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Indian Knowledge Systems and Their Role in Sustainable Economic Development

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Abstract

Indian Knowledge Systems (IKS) constitute a vast and dynamic repository of indigenous knowledge that has evolved in the Indian subcontinent through centuries of interaction between human societies and nature. Rooted in holistic worldviews, IKS integrates economic activity with ethical values, ecological balance, and social well-being. In the context of accelerating climate change, environmental degradation, and socio-economic inequalities, there is growing recognition of the relevance of traditional knowledge systems in shaping sustainable development pathways.

This research paper critically examines the role of Indian Knowledge Systems in fostering sustainable economic development in contemporary India. Drawing upon interdisciplinary literature, philosophical traditions, and empirical case studies from agriculture, handicrafts, healthcare, and renewable energy sectors, the study demonstrates how IKS-based practices contribute to resource efficiency, livelihood security, and inclusive growth. The analysis further maps IKS principles and practices against the United Nations Sustainable Development Goals (SDGs), highlighting their strong alignment with goals related to poverty reduction, food security, responsible consumption, climate action, and biodiversity conservation.

The paper also discusses the challenges associated with integrating IKS into mainstream economic policy, including issues of documentation, institutional recognition, and generational knowledge loss. It argues that a hybrid development model—combining traditional wisdom with modern scientific and technological innovations—can enhance economic resilience and sustainability. The study concludes with policy recommendations for embedding IKS into national and local development strategies, contributing to the vision of Viksit Bharat 2047.

Keywords: Indian Knowledge Systems, Sustainable Economic Development, Traditional Knowledge, Ethical Economics, SDGs, Viksit Bharat 2047

Introduction

Indian Knowledge Systems (IKS) refer to the cumulative body of knowledge, practices, skills, innovations, and philosophies developed in the Indian subcontinent through centuries of lived experience, observation, experimentation, and reflection. These systems encompass a wide range of domains, including agriculture, medicine, ecology, water management, economics, architecture, arts, governance, and ethics. Unlike narrowly defined disciplinary knowledge, IKS is inherently interdisciplinary and holistic, emphasizing harmony between humans, nature, and society.

Historically, Indian society relied on localized and context-specific knowledge systems to manage natural resources, sustain livelihoods, and maintain social cohesion. Economic activities were embedded within ethical and ecological frameworks guided by concepts such as Dharma (righteous duty), Artha (material prosperity), Lokasangraha (welfare of all), and Aparigraha (non-accumulation). These principles ensured that economic growth did not occur at the expense of environmental degradation or social injustice.

In the contemporary era, dominant development models based on rapid industrialization, excessive resource extraction, and consumerism have led to serious global challenges, including climate change, biodiversity loss, environmental pollution, and widening socio-economic inequalities.

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India, as a rapidly growing economy, faces the dual challenge of sustaining economic growth while ensuring environmental sustainability and social inclusion. In this context, there is renewed interest in integrating Indian Knowledge Systems with modern economic practices to design development pathways that are both resilient and equitable.

The importance of IKS has been formally acknowledged in recent policy initiatives such as the National Education Policy (NEP) 2020, which emphasizes the integration of Indian Knowledge Systems into higher education and research. Similarly, national and international discussions on sustainable development increasingly recognize the value of indigenous and traditional knowledge systems in addressing complex socio-environmental problems.

The objectives of this paper are:

- To examine the conceptual and philosophical foundations of Indian Knowledge Systems relevant to economic sustainability.
- To review existing literature on the relationship between IKS and sustainable development.
- To analyze traditional practices and their contributions to sustainable economic outcomes.
- To present case studies demonstrating successful applications of IKS in contemporary economic initiatives.
- To identify challenges and opportunities in integrating IKS into mainstream economic policy and development planning.

Literature Review

Scholarly interest in indigenous and traditional knowledge systems has increased significantly over the last few decades. Berkes (2018) conceptualizes traditional knowledge as a dynamic system that evolves through adaptive learning and interaction with ecosystems. In the Indian context, scholars such as Gadgil and Guha (1995) have emphasized the ecological wisdom embedded in local traditions and community-based resource management practices.

Several studies highlight the role of IKS in sustainable agriculture, including mixed cropping, organic farming, seed conservation, and water harvesting (Altieri, 2004). Research on Ayurveda and traditional medicine systems demonstrates their potential for low-cost healthcare and livelihood generation through herbal industries. Studies on handicrafts and cottage industries reveal how traditional skills support rural employment and cultural sustainability.

Philosophical literature underscores the ethical dimensions of Indian economic thought. Concepts such as *Dharma*, *Ahimsa* (non-violence), and *Aparigraha* (non-accumulation) offer alternative frameworks to profit-maximization and

consumerism. Gandhi's ideas of *Satyagraha* and *Sarvodaya* further stress decentralized production, self-reliance, and moral economics.

Despite growing literature, gaps remain in linking IKS explicitly with economic indicators, policy frameworks, and the Sustainable Development Goals (SDGs). Many studies remain descriptive or sector-specific, lacking an integrated economic analysis. This paper seeks to address this gap by situating IKS within the broader discourse of sustainable economic development.

Methodology

The study adopts a qualitative and comparative research design. Secondary data from academic journals, books, government reports, and policy documents form the primary basis of analysis. In addition, selected case studies from different Indian states are examined to illustrate practical applications of Indian Knowledge Systems in economic activities.

Case studies were selected based on the following criteria:

- Demonstrated use of traditional knowledge in economic activities.
- Contribution to sustainability, livelihoods, and environmental conservation.
- Regional diversity to reflect India's plural knowledge traditions.

The analysis involves thematic interpretation of data related to traditional practices, philosophical foundations, economic outcomes, and policy relevance.

Key Themes

1. Traditional Practices and Sustainable Livelihoods

Traditional agricultural systems in India, such as mixed cropping, crop rotation, and organic manure use, promote soil fertility, biodiversity, and climate resilience. Indigenous water management practices like stepwells, tanks, and community ponds ensure efficient water use in arid and semi-arid regions.

Herbal medicine and Ayurveda contribute to sustainable healthcare systems while supporting local economies through cultivation, processing, and marketing of medicinal plants. Similarly, handicrafts and handloom industries represent sustainable production models based on renewable resources, low energy use, and skilled labor.

2. Philosophical Underpinnings of IKS

Indian Knowledge Systems are deeply rooted in ethical and philosophical principles. *Dharma* guides economic behavior by emphasizing duty, fairness, and responsibility. *Satyagraha* and Gandhian economics advocate simplicity, decentralization, and self-sufficiency. These ideas challenge unsustainable consumption patterns and promote long-term societal welfare.

3. Modern Relevance and SDGs

IKS aligns closely with several Sustainable Development Goals, including SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). Integrating IKS into development planning can enhance policy effectiveness by grounding solutions in local realities.

Case Studies

1. Organic Farming Initiatives in Maharashtra

In several districts of Maharashtra, farmers have revived traditional organic farming practices using indigenous seeds and natural pest control methods. These initiatives have reduced input costs, improved soil health, and increased net farm incomes while minimizing environmental harm.

2. Handloom and Craft-Based Economies

Clusters such as Kutch (Gujarat) and Chanderi (Madhya Pradesh) demonstrate how traditional crafts generate sustainable livelihoods, empower women, and preserve cultural heritage. Government and NGO support has helped integrate these sectors with modern markets.

3. Renewable Energy and Traditional Knowledge

Decentralized renewable energy projects, such as biogas plants and improved biomass cookstoves, draw upon traditional energy-use patterns while incorporating modern technology. These initiatives enhance energy security and reduce dependence on fossil fuels.

Challenges and Opportunities

Despite its potential, integrating IKS into mainstream economic policy faces several challenges. These include lack of documentation, undervaluation of traditional knowledge, policy bias toward large-scale industrial models, and generational gaps in knowledge transmission.

However, opportunities exist through policy frameworks such as the National Education Policy (2020), promotion of Indian Knowledge Systems in higher education, support for MSMEs, and community-based development programs. Digital documentation and participatory research can further strengthen IKS integration.

Conclusion

This study demonstrates that Indian Knowledge Systems offer valuable insights and practical pathways for sustainable economic development. By emphasizing ecological balance, ethical conduct, and community well-being, IKS provides an alternative to resource-intensive growth models. Integrating traditional knowledge with modern economic planning can enhance resilience, inclusivity, and sustainability.

Future research should focus on empirical assessment of economic outcomes, development of hybrid knowledge models, and policy mechanisms to institutionalize IKS at local and national levels. Recognizing and revitalizing Indian Knowledge Systems is essential for achieving sustainable development and realizing the vision of Viksit Bharat 2047.

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