

INDUSTRIAL SUSTAINABILITY IN KARNATAKA: A STUDY WITH SPECIAL REFERENCE TO KIADB

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ABSTRACT

Industrial sustainability has emerged as a central paradigm in regional economic planning, particularly in rapidly industrializing states. Karnataka stands as one of India's leading industrial hubs, driven by progressive policies and institutional mechanisms. This paper examines industrial sustainability in Karnataka with special reference to the role of the Karnataka Industrial Areas Development Board (KIADB). The study explores policy frameworks, institutional practices, environmental management strategies, and sustainability challenges. Using a qualitative research approach based on policy analysis and secondary data review, the paper evaluates KIADB's contribution toward sustainable industrial development and suggests policy recommendations for strengthening sustainability outcomes.

Keywords: Industrial Sustainability, KIADB, Green Infrastructure, Karnataka Industrial Policy, Sustainable Development

1. INTRODUCTION

Industrialization has significantly shaped Karnataka's economic landscape, contributing to GDP growth, employment generation, exports and technological innovation. However, industrial expansion also poses environmental and social challenges such as land degradation, water stress, pollution and displacement.

Recognizing these challenges, the Government of Karnataka has incorporated sustainability principles within its industrial development framework. The Karnataka Industrial Areas Development Board (KIADB), established under the KIAD Act of 1966, plays a pivotal role in planning, acquiring, and developing industrial areas across the state. With more than 170 industrial areas developed, KIADB acts as the principal agency facilitating balanced industrial growth.

This paper examines how sustainability principles are embedded within Karnataka's industrial development strategy, focusing specifically on KIADB's institutional mechanisms and initiatives.

2. REVIEW OF LITERATURE

Industrial sustainability has been widely discussed in academic and policy discourse. The concept evolved from the broader theory of sustainable development articulated in the **Brundtland Commission Report (1987)**, which defined sustainable development as meeting present needs without compromising future generations.

Scholars such as Elkington (1997) introduced the "Triple Bottom Line" framework-economic, environmental and social sustainability as a guiding model for industries. Industrial ecology literature further emphasizes resource efficiency, waste minimization, and circular economy practices.

3. RESEARCH METHODOLOGY

3.1 Research Design-This study adopts a **descriptive and analytical research design** focusing on institutional and policy evaluation.

3.2 Nature of Data

The study is primarily based on **secondary data sources**, including:

- Karnataka Industrial Policy documents (2020-25; 2025-30)
- KIADB annual reports and official publications
- Government notifications and planning documents
- Academic journal articles on industrial sustainability
- Reports from industry associations and environmental agencies

3.3 Data Collection Method

Data were collected through:

- Review of government policy documents
- Analysis of sustainability components in KIADB industrial estates
- Examination of publicly available infrastructure and environmental management data

3.4 Analytical Framework

The study evaluates industrial sustainability using three key dimensions:

1. **Environmental Sustainability** – water management, waste treatment, green cover, pollution control.
2. **Economic Sustainability** – infrastructure efficiency, investment promotion, industrial clustering.
3. **Social Sustainability** – employment generation, community development, equitable land acquisition practices.

The analysis assesses how KIADB integrates these dimensions within industrial area planning

4. INSTITUTIONAL ROLE OF KIADB IN INDUSTRIAL SUSTAINABILITY

The Karnataka Industrial Areas Development Board is responsible for:

- Identification and acquisition of land for industrial purposes.
- Development of planned industrial areas.
- Provision of infrastructure including roads, drainage, water supply, and power connectivity.
- Establishment of environmental protection infrastructure such as CETPs and STPs.

4.1 Environmental Measures

KIADB has increasingly incorporated:

- Common Effluent Treatment Plants (CETPs)
- Sewage Treatment Plants (STPs)

- Rainwater harvesting systems
- Green buffer zones
- Solid waste management facilities

These initiatives aim to reduce pollution and enhance ecological balance within industrial areas.

4.2 Infrastructure Planning: Planned layouts reduce haphazard industrial growth. Dedicated industrial zones prevent encroachment into agricultural and residential areas, thereby minimizing environmental conflict.

4.3 Policy Alignment: Karnataka's Industrial Policy 2025-30 promotes:

- Green industrial zones
- Renewable energy integration
- Resource-efficient infrastructure
- Ease of doing business with digital governance mechanisms

KIADB serves as the implementing agency translating policy vision into physical infrastructure.

5. CHALLENGES IN ACHIEVING INDUSTRIAL SUSTAINABILITY

Despite progress, key challenges remain:

5.1 Water Stress: Industrial areas in and around Bengaluru face acute groundwater depletion. Sustainable sourcing and recycling remain critical priorities.

5.2 Environmental Compliance: Ensuring compliance across diverse industries requires continuous monitoring and enforcement capacity.

5.3 Land Acquisition and Social Equity: Balancing industrial expansion with farmers' rights and livelihood security remains a sensitive issue.

5.4 Climate Change Adaptation: Industrial estates must incorporate climate-resilient infrastructure, including flood management and renewable energy transition.

6. POLICY RECOMMENDATIONS

1. Establish sustainability performance benchmarks for all KIADB industrial areas.
2. Introduce mandatory renewable energy usage targets.
3. Strengthen environmental audit mechanisms.
4. Promote circular economy models within industrial clusters.
5. Encourage community participation in industrial planning processes.

CONCLUSION

Industrial sustainability in Karnataka reflects a progressive shift from conventional growth-oriented industrialization to environmentally conscious and socially inclusive development. The Karnataka Industrial Areas Development Board plays a central institutional role in this transformation by integrating infrastructure development with environmental safeguards.

While challenges such as water scarcity, compliance monitoring, and social equity persist, Karnataka's policy framework and KIADB's evolving practices indicate movement toward a more resilient and sustainable industrial ecosystem. Future industrial expansion must deepen its commitment to sustainability metrics, renewable energy integration, and participatory governance to ensure long-term ecological and economic stability

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