

**UPSC Syllabus Topic : GS Paper 3- Indian economy- growth and development, infrastructure.**

## **Striking a Balance: India's Journey Towards Sustainable Energy Amid Economic Growth**

### **Introduction: Navigating Energy Transitions in India**

This article delves into India's evolving energy landscape, highlighting efforts to transition from traditional coal reliance to an increased focus on renewables. The challenge lies in managing economic growth and energy security while undertaking this significant shift.

### **Current Energy Status in India: A Complex Mix**

- 1. Growth in Renewables:**
  - India's ambitious goal of nearly tripling its renewable power capacity by 2030 signifies a commitment to cleaner energy sources.
- 2. Decarbonisation Efforts:**
  - Despite the ongoing importance of coal, there has been a noteworthy 76% decrease in fossil fuel subsidies from FY14 to FY22, reflecting decarbonisation efforts.
- 3. Reliance on Coal:**
  - Over 100 GW of daily base power load support is provided by coal-based power plants, underscoring the current reliance on traditional energy sources.

### **Strategies for Improving Coal-Based Energy Generation:**

- 1. Optimizing Thermal Plant Outages:**
  - Effective management of unplanned outages in coal-based power plants, especially during peak demand, requires improved demand forecasting and maintenance scheduling.
- 2. Enhancing Flexibility of Coal Fleet:**
  - Retrofitting existing coal and lignite-based capacity for increased flexibility is proposed by the Central Electricity Authority. This involves reducing minimum power loads and enhancing ramp rate capabilities.
- 3. Incentivizing Storage Services:**
  - Standalone battery energy storage systems (BESS) should be incentivized for their contribution to grid stability and renewable energy integration. A fair compensation mechanism can encourage their deployment.
- 4. Indigenizing Supply Chains:**
  - Similar to the revenue generated by coal production, investments in domestic production of storage and renewable technologies can contribute to economic growth. Schemes like Production-Linked Incentives (PLI) can support indigenization efforts.

### **The Path Forward: Balancing Energy Security and Decarbonization**

- 1. Evaluation of Long-Term Costs:**
  - A critical aspect involves evaluating the long-term costs associated with conventional power reliance and recognizing the decreasing prices in renewable energy and storage.
- 2. Affordability Across Sectors:**
  - Ensuring electricity affordability across all economic sectors is pivotal for robust decarbonization efforts, fostering inclusivity in the transition to sustainable energy.

India's journey towards sustainable energy necessitates a delicate equilibrium, where economic aspirations align with global decarbonization goals. By leveraging renewable energy potential and adopting strategic measures, India can forge a path towards a more sustainable and resilient energy future.

**UPSC Syllabus Topic : GS Paper 3 – Indian Economy – mobilization of resources.**

**Rethinking Tax Distribution: Striking a Balance for States in India**

**Introduction: Evolving Dynamics of Tax Revenue Allocation**

This article explores the intricacies of tax revenue distribution among Indian states, particularly focusing on the Finance Commission's role and the challenges posed by varying tax contributions.

**Historical Tax Allocation Landscape: An Overview**

**1. Pre-2000 Scenario:**

- Personal income tax and Union excise duties constituted the major components.
- Population held substantial weight (80-90%) in income tax distribution, lacking consumption data for excise duties.

**2. Post-2000 Transition:**

- A unified formula encompassing all central tax revenues was adopted.
- Equity considerations gained prominence alongside demographic factors.

**3. 15th Finance Commission:**

- Introduced a nuanced formula incorporating tax effort, demographic performance, per capita income, and population as per the 2011 Census.

**Challenges in Tax Contribution: Unpacking the Issues**

**1. Primary Challenge:**

- Debate revolves around whether states contributing more in taxes should receive a proportionately larger share.

**2. Historical Weightage:**

- Traditional formulas assigned limited weight (10-20%) to state tax contributions.

**3. Attribution Complexity:**

- Accurately attributing income tax revenue to specific states poses challenges, complicating assessments.

**4. States' Demand:**

- States with significant income tax collections advocate for a more pronounced representation in the distribution formula.

**Strategic Recommendations for Reform: Balancing Efficiency and Equity**

**1. Incorporate State GST Contributions:**

- Consider State GST contributions as an efficiency indicator due to its direct reflection of a state's tax base.

**2. Petroleum Consumption as Indicator:**

- Introduce petroleum consumption by states as another efficiency indicator, reflecting contributions to Union excise duties.

**3. Significant Weightage to Efficiency:**

- Assign substantial weight (suggested at least 33%) to efficiency indicators like GST revenue and petroleum consumption.

**4. Maintain Equitable Balance:**

- Balance efficiency considerations with equity indicators (population, area, income levels) for a fair distribution of Union tax revenues.

**Conclusion: Towards a Fair and Efficient Tax Regime**

Rethinking tax distribution involves a delicate balance between recognizing states for economic efficiency and ensuring equitable allocation. By incorporating efficiency indicators and maintaining a nuanced formula, India can move towards a tax distribution system that aligns with both economic contributions and broader equity considerations.

**UPSC Syllabus Topic : GS Paper 3 Agriculture – Economics of animal-rearing..**  
**Enhancing India's Milk Potential: The Gir Bull Semen Experiment**

**Introduction: Unleashing the Dairy Potential of India**

This article delves into India's prominent status as the leading global milk producer, emphasizing the need for increased production to meet domestic demands and explore international markets. The government's ambitious goal of achieving 330 million tonnes of annual milk output by 2033-34 is discussed, with a particular focus on pragmatic measures to enhance milk-producing capacities.

**Current Landscape of Milk Production: A Global Leader with Limitations**

1. **Dominance in Milk Production:**
  - India stands as the world's largest producer of milk, generating 230.6 million tonnes in 2022-23.
2. **Domestic Consumption Challenges:**
  - Despite its mammoth production, India primarily caters to domestic consumption, necessitating strategies to scale up for both national and international markets.

**Strategies for Augmented Milk Production: A Two-Fold Approach**

1. **Increasing Cattle Numbers:**
  - One strategy involves augmenting the cattle population.
2. **Enhancing Milk Yield per Cattle:**
  - The author asserts the efficiency of boosting the milk-producing capacity of existing livestock.

**Initiative to Import Gir Bull Semen: A Pragmatic Approach**

1. **NDDB's Strategic Move:**
  - The National Dairy Development Board (NDDB) is importing 40,000 doses of Gir bull semen from Brazil.
2. **Gir Breed Attributes:**
  - Gir breed, known for its prolific milk production, can yield up to 40 litres per day per animal, surpassing the average of Indian cattle (8 litres per day).
3. **Genetic Imports:**
  - The genetic infusion aims to imbue local bovine populations with superior milk-producing traits.

**Challenges and Concerns: Navigating the Genetic Landscape**

1. **Genetic Hybrid Challenges:**
  - The article acknowledges that genetic hybrids may not invariably acquire all desired traits.
2. **Resistance to Imports:**
  - Livestock imports face opposition, primarily from breeders, underscoring the need for careful implementation.

**Author's Perspective: A Strategic Necessity for India's Dairy Sector**

The author contends that the initiative to import Gir bull genes from Brazil is a strategic move to augment milk output efficiently without expanding cattle farms. The article emphasizes the significance of balancing genetic enhancements with potential challenges and public sentiment.


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