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BA Economics Honours | Semester V | Calicut University

Environment and Sustainable Development

Course Code: ECO5EJ302 • Module 4

Module IV: Sustainable Development

Sustainable development bridges economic aspirations with ecological boundaries, ensuring intergenerational and intragenerational equity.

Unit 17, 18, 19 & 20: Concepts, Global Earth Summits, and Agenda 21

- **Brundtland Commission Definition (1987 - Our Common Future):** "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."
  - *Weak Sustainability (Hartwick-Solow Rule):* Assumes high substitutability between natural capital and man-made manufactured capital; total aggregate capital stock must remain non-declining over time.
  - *Strong Sustainability:* Contends natural capital performs critical, irreplaceable life-support functions that cannot be substituted by human-made machines; critical natural capital must be preserved intact.
- **Milestone Earth Summits:**
  - *Rio Earth Summit (1992 - UNCED):* Adopted the Rio Declaration, the UN Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and **Agenda 21**—a comprehensive blueprint of action for global sustainable development.
  - *Johannesburg Summit (2002) and Rio+20 (2012):* Focused on green economy roadmaps and institutional frameworks for sustainable development.
- **Sustainable Development Goals (SDGs 2015–2030):** A universal agenda comprising 17 goals and 169 targets balancing economic prosperity, social inclusion, and planetary health.

Unit 21 & 22: Non-Conventional Energy and Organic Agriculture

- **Renewable and Non-Conventional Energy:** Accelerated transition from fossil fuel combustion to clean solar photovoltaic power, wind turbines, green hydrogen, and biomass energy. Supported by India's National Solar Mission and International Solar Alliance (ISA).
- **Organic Farming:** Agro-ecological farming system avoiding synthetic chemical fertilizers and pesticides, enhancing soil microbial biodiversity, capturing soil carbon, and improving rural livelihood sustainability (pioneered in India by Sikkim as the world's first 100% organic state).

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Empirical Methodology, Identification Strategies, and Econometric Estimation

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Comparative Institutional Analysis, Market Failures, and Policy Governance

Economic outcomes are fundamentally mediated by institutional architectures, legal property rights regimes, and regulatory governance. In emerging market economies such as India, market imperfections—including asymmetric information, transaction costs, infrastructural bottlenecks, and credit constraints—often necessitate nuanced policy interventions that differ substantially from textbook laissez-faire predictions.

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Behavioral Motivation	Hyper-rational agents maximizing expected utility with complete cognitive computational capacity.	Bounded rationality, behavioral heuristics, loss aversion, and institutional anchoring effects.	Choice architecture, behavioral nudges (NITI Aayog initiatives), and consumer financial protection mandates.
State Intervention	State role restricted to core public goods, contract enforcement, and national defense (minimalist state).	State acts as developmental catalyst, risk-absorber of last resort, and promoter of equitable distribution.	Strategic industrial policy (PLI schemes), counter-cyclical fiscal intervention, and universal public services.
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Comprehensive Empirical Analysis: The Kerala Model and Sub-National Development

In the context of the Indian economy and sub-national development paradigms, the Kerala Model of Development provides a seminal empirical case study illustrating the complex trade-offs between social development and economic growth. Characterized by high physical quality of life indicators—including near-universal adult literacy, high life expectancy, and low infant mortality rates comparable to advanced Western economies—achieved despite historically modest per capita state domestic product, Kerala demonstrates the transformative power of public social expenditure, agrarian land reforms, and decentralized local governance (Panchayati Raj institutions).

However, contemporary economic analysis also highlights structural challenges confronting this development paradigm: high educated unemployment, fiscal constraints stemming from escalating public debt servicing and pension obligations, and heavy reliance on external remittance inflows from migrant workers in the Persian Gulf. Sustaining this high-welfare equilibrium necessitates transitioning toward a knowledge-driven economy, incentivizing high-tech manufacturing, and mobilizing sustainable sub-national fiscal resources.

Policy Synthesis and Analytical Evaluation

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