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Original Article

People's Perception of Green and Eco friendly Impact of Industrial Growth in Dakshina Kannada District-A Study

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Abstract

In response to the escalating global environmental crisis, leaders worldwide are actively engaging in collaborative efforts to safeguard biodiversity and address environmental degradation. The present study adopts an ecocritical approach to scrutinize the environmental challenges confronting the inhabitants of industrial region in the Dakshina Kannada district of Karnataka State, stemming from industrial development in the region. Grounded in empirical research, the study employs a survey method, drawing insights from 50 residents through convenient sampling. Through a Likert'5 point scale and Chi square Test, the findings pinpoint specific concerns and propose mitigation measures. Additionally, the paper delineates vulnerable regions and communities, advocating for novel policy actions to ameliorate the immediate and long-term repercussions of environmental catastrophes, thereby contributing to a more sustainable and resilient future.

Keywords: *Environment, Ecocritical, Novel policy, Catastrophes, Sustainability*

Introduction

Industries play a pivotal role in the economic development of nations, contributing significantly to employment, innovation, and wealth creation. However, their impact on the environment and agriculture is a matter of growing concern. The expansion of industrial activities has led to a range of adverse effects, including pollution, deforestation, and soil degradation, posing serious threats to the delicate balance of ecosystems and agricultural sustainability.One of the most pronounced effects of industries on the environment is pollution. The release of pollutants into the air, water, and soil during industrial processes has reached alarming levels. This not only poses health risks to humans but also affects plant and animal life. Deforestation is another consequence of industrial expansion, as vast areas of forests are often cleared to make way for industrial sites and infrastructure. The loss of forests not only diminishes biodiversity but also disrupts crucial ecological processes, such as carbon sequestration and water regulation. Agriculture, a fundamental component of global food production, is significantly affected by industrial activities. The extensive use of chemical fertilizers and pesticides in industrial agriculture has led to soil degradation and water contamination. Moreover, industrial agriculture often involves large-scale monoculture, which depletes soil nutrients and reduces biodiversity, making crops more susceptible to pests and diseases. Industrial activities also contribute to water scarcity, a critical issue for agriculture. This scarcity of water resources has a direct impact on agriculture, limiting the availability of water for irrigation and reducing crop yields. In many regions, the competition for water between industries and agriculture exacerbates the challenge of ensuring food security.

Literature Survey

Previous studies in the area of present study highlighted below:

In light of the rapid economic growth and modernization in India, lifestyle changes have expanded the definition of basic needs beyond just food, clothing, and shelter. This transformation is evident in various sectors, including agriculture, manufacturing, energy production, and chemical industries.

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However, the consequences of this industrialization are alarming, with adverse impacts on the environment, including degradation of flora and fauna, depletion of natural resources, deforestation, and pollution of air, water, and soil (Bhandari et al., 2015).The consequences of industrialization are multifaceted, contributing to the deterioration of water reserves, global warming, ozone layer depletion, and the emergence of lethal illnesses due to chemical usage (M., Serena, 2017). The key question at hand is whether society is willing to allow these negative trends to persist or strive for a change in the future.The World Health Organization recognizes the urgency of addressing environmental challenges, especially in the context of India's developmental phase. So there is a compelling need to strike a balance between industrial growth and environmental conservation. Achieving this equilibrium is crucial to mitigate pollution and foster sustainable development (Bhandari et al., 2015).

Research Gap

The literature review highlighted a scarcity of studies in India, particularly in the industrial region of Dakshina Kannada district, of Karnataka. Recognizing this gap, the researcher opted to investigate and address the challenges arising from industrial growth and development in the region. This study aims to fill the gap in existing research on the subject in this specific geographic area.

Statement of the Problem

The environment, a delicate balance of nature supporting life, is finite and vulnerable. Human activities in industrial region of Dakshina Kannada district of Karnataka, have raised environmental concerns. An ecocritical perspective is applied to recognize issues, emphasizing the need for sustainable living within nature's limits. Thoughtful actions are essential to preserve the ecosystem, fostering harmony between humans and their environment.

Objectives of the Study

The present study is based on following objectives

1. To identify major highlighting industrial areas in study area
2. To understand government initiatives
3. To identify the effects and problems the study area faces due to industrial growth and development
4. To suggest new policy initiatives that can help to reduce the adverse effects of industrialization.

Research Methodology

The present study is an empirical study in which survey method is adopted. The primary data was acquired by serving questionnaire to 50 respondents of the study area and secondary data was acquired from books, publications, articles, newspapers and websites. For this research, convenient sampling method was used and the focus was more on the effects, issues and remedies that could be considered for further research. The analytical instrument used for this research is Likert's 5 point scale and Chi square test was used to test the hypothesis.

Profile of Industrial Area In Dakshina Kannada District Of Karnataka

Industrial Areas in Dakshina Kannada – A Brief Overview

Dakshina Kannada district in Karnataka hosts key industrial zones that support regional economic growth, especially through small and medium-sized enterprises (SMEs).

- **Baikampady Industrial Area** near Mangalore features electrical, engineering, pharmaceutical, and construction-related industries, supported by proximity to NMPT, MRPL, and Mangalore Fertilizers.
- **Moodabidri Industrial Estate** is known for cashew processing, oil mills (coconut and mustard), and industries in spices, tiles, handicrafts, and engineering goods.
- **Yeyyadi Industrial Estate** focuses on agro-based industries like coconut, areca nut, and cashew, along with marine and forest resource utilization, fish culture, and aluminum recycling.
- **Mangalore Special Economic Zone (MSEZ)** is a major SEZ developed as a smart industrial city attracting large-scale investments.
- **Karnad and Puttur** also contribute with various small-scale industries, enhancing the district's industrial diversity.

  These zones are strategically developed to balance industrialization with resource-based economic activities.

Government Initiatives

Indian government initiatives to protect the environment and agriculture from industrial pollutions show that government has launched several initiatives to safeguard the environment and agriculture from industrial pollution. Key among them is the National Green Tribunal (NGT), which ensures industries comply with environmental standards. The Environment Protection Act, 1986 empowers the government to regulate emissions and waste discharge. The Zero Liquid Discharge (ZLD) policy mandates industries, especially in polluting sectors like textiles and chemicals, to treat and reuse wastewater. Programs like National Mission for Clean Ganga and Polluted River Stretches Rejuvenation aim to reduce industrial effluents in water bodies. Additionally, the Promotion of Cleaner Production in Industries and Pollution Control Boards (CPCB and SPCBs) enforce pollution norms. To protect agriculture, buffer zones between farmlands and industries are regulated, and polluting units are restricted near agricultural zones. The Karnataka

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government has implemented several initiatives to protect the environment and agriculture from industrial pollution. The Karnataka State Pollution Control Board (KSPCB) enforces pollution norms, monitors emissions, and promotes cleaner production technologies. The state has introduced a State Action Plan for Clean Air, targeting critically polluted industrial clusters in Bengaluru, Mangaluru, Raichur, and others, with measures like zero liquid discharge, effluent treatment plants, and air quality monitoring. Buffer zones are maintained between industrial areas and farmlands to prevent contamination. Additionally, the state supports organic and climate-smart farming through partnerships with institutions like ICAR–UAS Bangalore. Programs like the Soil Health Card Scheme and biofuel promotion policy encourage sustainable agricultural practices. Karnataka also incentivizes industries for environmental compliance, promoting a balance between development and ecological preservation. These integrated efforts aim to minimize industrial impacts on natural resources and ensure long-term sustainability for both the environment and agriculture.

Analysis and Interpretation of Data

To identify the effects and problems the study area faces due to industrial growth and development and to find out remedies 50 respondents have been selected in the study area.

Table No. 1 Industrial Growth and its effects, Problems and Remedies

	Parameters		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean scoring
1	**Effects**	Environment Pollution	40	6	4	0	0	50	4.72
		Agricultural Loss	20	17	8	5	0		4.04
2	**Problems**	Bird Migration	25	20	5	0	0	50	4.40
		Shortage of Trees	35	15	0	0	0	50	4.70
		Animal disappearance	32	10	8	0	0	50	4.48
		Lack of Drinking Water	45	5	0	0	0	50	4.90
		Health Issues	45	5	0	0	0	50	4.90
		Soil Pollution	32	12	6	0	0	50	4.52
3	**Remedies**	Government	30	15	5	0	0	50	4.50
		NGOs	25	20	5	0	0	50	4.40
		Common People	35	15	0	0	0	50	4.70

Source: Survey Data

Table No. 1 provides a comprehensive analysis of responses collected from 50 respondents in the industrial region of Dakshina Kannada district in Karnataka State on effects of industrial growth on environment and agriculture, rise of problems and remedies. Likert 5 point scale was used to analyze the date and mean score was calculated. For effect of industrial growth on Environmental pollution and Agricultural loss the mean scoring was 4.72 and 4.04 respectively. This indicates that the respondents either strongly agree or agree that the industrial growth results in Environmental pollution and Agricultural loss. Problems resulting from Industrial growth like Bird Migration, Shortage of Trees, Animal disappearance, Lack of Drinking Water, Health Issues and Soil Pollution were also analyzed by using Likert5 Point scale and mean scoring was calculated. It is found that for all the selected problems mean scoring is more than 4 or near to 5. This indicates that majority of the respondents strongly agree that industrial growth gives rise to various problems.

In terms of potential remedies, respondents expressed a desire for Government intervention, with majority strongly agreeing that the government needs to address pollution issues and implement welfare schemes. NGOs are seen as potential agents of change, with majority firmly agreeing that NGOs should take steps to address environmental problems. Finally, the Community's role is emphasized, with majority agreeing that community must unite to bring these issues to the world's attention

Hypothesis|: There is a significant relation between industrial growth and environmental pollution

Table No. -2 Chi-Square test result for finding association between Industrial Growth and Environmental pollution and loss of Agriculture

Contents	Chi-square value	df	Table value at 5% level of significance
Environment Pollution	17.41	4	9.49
Agricultural Loss			

Source: Survey data

It is observed from the Table- 2 that the calculated Chi-square value is more than the table value at 5% level of significance. Hence the null hypothesis is rejected ($H_{0)}$ and the research hypothesis is accepted (H_1) and it is inferred that there is a significant association between Industrial Growth and Environmental pollution and loss of Agriculture

Recommendations

To effectively address the environmental impacts of industrial development, strategic thinking is imperative. Eco-industrial network design provides viable alternatives for fostering sustainability. However, the flourishing of Industrial Symbiosis (IS) requires a robust supporting infrastructure. As highlighted by Patnaik (2015), creating an

ideal environment involves a strategic blend of incentives, regulations, control mechanisms, and information facilities. Factors such as industrial diversity, continuous waste management, job motivation, government readiness, industry-friendly incentives, substantial investment, transportation access, proximity to industrial partners, and local education/expertise contribute to the success of eco-industrial parks. The exchange of products and by-products within such a supportive environment enables the effective application of environmental protection principles.

Efforts to mitigate the negative effects of industries on the environment and agriculture require a multifaceted approach. Governments, industries, and communities must collaborate to implement and enforce stringent environmental regulations. The adoption of cleaner technologies, renewable energy sources, and sustainable agricultural practices can significantly reduce the ecological footprint of industrial activities. Additionally, there is a need for greater awareness and education regarding the importance of environmental conservation and the adoption of eco-friendly practices. Thus concerted effort from all stakeholders to promote sustainable industrial practices and safeguard the delicate balance of the environment and agriculture can do better for future generation.

Conclusion

Rapid industrialization and urbanization exert immense pressure on natural resources, leading to environmental degradation. To ensure sustainable industrial development, proactive measures are essential to mitigate environmental harm and promote eco-friendly sectors (Abbasi et al., 2002). A pivotal approach involves transforming industries into an eco-industrial network, reflecting a commitment to preserving natural resources. Valuable insights gleaned from Ranipet offer a foundation for strategic initiatives in regions facing similar environmental challenges. By conducting a comprehensive analysis of local environmental conditions and implementing tailored strategies, potential issues can be addressed, and existing policies can be augmented to bolster sustainable industrialization efforts.

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