborers accounted for a growing share of these deaths, indicating worsening conditions for landless workers. Debt burden, crop failure, and lack of access to institutional credit remain the leading causes.

Structural Challenges

1. Fragmented land holdings and climate volatility have made farming increasingly unsustainable.
2. Input costs have risen sharply, while market prices remain volatile and often below Minimum Support Price (MSP).
3. Mental health support in rural areas is virtually nonexistent, leaving farmers with few coping mechanisms.

Rising Deaths Linked to Health and Mental Illness

Suicides due to illnesses increased by 3.2%, with mental health disorders cited in 13,978 cases. Sudden deaths from heart attacks saw a 10% surge, reflecting growing lifestyle and stress-related health risks. Alarmingly, abortion-related fatalities rose by 59%, resulting in 127 maternal deaths, pointing to critical gaps in women's healthcare access and safety.

Nature's Deadly Role

External and environmental factors added to the tragedy. In 2023, 6,444 accidental deaths were caused by natural forces, with lightning emerging as the most lethal—responsible for nearly 40% of such fatalities. Additionally, animal attacks injured or killed 1,742 people, emphasizing the vulnerability of rural populations to climate and wildlife-related hazards.

Policy Response

PM-KISAN - Direct income support to farmers.

Crop Insurance Schemes - To mitigate losses due to natural calamities.

Kisan Credit Cards - For easier access to institutional loans.

3. WHO Report Highlights Global Gaps in Tobacco Reduction Progress

A new report released by the World Health Organization (WHO) has revealed that global efforts to reduce tobacco use are progressing unevenly.

Key Findings

Only three WHO regions are currently on track to achieve the Global Action Plan for the Prevention and Control of Non-Communicable Diseases (NCDs) target—a 30% reduction in tobacco use between 2010 and 2025.

Regions Making Progress

According to the report, the following regions are on course to meet the target -

African Region - This region continues to show strong policy commitment and steady declines in tobacco consumption, attributed to widespread implementation of WHO's Framework Convention on Tobacco Control (FCTC) measures.

Region of the Americas - Many countries in the Americas have strengthened tobacco taxation, advertising bans, and smoke-free laws, contributing to substantial reductions in tobacco use.

South-East Asia Region - Public awareness campaigns, stricter regulation, and community health initiatives have significantly curbed tobacco use in this region.

Regions Lagging Behind

Other WHO regions—including Europe, the Eastern Mediterranean, and the Western Pacific—are not on track to meet the 2025 goal. These regions face challenges such as -

1. Slow policy adoption;
2. Tobacco industry interference;
3. Rising use of alternative nicotine products;

Global Implications

The uneven progress underscores the urgent need for stronger tobacco control policies, enhanced public health education, and greater international cooperation. WHO stresses that accelerated action is essential to reduce the burden of tobacco-related noncommunicable diseases, which remain leading causes of death worldwide.

4. India's Carbohydrate-Heavy Diet - Rising Diabetes and Obesity Rates

A new study by the ICMR–India Diabetes (INDIAB) has revealed an alarming link between India's dietary habits and the growing prevalence of type 2 diabetes and obesity across the nation.

Carbohydrates Dominate Indian Diets

According to the report, Indians derive about 62% of their daily calories from carbohydrates, primarily from white rice, refined grains, and added sugars. This dietary pattern, while traditional, is increasingly being associated with metabolic health challenges in both rural and urban populations.

Increased Diabetes Risk

The study, which surveyed 121,077 adults across the country, found that a higher carbohydrate intake raised the risk of newly diagnosed type 2 diabetes by 14%. It occurs when the body becomes resistant to insulin or fails to produce enough of it, resulting in elevated blood sugar levels.

Lifestyle Factors Intensify the Problem

Researchers highlighted that the surge in diabetes cases is not solely due to diet, but linked to sedentary lifestyles, overweight, and poor nutritional diversity. Rapid urbanization, processed food consumption, and reduced physical activity are compounding the problem.

Call for Nutritional Shift

Experts stress the need for dietary rebalancing, advocating a move toward whole grains, pulses, vegetables, and proteins while reducing refined carbohydrates and sugars. Public health initiatives emphasizing awareness, prevention, and lifestyle modification are critical to curbing this growing epidemic.

Conclusion

India's evolving dietary landscape is having profound consequences on public health. As the ICMR–INDIAB study reveals, unless substantial changes in nutrition education and food policy are implemented, the nation's diabetes and obesity burden is likely to escalate further.

5. Collective Denial - A Decade After the Paris Agreement

Despite the pledge to limit global warming to well below 2°C—and ideally to 1.5°C at the Paris Agreement of 2015—countries are collectively planning more fossil fuel production than ever before. The

Production Gap Report 2025, released on September 22 ahead of COP30 in Belém, Brazil, reveals an alarming expansion in fossil fuel plans, threatening to derail global climate ambitions.

Expanding Production Gap

According to the report, governments plan to produce 120% more fossil fuels by 2030 than would be consistent with the 1.5°C target. It marks a widening gap compared to the 2023 assessment, showing a disturbing retreat from the Paris goals rather than progress toward them.

Coal - It remains the most misaligned energy source -

500% higher production projected for 2030 than 1.5°C-consistent levels.

330% higher than 2°C-consistent levels.

Oil and Gas -

Oil production plans for 2030 exceed Paris-aligned limits by 31%.

Gas production exceeds the 1.5°C benchmark by 92%.

Major producers — China, the United States, Saudi Arabia, Brazil, and Nigeria—are expanding extraction efforts, contradicting both global and national net-zero targets.

Country-Level Contradictions

Despite climate pledges, many nations are increasing fossil fuel production -

1. Nigeria has doubled its 2030 oil target.
2. Brazil projects a 47% rise in oil output by 2030.
3. China and India are slowing coal phase-outs.

Of the 20 countries profiled in the report, 17 plan to expand at least one fossil fuel by 2030, while 13 anticipate significant gas increases. Alarmingly, 11 countries are now planning higher fossil fuel production than they did in 2023.

Economic Lock-In and Climate Risk

The report warns that time lost to inaction will make future reductions both harder and costlier. Continued investment in fossil fuel infrastructure throughout the 2020s will 'lock in' carbon emissions and stranded assets, pushing the world further from its net-zero trajectory. Even with immediate and decisive action, fossil fuel production in 2030 is expected to exceed levels consistent with the 1.5°C pathway. Cumulative production over this decade will already have surpassed climate-safe thresholds.

Human and Environmental Costs

Neil Grant of Climate Analytics describes the situation as 'intolerably unjust', emphasizing the human toll of continued fossil expansion. Vulnerable communities will bear the brunt of worsening heatwaves, floods, and displacement, even as renewable energy technologies have become economically competitive.

Need for a Just Transition

To close the production gap, countries must enact coordinated policies for a just transition away from fossil fuels. Only a few—such as Germany, Norway, and the UK—are developing production scenarios aligned with their net-zero goals. Most nations continue to plan expansions incompatible with global climate limits. Reaching net-zero emissions in the second half of the century requires steep, immediate declines in coal, oil, and gas use. Failure to act decisively now will leave future generations with an even steeper and costlier transition. At current emission rates, the remaining carbon budget for 1.5°C may run out in just over three years—a stark reminder that the window for meaningful action is rapidly closing.

6. Ultra-Processed Foods (UPFS)

Over the past few decades, food companies have exploited basic human instincts to sell ultraprocessed products (UPFs) that are fuelling a silent addiction epidemic.

About the Ultra-Processed Foods (UPFs)

These are industrial formulations made mostly or entirely from substances extracted from foods (oils, fats, sugar, starch, protein isolates) or synthesized in laboratories (flavor enhancers, colorings, emulsifiers). The NOVA classification system, widely used in nutrition science, categorizes foods based on the extent and purpose of processing. UPFs fall into the fourth category, representing the highest level of processing.

NOVA Classification

Group 1 - Unprocessed or minimally processed foods (fruits, vegetables, grains, meat).

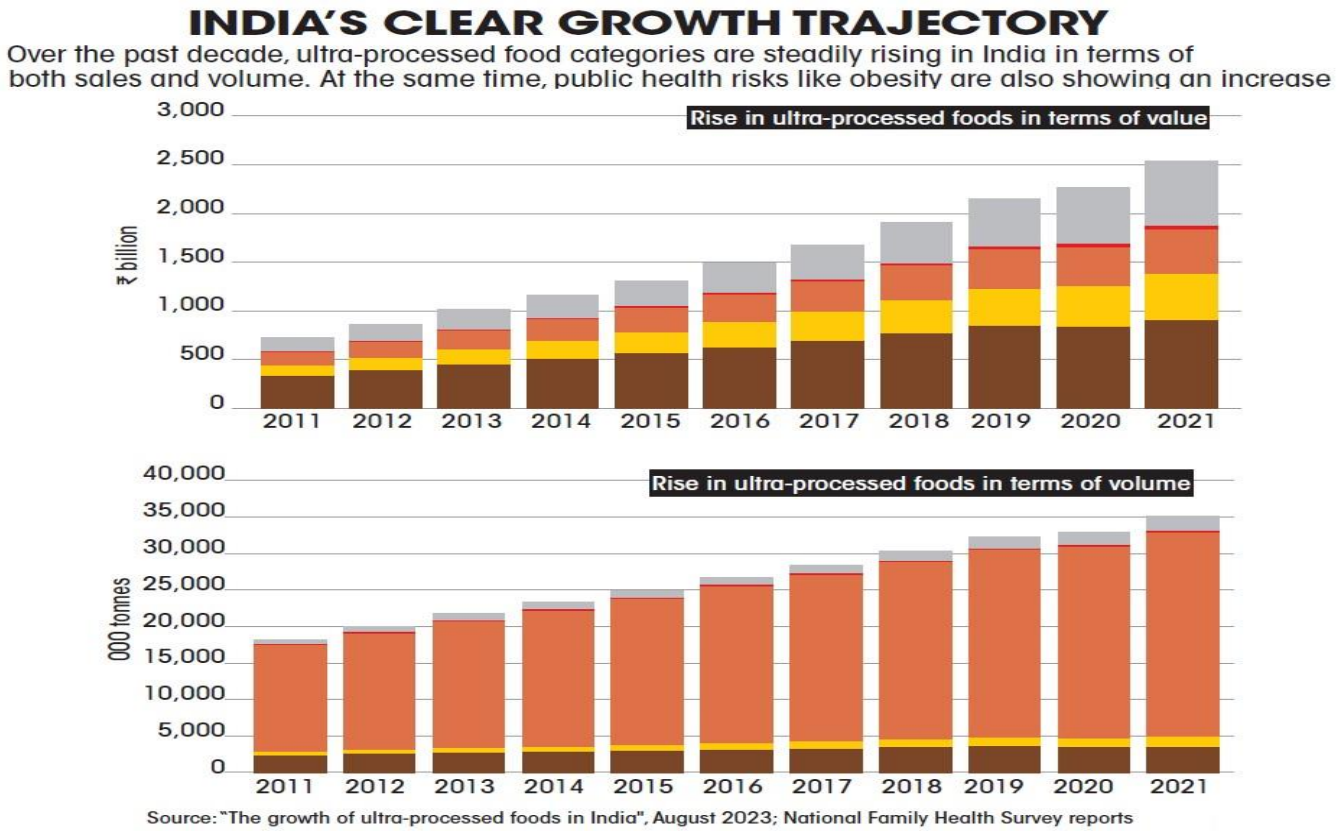
Group 2 - Processed culinary ingredients (oils, butter, sugar, salt).

Group 3 - Processed foods (canned vegetables, simple cheese, tinned fish).

Group 4 - Ultra-processed foods (soft drinks, biscuits, candies, ready meals, chips, and instant noodles).

It is estimated that UPFs contribute to $7 trillion in hidden costs globally—stemming from healthcare burdens, environmental degradation, and reduced labor productivity.

India's Growing Appetite for Junk



India's economic growth and changing lifestyles have accelerated the shift toward UPFs. Between 2006 and 2019, consumption surged from $900 million to $37.9 billion, growing at over 33% annually. The Economic Survey 2024–25 flagged the alarming rise in UPF consumption and emphasized the need for stringent labeling rules to protect youth health. According to the Household Consumption Expenditure Survey 2022–23, about 10% of urban and rural food budgets are spent on processed foods and beverages. Salty snacks, biscuits, chocolates, and ready-made meals dominate retail sales. Sweet biscuits alone account for over 43% of the chocolate and sugar confectionery category. The National Family Health Surveys (NFHS) reveal that obesity prevalence rose by more than 10 percentage points between 2005–06 and 2019–20.

Health & Environmental Impacts

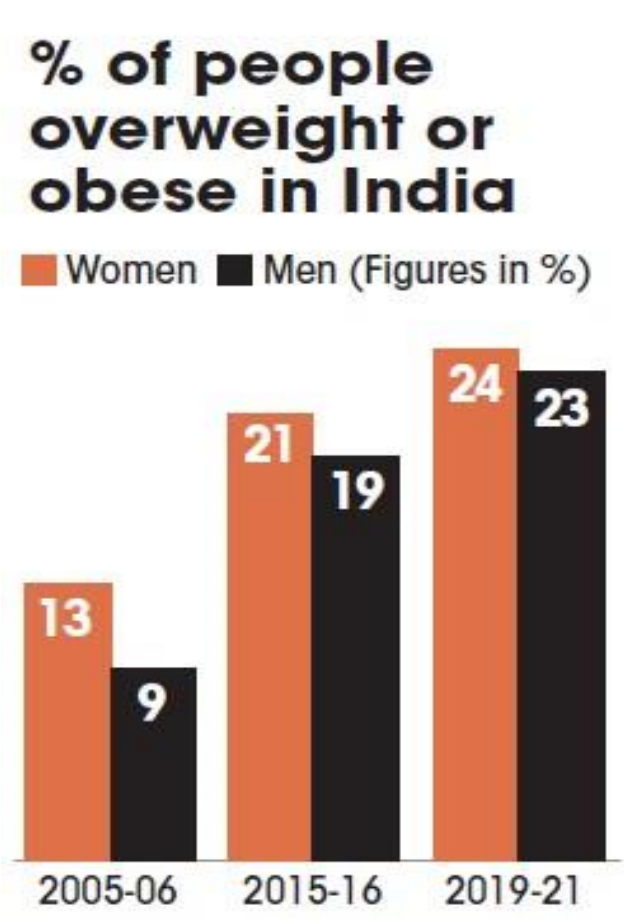
1. Obesity and metabolic disorders;
2. Cardiovascular diseases;
3. Type 2 diabetes;
4. Mental health challenges like depression and anxiety;

The Economic Survey 2024–25 and Nutritional Advocacy in Public Interest (NAPI) reports expose how major food corporations influence policymaking to delay or weaken health regulations.
For example, India's proposed front-of-package warning label (FOPL) system was stalled under industry pressure. Instead, regulators introduced a diluted 'Health Star Rating' masking the dangers of high-sugar or high-fat foods.

Why Are UPFs So Hard to Resist?

UPFs are engineered to be hyper-palatable—high in sugar, salt, and fat—making them addictive and easy to overconsume. Their convenience, long shelf life, and aggressive marketing make them especially appealing in urban and rural settings alike.

Policy Measures Around the World



Globally, more than 45 countries—including the UK, Mexico, and South Africa—have imposed taxes on sugary drinks. A smaller number, such as Chile, Israel, and Peru, have extended these to other UPFs and adopted front-of-package warning labels. These measures have been effective in curbing unhealthy food consumption and improving consumer awareness. In India, Kerala introduced a 'fat tax' in 2016 on fast foods like burgers and pizzas, but nationwide efforts remain inconsistent. The Economic Survey 2024–25 now recommends a broader 'health tax' on UPFs. The Food Safety and Standards Authority of India (FSSAI) has formed a dedicated panel to address the challenges posed by UPFs. It includes -

1. Reviewing safety standards for processed and ultra-processed foods;
2. Developing rapid detection kits for food adulteration;
3. Promoting front-of-pack labeling to inform consumers;

Way Forward - Recognizing Food Addiction

To combat the growing epidemic of obesity and dietrelated diseases, policymakers must first acknowledge ultra-processed food addiction as a legitimate disorder. This recognition could lead to -

1. Stricter advertising and marketing regulations, especially targeting children.
2. Mandatory warning labels on unhealthy products.
3. Reformulation of food products to reduce sugar, fat, and salt.
4. Independent public health campaigns to counter industry influence.

Formal classification of UPF addiction would mark a turning point—pushing governments to act decisively against one of the most pervasive and profitable health threats of our time.

7. What The H-1b Visa Angst Reveals About India

India's response to the recent turmoil over the US H1B visa reveals a deeper issue in its development model. The government expends considerable diplomatic and financial effort to facilitate the migration of skilled professionals abroad, but fails to create comparable opportunities for innovation and research at home.

India's H-1B Dependence

The H-1B visa, a key pathway for global tech workers to access opportunities in the U.S., has long symbolized success for India's STEM graduates. In 2024, Indians received 71% of all H-1B approvals — 283,397 visas — far surpassing China's 12%. For individual professionals, the visa represents access to world-class technology ecosystems and career mobility.

China's Strategic Countermove - The 'K Visa'

China introduced the 'K visa', a program aimed at attracting young STEM professionals to fuel its technological rise. It was built on China's longstanding talentrepatriation programs, such as the Thousand Talents Plan (2008), designed to lure eminent scientists and innovators — both overseas Chinese and foreigners — to its universities and laboratories. By offering generous funding, research freedom, and modern infrastructure, China has managed to attract Nobel laureates and MacArthur 'genius grant' winners, embedding them in its innovation ecosystem.

Missing Vision in India

While the Global Innovation Index (2025) saw China enter the top 10 for the first time — a historic feat for a middle-income nation — India languished at rank 38. India, by contrast, lacks a coherent strategy to attract or retain high-caliber talent. Nobel laureate Venkatraman Ramakrishnan bluntly summarized the problem - India is not a magnet for global science due to inadequate funding, infrastructure, and academic freedom.

Beyond the Visa - A Call for Innovation at Home

The H-1B visa crisis may, ironically, serve as a wakeup call. If U.S. restrictions persist, India will have little choice but to create a more vibrant domestic ecosystem for technological innovation. It requires -

1. Policy reform to improve research funding and autonomy.
2. Public-private partnerships that foster industrial innovation.
3. Incentives for returnees and global talent to collaborate with Indian institutions.
4. Long-term vision, modeled on China's futurefocused strategy.

8. National Biodiversity Authority (NBA)

The National Biodiversity Authority's Poor Record in Benefit Sharing. Less than 27% of funds disbursed to local communities since 2008.

About National Biodiversity Authority (NBA)

It was established in 2003 under the Biological Diversity Act (BDA), 2002, was created to ensure equitable sharing of benefits derived from India's biological resources. However, recent data obtained through the Right to Information (RTI) Act, 2005, reveals a significant shortfall in the NBA's performance.

Funds Collected vs. Disbursed

Between 2008–09 and 2024–25, the NBA received a total of ₹224.28 crore from companies, institutions, and individuals as Access and Benefit Sharing (ABS) payments. Shockingly, only ₹60.44 crore (less than 27%) has been disbursed to the rightful beneficiaries.

1. ₹12.25 crore was transferred to Biodiversity Management Committees (BMCs);
2. ₹9.40 crore went to State Biodiversity Boards (SBBs) (including administrative costs);
3. ₹38.79 crore reached local communities and other beneficiaries**;**

How Benefit Sharing Works?

The three-tier structure under BDA comprises -

1. **NBA (Central level);**
2. **SBBs (State level);**
3. **BMCs (Local/panchayat level);**

Companies using biological resources for commercial purposes must compensate the source communities. They can either -

1. Pay 1 – 5% of the purchase price, or
2. Pay 0.1 – 0.5% of the sale price**,** depending on their scale of operations.

Of the total payment, 95% must go to local communities or BMCs, while 5% can be retained by the NBA or SBB for administrative expenses. If the 'benefit claimers' cannot be identified, the funds must be used to support biodiversity conservation and promote local livelihoods in the area where the biological resource was sourced.

Challenges in Identifying Beneficiaries

Officials acknowledge that identifying the original source of biological resources is a major challenge. For instance, a company may report buying saffron from a Delhi trader, even though the crop originates in Jammu and Kashmir. Tracing the true source in such cases is often impossible, especially when resources are grown in multiple regions.

Unutilized Funds and Interest Dispute - The undistributed funds are currently parked in fixed deposits. Companies that made payments are now requesting that 50% of the accrued interest be shared with them. The NBA has formed a committee to consider this request, and a decision is expected soon.

Case of Red Sanders - A major portion—**₹**100 crore—of the collected ABS funds comes from the trade of red sanders (Pterocarpus santalinus), a valuable species endemic to Andhra Pradesh's Chittoor, Kadapa, Kurnool, and Nellore districts. NBA claims that beneficiary communities for about ₹33 crore have been identified, and efforts are ongoing to trace farmers who supplied the resource. Another ₹75 lakh has been received from a Maharashtra-based private entity, but beneficiaries are yet to be compensated.

Conclusion

Despite its mandate to promote equitable benefit sharing and biodiversity conservation, the NBA's dismal record—disbursing less than 27% of the collected funds—reveals systemic inefficiencies. Poor documentation, lack of transparency, and bureaucratic hurdles have kept local communities, the rightful custodians of India's biodiversity, from receiving their due. Urgent reforms in traceability, data

transparency, and community engagement are needed to restore faith in the benefit-sharing framework envisioned by the Biological Diversity Act.

9. Decline Of India's Right to Information (RTI) Act

Recently, the Right to Information (RTI) Act completed 20 years—a landmark law that once empowered citizens to hold their government accountable. However, successive amendments, judicial interpretations, and administrative neglect have eroded its strength.

About RTI and Founding Principle

The RTI Act, 2005, was built on a simple democratic premise - information held by the government belongs to the people. The law presumed disclosure as the default, with only ten specific exemptions under Section 8(1).

The Digital Personal Data Protection (DPDP) Act, 2023

The DPDP Act, 2023 delivered a severe blow by amending Section 8(1)(j)—reducing its scope to a mere six words - 'information which relates to personal information'. It eliminated the earlier public-interest test and broadened 'personal information' to include entities like firms, companies, and even the State. As a result, vital public data—loan defaulters' names, officials' asset declarations, or details of public contracts—can now be withheld on privacy grounds.

Administrative Paralysis

Transparency has also been crippled by vacancies and delays in Information Commissions -

1. 0.4 million cases are pending across the country.
2. Seven State Information Commissions (SICs) were defunct in 2023–24.

The Central Information Commission (CIC) operates with barely a fraction of its sanctioned strength. Some states, such as Chhattisgarh and Bihar, take over four years to hear appeals—rendering "information delayed" effectively 'information denied'.

Amendments Undermining Independence

The RTI (Amendment) Act, 2019 empowered the Union government to decide the tenure, salary, and post-retirement benefits of commissioners. This move compromised their autonomy, potentially influencing decisions against government interests. By demoting commissioners' status from that of Election Commissioners to that of secretaries, the amendment signalled a shift towards central control and weakened institutional independence.

Erosion of Transparency

RTI has historically exposed scams such as Vyapam, Adarsh Housing, and Commonwealth Games, but recent years have seen a surge in opacity -

1. Ministries deny crucial data citing privacy or 'nonavailability'.
2. The Election Commission and Ministry of External Affairs have refused disclosures not covered by Section 8 exemptions.
3. Even powerful entities like the BCCI remain outside RTI's ambit despite functioning as quasipublic bodies.
4. Moreover, over 100 whistleblowers have been killed since 2005, and the Whistle Blowers Protection Act (2014) remains unimplemented—further discouraging transparency.

Privacy vs. Transparency

While privacy is essential, the DPDP Act has made it absolute, overriding public interest. Earlier, Section 8(1)(j) balanced privacy with transparency by allowing disclosure if public interest justified it. Now, information crucial to public welfare—loan defaults, election funding, recruitment irregularities—is shielded as 'personal', contradicting democratic accountability.

Restoring the Spirit of RTI

Restore Institutional Independence - Reverse the 2019 amendment to ensure fixed tenure and transparent appointments of commissioners.

Reinstate the Public Interest Test - Amend the DPDP Act to restore the right to access information with public relevance.

Fill Vacancies Promptly - Appoint commissioners and digitise records to reduce the backlog.

Strengthen Whistleblower Protection - Implement the 2014 Act and ensure safety for information seekers.

Enhance Awareness and Accessibility - Replicate models like Gujarat's user-friendly system and Maharashtra's searchable RTI database.

10. Rethinking Development in the Fragile Himalayas

The recent floods, landslides, and glacial bursts across Himalayan states in India have underscored the urgent need to rethink the model of growth that the Himalayas can safely sustain.

Fragility Amplified by Unsustainable Growth

The Himalayas, stretching across five countries and nurturing the headwaters of major rivers. They are living ecosystems and cultural landscapes that sustain nearly 240 million people. Himalayan environmental degradation observed that the construction of highways, tunnels, and hydropower projects has been prioritized without adequate ecological safeguards. The Char Dham Highway project and multiple run-of-the-river hydropower dams have destabilized slopes, disrupted aquifers, and led to recurring disasters such as those in Joshimath and Chamoli. According to the National Disaster Management Authority (NDMA), the frequency of 'compound disasters'—where landslides coincide with floods— has doubled in the past decade due to deforestation and slope destabilization. It indicates that the Himalayas are not just facing natural hazards but human-induced vulnerabilities.

Climate Change and the New Normal

Reports by the Indian Institute of Science (IISc) and the Himalayan State Climate Outlook 2025 highlight an alarming trend - the Himalayan glaciers are retreating faster than the global average. In states like Sikkim and Himachal Pradesh, glacier melt contributes to flash floods and the sudden formation of glacial lakes. The Sikkim flood (2023) was caused by the South Lhonak Lake outburst, and was intensified by unusually high rainfall and infrastructure exposure along river valleys. The combination of climate instability and overconstruction is creating a dangerous feedback loop, where developmental projects amplify climate risks, and climate risks, in turn, erode development gains. Local Livelihoods and the Displacement Dilemma - Hydropower projects, mining, and road expansion have uprooted thousands of families while offering few long-term economic benefits. MoEFCC emphasized that localized, small-scale economies — such as eco-tourism, traditional agriculture, and forest-based livelihoods — are better suited for these terrains than extractive models of growth.

Governance and Policy Gaps

1. Environmental Impact Assessments (EIAs) are often diluted, and state disaster management plans are reactive rather than preventive.
2. The National Mission for Sustaining the Himalayan Ecosystem (2023) called for integrated watershed management, but implementation remains sporadic.
3. The Himalayan Sustainable Development Forum (2024) urged the inclusion of indigenous knowledge systems and community-based monitoring into official planning. It could bridge the gap between top-down development and ground-level realities.

Path Toward Resilience

1. Rethinking development in the Himalayas requires balancing ecology, economy, and equity.
2. The region needs a 'mountain logic'—a framework that values biodiversity, water security, and cultural continuity over short-term GDP gains, rather than replicating the plains' industrial growth.
3. Resilient Himalayan development means -
4. Respecting eco-zones as no-construction areas.
5. Investing in climate-resilient infrastructure.
6. Empowering local governance institutions like Van Panchayats.
7. Integrating early warning systems for landslides and glacial lake outbursts.
8. Respecting Carrying Capacity - Development needs to stay within the region's carrying capacity.
9. Urban expansion has outpaced ecological tolerance — while population in Himalayan states grew 1.5 times between 1971 and 2021, the urban population quadrupled.
10. Urban planning needs to identify no-construction zones, establish slope-specific building codes, and develop water and sewage systems suited for mountainous terrains.
11. Rethinking Development Models - Environmentalists have argued for a 'localization model of growth' — a shift away from large-scale industrial development toward community-led, eco-sensitive initiatives. It involves -
12. Limiting construction on slopes above a certain gradient.
13. Redefining carrying capacity for Himalayan towns.
14. Restoring degraded watersheds and springs.
15. Promoting decentralized renewable energy systems.

11. Transmission Trap - Challenges with India's Renewable Energy

Despite record solar and wind installations in India, inadequate transmission infrastructure and poor demand forecasting are forcing large-scale curtailments — leaving clean energy projects idle and developers counting heavy losses.

Curtailments and Mounting Losses

At least 30 solar and wind projects across India faced curtailments, resulting in losses of up to ₹700 crore, according to industry insiders between March and August 2025. Plants in Rajasthan, Gujarat, Maharashtra, and Tamil Nadu—key renewable hubs—are among the hardest hit. In Rajasthan alone, projects totaling 4 GW of capacity were ordered to cut generation by nearly half during peak midday hours, leading to losses of around ₹250 crore. Developers such as Adani Renewable Energy, Tata Power, and Azure Power have been affected.

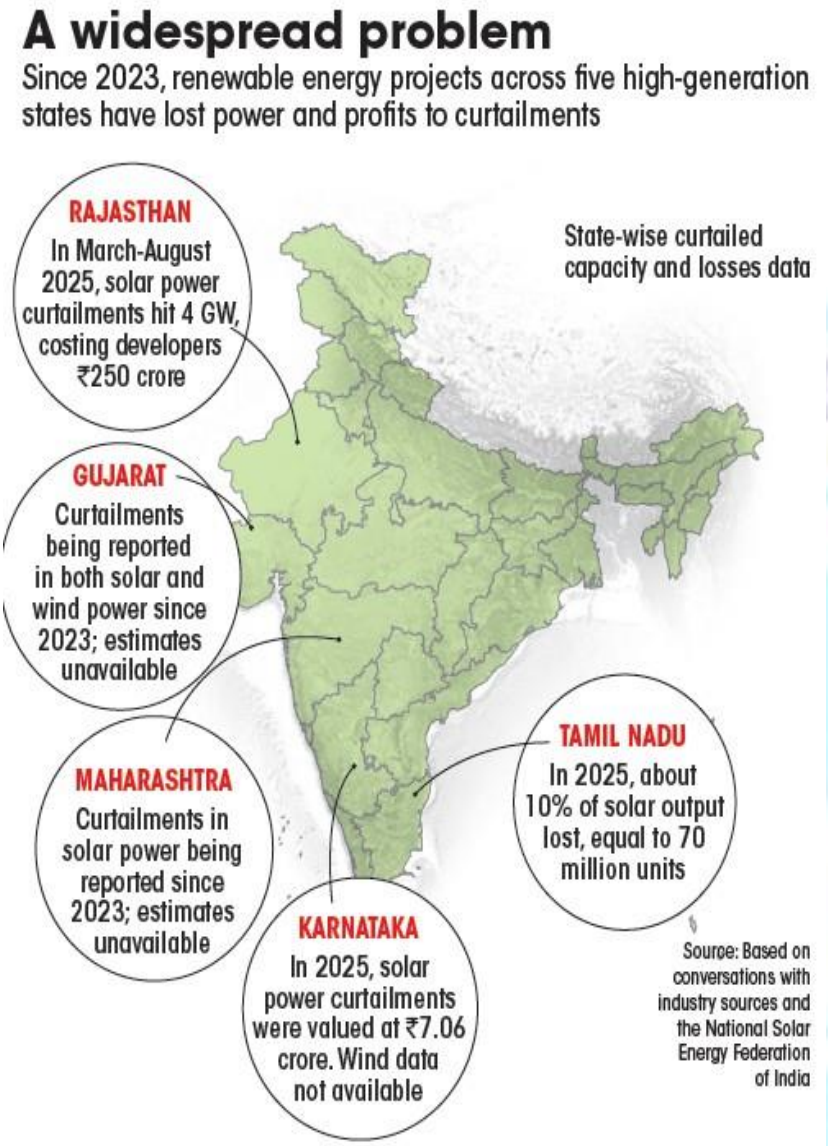
Transmission Bottlenecks

At the heart of the crisis lies India's slow progress in building and upgrading electricity transmission lines. Renewable projects require General Network Access (GNA) from the Central Electricity Regulatory Commission (CERC) to feed power into the grid. However, many new projects are operating on Temporary General Network Access (TGNA), which offers only conditional grid access without compensation for curtailments. The National Solar Energy Federation of India (NSEFI) reported that of 22.5 GW of commissioned solar capacity in Rajasthan, nearly 8.5 GW operates under TGNA due to delayed transmission lines. These delays often stretch 18–20 months, stalling project utilization and investment returns.

Forecasting Failures and Demand Slumps

Beyond transmission delays, inaccurate demand forecasting has worsened curtailments. The Central Electricity Authority (CEA) had predicted a 2025 peak demand of 270 GW, but unexpected monsoon patterns reduced consumption sharply. As a result, India's grid operators curtailed nearly 10

GW of power daily during low-demand hours to maintain grid stability. Even coal plants were affected, running at only 40% capacity, a level detrimental to their machinery.



Economic and Policy Impacts

The repeated curtailments are shaking investor confidence. Under GNA, developers receive compensation for forced outages through Power Purchase Agreements (PPAs). Under TGNA, however, no compensation is provided, leaving developers to absorb the full financial hit. Industry bodies warn that this uncertainty could jeopardize India's 500 GW non-fossil fuel target by 2030. New renewable tenders may face reduced participation as investors re-evaluate risks.

Underlying Causes

Transmission Delays - Construction of lines typically takes 2–3 years, outpacing the 18–24-month project timelines for solar and wind plants.

Regulatory Gaps - Limited clarity on GNA issuance and compensation for curtailed TGNA projects.

Planning Mismatch - Renewable capacity has expanded faster than infrastructure to integrate it.

Environmental and Legal Hurdles - Land acquisition and clearance delays for new lines exacerbate grid congestion.

Government Response

Officials at the Ministry of New and Renewable Energy (MNRE) acknowledge the issue but attribute curtailments to 'emergencies. The ministry has yet to quantify the total losses but has pledged to coordinate with the CEA and Union Ministry of Power for a detailed assessment.

Proposed Solutions

Accelerate Transmission Expansion - Experts urge immediate prioritization of transmission projects in high-generation states.

High Voltage Direct Current (HVDC) lines, capable of transferring large loads over long distances, could ease congestion and link regions with varying demand profiles.

Deploy Energy Storage Systems - Battery Energy Storage Systems (BESS)—whose costs have fallen by 70% in four years—can store excess midday power and release it during peak evening demand.

Improve Forecasting and Planning - The CEA is enhancing its weather forecasting model from a 12 km × 12 km to 4 km × 4 km resolution for more localized predictions. It plans to shift from a five-year to an annual planning cycle for better responsiveness.

Regulatory and Financial Reforms - The NSEFI has proposed compensation for curtailed developers through the Power Systems Development Fund, which currently supports only public transmission upgrades.

12. Sand Replenishment Study a Legal Prerequisite for Mining Clearances - Supreme Court

Recently, the Supreme Court of India ruled that a scientific assessment of river sand replenishment is now a legal requirement for obtaining environmental clearance to mine river sand.

Background - Srinagar NHAI Project Case

The Jammu and Kashmir State Environment Impact Assessment Authority (JKEIAA) had granted environmental clearance to three sand mining sites associated with the Srinagar ring road and four-lane bypass project, despite the Jammu and Kashmir Expert Appraisal Committee (JKEAC) having earlier rejected the projects on grounds of over-exploitation and absence of a replenishment study. Case before the National Green Tribunal (NGT) highlighted multiple violations, including -

1. Absence of a replenishment study in the District Survey Report (DSR);
2. Use of prohibited heavy machinery, and
3. Violation of the J&K Minor Mineral Concession Rules (2016), which bars mining within 25 metres of river embankments.

NGT and Supreme Court Decisions

The NGT ruled that a DSR without a replenishment study is incomplete, making any environmental clearance based on it illegal. It subsequently cancelled all three ECs granted in 2022. The project proponents — Union Territory of Jammu and Kashmir and NHAI — appealed to the Supreme Court, which upheld the NGT's decision. The apex court confirmed that 'sand mining can only be granted when DSR is complete and effective. Any clearance based on a draft DSR is legally invalid'. The Court emphasized that DSRs need to comply with the Environmental Impact Assessment (EIA) Notification, 2016, and the Sustainable Sand Mining Management Guidelines, 2016 and 2020, ensuring decisions are made on scientific grounds and after assessing the annual sand replenishment rate.

Implementation Challenges and Expert Concerns

Replenishment Studies Require Time - Experts note that scientific replenishment studies are long-term exercises, as it takes at least three years of study, covering pre- and post-monsoon seasons, to estimate average replenishment accurately. Typical licences allow extraction of up to 1 metre of sand, but miners often extract up to five times that limit, causing severe ecological harm. A robust replenishment study, therefore, is essential for sustainable mining.

Accuracy and Practical Constraints - Replenishment estimates can only be 70% accurate due to unpredictable factors like rainfall, flow velocity, and weather variability. Excessive mining damages rivers, no mining at all can raise flood risks**,** as sediment buildup reduces a river's carrying capacity.

Conclusion

The Supreme Court's 2025 judgement establishes a critical precedent for environmentally responsible sand mining in India. By mandating replenishment studies as a legal prerequisite for environmental clearances, it reinforces the importance of scientific validation, sustainable resource management, and legal accountability.

13. Africa's Climate Resilience - Homegrown Solutions Amid Global Injustice

Africa stands at the frontline of the global climate crisis — a paradox given its negligible contribution to the problem.

About Africa - A Continent Under Unequal Pressure

Sub-Saharan Africa accounts for just 1.9% of global cumulative fossil fuel emissions, with South Africa alone responsible for 1.3%. But, the region bears a disproportionate share of climate-induced suffering. According to the Brookings Institution, seven of the ten most climate-vulnerable countries in the world are in Africa. The IPCC's Sixth Assessment Report (2021) highlights that the continent has warmed faster than the global average over the past 60 years — a pace unmatched in two millennia.

Escalating Impacts Across the Continent

The World Meteorological Organization's (WMO) 'State of Climate in Africa 2024' report, reveals that 2024 ranked as either the warmest or second warmest year in Africa's history. The year brought devastating floods, droughts, and marine heatwaves, crippling agricultural systems and threatening food security for millions. Forecasts indicate that Africa could surpass the 1.5°C warming threshold by 2040, a development that would amplify losses in agriculture, health, and infrastructure — sectors on which the majority of Africans depend for their livelihoods.

Financial Burden of Climate Ambition

African countries need an estimated US $2.8 trillion between 2020 and 2030, to fulfill their Nationally Determined Contributions (NDCs) under the Paris Agreement. Alarmingly, only 24% of this amount is earmarked for adaptation — despite Africa's acute vulnerability to climate extremes. At the same time, economic headwinds and limited fiscal capacity have deepened dependence on foreign loans.

The UN's 'World Economic Situation and Prospects 2025' warns that African nations are expected to allocate nearly 30% of government revenue to debt servicing in 2025, with 25 countries already devoting over 10% of their revenue to net interest payments. It restricts investment in climate resilience and forces nations to borrow even more for disaster recovery.

Resilience Through Innovation and Tradition

African nations are refusing to remain passive victims, despite formidable challenges. They are forging pragmatic, hybrid solutions that blend traditional ecological knowledge with modern technological innovation. Across the continent, governments and communities are rolling out national strategies for net-zero emissions, community-based adaptation programs, and nature-based solutions such as reforestation, sustainable water management, and droughtresistant agriculture. This bottom-up, inclusive approach offers a blueprint for the broader Global South, showcasing how nations with limited resources can craft effective, locally rooted responses to global crises.

Conclusion - A Call for Climate Justice

Africa's predicament underscores a deep climate injustice — a continent least responsible for emissions, but most burdened by their consequences. As the world races to stabilize the planet's temperature, global financial systems and climate finance mechanisms need to evolve to ensure equitable access to funding, debt relief, and technology transfer. Africa's resilience and innovation illuminate a path forward — one that intertwines sustainability, equity, and indigenous wisdom.

14. Civil Society and the Climate Imperative - Reclaiming Global South Unity

In an era marked by unilateralism and fraying multilateral institutions, the climate crisis has become a casualty of geopolitical fragmentation. Global South cohesion needs to become a top priority to effectively confront climate change.

Lessons from History - Moments of Southern Solidarity

The Global South, encompassing the G77 coalition of developing nations, shares a legacy of colonial exploitation and systemic inequity. But, throughout history, solidarity among these countries has catalyzed transformative change.

Bandung Conference (1955) - Established a collective front against colonialism and initiated the nonalignment movement.

Rio Earth Summit (1992) - Introduced the principle of common but differentiated responsibilities—a cornerstone of global climate negotiations.

COVID-19 Crisis - India and South Africa led the call for a TRIPS waiver at the WTO, while Cuba demonstrated solidarity through medical diplomacy.

COP27 in Egypt - G77 unity achieved a landmark victory—the creation of the Loss and Damage Fund, marking the culmination of three decades of advocacy.

Recent Southern G20 presidencies—Indonesia, India, Brazil, South Africa—have elevated key issues like debt reform, green industrialisation, and financial equity, reaffirming the Global South's leadership potential.

Challenge of Fragmentation

The South remains divided, despite these milestones. Internal differences, shifting leadership, and Northern manipulation often fracture alliances. Moreover, the BRICS+ bloc faces internal contradictions - limited transparency, restricted civil society participation, and enduring fossil fuel dependencies. However, these critiques must be contextualised—industrial pathways and energy demands differ vastly from those of the Global North.

Climate Question - Pathways to a Just Transition

BRICS+ countries now represent 48% of the global population and nearly half of global fossil fuel output. Yet, they are also at the forefront of renewable energy expansion -

Renewables Growth - BRICS+ now produces 51% of global solar power, up from just 15% a decade ago.

Leadership in Action - China leads 74% of global solar and wind capacity construction, while India met its Nationally Determined Contributions (NDCs) five years ahead of schedule.

The BRICS Declaration (2025) emphasizes this balance, advocating for green industrial policy and 'polyalignment', a flexible approach that redefines the geopolitics of green connectivity.

Toward a New Global South Vision

The Western-led order is faltering under its own 'polycrisis'—economic instability, ecological decline, and militarism. For the Global South, long burdened by debt and dependency, this turbulence presents an opening for transformation. A renewed Southern vision should embrace multipolarity, localisation, regional integration, and green industrialisation. It needs to champion de-dollarisation, equitable finance, and technology sharing. Most importantly, it should place development and climate justice at the heart of global governance.

Role of Civil Society

Civil society must lead in rewriting the narrative. Beyond state diplomacy, grassroots networks, researchers, and activists are vital to -

1. Highlight shared struggles and solutions.
2. Build public pressure for accountable climate governance.
3. Foster a common identity rooted in sustainability and justice.

Civil society can transform the Global South from a fragmented grouping into a cohesive climate vanguard—one capable of shaping a truly equitable and green future, by amplifying collective agency.