Advancing SDG 9 in Rajasthan's Textile Hub: Study of Public Companies in Bhilwara District

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ABSTRACT

Sustainable Development Goal 9 focuses on Industry, Innovation and Infrastructure of an organisation. Infrastructure development plays a vital role in accomplishing the goal of sustainable development. This goal promotes economic growth of an organisation through technological advancements and innovations. The objective of the paper is to discuss the performance on SDG9 goal in textile industry of Bhilwara district and its various sustainable initiatives taken by public sector textile companies in this district. Performance indicators of SDG9 covered in this research paper are Input Operations, Innovative Operations, Process Operations, Sustainable Practices, Technological Advancement. These firms have taken the sustainable initiatives and are working on it religiously but there is a long way to go ahead.

Keywords: *SDG, Infrastructure, Innovation, Industry.*

Introduction

The Sustainable Development Goals (SDGs), introduced by the United Nations in 2015, provide a comprehensive framework for fostering global development that is inclusive, equitable, and environmentally sustainable. Among these, **Sustainable Development Goals 9 Industry, Innovation, and Infrastructure** plays an essential role in helping sustainable industrialization, nurturing innovation, and enhancing resilient infrastructure. The textile industry, being leading contributor to India's manufacturing output and employment, embraces immense latent for progressing the objectives of SDG 9. Within this context, the district of **Bhilwara in Rajasthan**, often referred to as the *"Textile City of India,"* emerges as a prominent hub of textile production, especially within the public and semi-public corporate sector.

Public sector textile companies in Bhilwara district have factually contributed to local economic growth, industrial employment, and infrastructural development. However, the increasing emphasis on sustainability and technological modernization, demanded a reconsideration of their alignment with SDG 9 targets. Global markets shifting towards eco-friendly production, digitalization, and resource-efficient infrastructure, it becomes vital for public textile companies to assess progression toward sustainable industrial transformation.

This study aims to examine the extent to which public textile enterprises in Bhilwara are integrating the principles of SDG 9 into their operations. It explores multiple dimensions, including technological upgradation, innovation initiatives, infrastructural development, and sustainability-oriented industrial practices. By systematically evaluating these aspects, the research seeks to generate insights into the effectiveness, challenges, and future potential of SDG-driven initiatives in the textile sector. The

findings of this study will contribute to literature on sustainable industrial development as well as offer recommendations for policymakers, industry leaders, and stakeholders working toward strengthening the textile ecosystem in Bhilwara.

Objectives

- To evaluate the implementation of SDG 9 (Industry, Innovation, and Infrastructure) in public sector textile companies of Bhilwara.

- To provide recommendations for strengthening the integration of SDG 9 practices in the public textile industry.

Review of Literature

- According to National Green Tribunal's Report, Sep 17 2025, Incomplete urban/municipal infrastructure — sewage inflows still a problem. Recent regulatory action and tribunal directions (NGT) highlight ongoing sewage discharges into local water bodies (e.g., Gandhi Sagar / Kothari river issues), showing municipal infrastructure and industrial wastewater controls aren't fully functioning.

- Aariz Ahmed 2025, assessed that Water is most tenacious concerns of the upcoming future due to population progression and weather change. Therefore, SDG 9 stresses the provision of worldwide and equitable access to safe and reasonable drinking water for everyone by 2030 as per the report of UN 2015.

- According to The SDG Report 2024- United Nations highlights that notwithstanding extremely alarming trends, progress made – with declines in child death, HIV contaminations, and the charge of transmittals and progresses in access to water.

- According to Isaac Zeb-Obipi and Mary Inimotimi Nkemdilim Okeah 2023, examines the SDGs also known as the Global Goals (GGs) initiated by the United Nations Conference in 2012. The aim is to paper is to rethink the SDGs through a discourse of their content, importance, challenges faced in implementing them and the roles of management scientists.

- According to author Varun&Rakesh (2022), MSME-level technology and innovation gaps While a few large groups have invested in modernization, many small and medium textile units still use older processes (particularly in dyeing and wastewater-intensive stages), limiting sector-wide technological upgrading and cleaner production diffusion. Multiple analyses and sector reviews note that modernization is uneven across Bhilwara.

- According to researcher Prajal P., Luís Costa, Rybski, Lucht, and Kropp 2017 , SDGs have set the 2030 target to shape our world by controlling multiple challenges which are facing by humans. Interactions among the Sustainable Development Goals may cause deviating consequences. To examine the SDG interactions researcher understand the synergies and trade-offs using authorized SDG gauge data for 227 countries.

Research Methodology

This paper adopts a descriptive and analytical research design to assess the implementation of SDG 9 (Industry, Innovation, and Infrastructure) in public textile companies located in Bhilwara. The descriptive design helps in understanding existing practices, while the analytical approach enables assessment of relationships between SDG 9 components and organizational performance. The geographical focus of the study is Bhilwara district, Rajasthan, recognized as a major textile hub. The study specifically targets public sector textile companies operating in the region. The secondary data has been acquired from annual reports of public textile companies, sustainability and CSR reports, Government publications (Ministry of Textiles, MoSPI, SDG India Index), research articles, industry reports, and UN SDG documentation. A purposive sampling method will be used to select public sector textile companies and relevant respondents who are directly involved in operations, innovation, or infrastructural development. Variables of the study are technological advancement, Innovation initiatives, Infrastructure development sustainability practices

Review and Assessment of Operational SDG Practices at Public Companies of Bhilwara District

Public companies in the Bhilwara district play a noteworthy role in driving industrial growth, and their commitment to Sustainable Development Goals. The Goals are crucial for fostering responsible and inclusive development. This review and assessment aim to examine how efficiently these companies are

integrating SDG-related practices into their day-to-day operations. The emphasis are on areas such as sustainable production, innovation, environmental management. By evaluating their policies, implementation strategies, and performance outcomes. The assessment provides meaningful insights into the extent of SDG alignment within Bhilwara's textile industrial sector and highlights the need for stronger accountability mechanisms and long-term sustainability planning.

Table 1: Operational SDG Practices

Sr. No.	Parameters	Public Co.	Evidence
1	Input Operations	Integration of production chain	Presence of in-house fibre, yarn, weaving, fabric processing, finishing (no over-dependence on external suppliers)
2	Innovative Operations	Scale and modernization of machinery	Number of looms/spindles, capacity for yarn, fabric, recycled fibre; diversified production lines.
3	Process Operations	Adoption of newer materials & processes	Launch of recycled polyester fibre production; synthetic yarn, texturised yarn, denim, etc.
4	Sustainable Practices	Environmental & sustainable Technology	Zero-liquid discharge, solar power, environmental/quality certifications.
5	Technological Advancement	Continuous capacity expansion / modernization trend	Historical timeline of diversification and expansion of operations.

Researcher's own creation

Table 1 exhibits that above operational practices of public companies in textile industry at Bhilwara district reflecting that they are the fulfilling requirements of ***Industry and Innovation and Infrastructure*** as per SDG 9. However many more innovative practices need to be done by recycling practices for more innovation.

The above practices are in consistent with SDG9 goal requirements.

- Scale and modernization of machinery, adoption of newer materials & processes, environmental & sustainable Technology these practices are more in consistent with Industry and Innovation SDG9 goal.

- Integration of production chain this practice are more in consistent with Infrastructure SDG9 goal.

- Continuous capacity expansion / modernization trend this practice belongs to Infrastructure SDG9 goal.

Operational Weaknesses Hindering SDG 9 Achievement in Bhilwara's Textile Companies

- **Persistent water pollution and poor effluent management:** Multiple studies and reporting show textile effluents have contaminated groundwater and rivers around Bhilwara and that pollution control has been repeatedly inadequate despite norms. This is a direct failure of sustainable industrial infrastructure (treatment, zero discharge

- **Health, environmental and social externalities from weak infrastructure:** Research and district environment assessments document negative impacts on agriculture, groundwater quality and public health resulting from industry effluents and insufficient pollution controls — again reflecting weaknesses in industrial infrastructure and enforcement

- As per a report by the **National Green Tribunal (NGT)** in September 2025, the discharge of untreated sewage into Gandhi Sagar Lake — located in Bhilwara — remains a serious concern.

Recommendations for Promoting Sustainable Industrialization and Innovation atBhilwara District

- Constraint to scale up common effluent treatment infrastructure

- Need to target finance and incentives for MSMEs to adopt cleaner dyeing/spinning technology.

- Cluster-level modernization programs should be introduced, for this shared R&D, training centres, and demo projects should be launched so that smaller units can access innovation without full CAPEX burden.
- Stronger monitoring & transparency mechanism is needed :
- There is an crucial need of regulators and buyers to act proactively.
- Public–private partnerships to upgrade municipal sewage .
- Self-Assessment strategy should be presented by local level government and later that should be tested at this industry at local.

Limitations of the Study

- Accessibility to internal company data may be limited.
- Focus on public companies only may restrict generalization to the entire textile industry of Bhilwara.

Conclusion

The current status of the SDGs 9 rigorous lyout of track. The paper reveals that the Bhilwara is severely off track to realize the 2030 Plan outline. Out of the 5 targets of SDG 9, industry infrastructure and innovation practices for waste discharge are not sufficient to manage waste. Among the measureable targets, only few companies display progress sufficient for attainment of these targets by 2030. There is clear deviations from the desired trajectory, few companies from public sector are showing marginal progress. This is an alarmingly situation in Bhilwara district to focus more on SDG 9 targets achievement. This assessment underlines the urgent need for strengthened efforts to put the SDGs on course.

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