Circular Economy and Corporate Sustainability in Bangladesh's Ready-Made Garment Industry: Problems and Prospects

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Research Article

Abstract

Purpose: *The ready-made garments sector in Bangladesh contributes to 81.82% of national exports and employs well over four million workers. Nonetheless, this sector encounters substantial challenges in implementing circular economy principles to achieve corporate sustainability. This study identifies essential factors that can enhance corporate sustainability in the ready-made garments sector of emerging economies by addressing significant issues, challenges, and opportunities related to supply chain management, technology, government policies, and circular economy principles. The study presents a research paradigm for achieving corporate sustainability based on a rigorous evaluation of the literature.*

Methods: *The study employs systematic reviews using the PRISMA strategy to retrieve comprehensive documentation. This methodology enables a comprehensive scoping of exploratory themes, adjusting search terms repeatedly to gather interdisciplinary perspectives on the integration of corporate sustainability into the circular economy.*

Results: *The research highlights the importance of corporate sustainability within the Bangladeshi ready-made garments sector, focusing on technology, government involvement, supply chain dynamics, and the circular economy. Despite financial limitations, infrastructural challenges, and talent deficiencies, the industry has the potential for environmental, social, economic, and political sustainability.*

Originality: *This study presents a novel framework that examines the interplay of technological capabilities, supply chain flexibility, governmental influence, and the circular economy within Bangladesh's ready-made garment sector, aiming to achieve corporate sustainability.*

Implications*: The research offers industry practitioners valuable insights for enhancing technical training, implementing regulatory reforms, and advancing infrastructure development, thereby facilitating an effective transition to a circular economy. This understanding can help governmental entities and industry leaders craft policies that strike a balance between environmental, economic, political, and social responsibilities.*

Keywords: Circular Economy, Corporate Sustainability, Ready-Made Garments Industry, Technological Capabilities, Bangladesh

1. Introduction

In the evolving global economy, organizations face new challenges and opportunities to achieve sustainability at their own pace. Companies must integrate and adapt organizational structures, procedures,

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and behavior to meet the demands of the global market. As companies and consumers increasingly recognize the environmental and social implications of their business choices, sustainability has emerged as a global issue. Many groups and individuals now support sustainability as a philosophy, objective, and benchmark. Sustainable workplaces incorporate sustainable development ideas into daily operations (Rahman et al., 2024; Varsei et al., 2014). The ultimate goal of sustainability is to integrate environmental, social, and economic considerations, which has been the focus of most studies. The different definitions and concepts of organizational sustainability vary in nature and context. Some suggest that everyday presumptions, attitudes, and beliefs affect how an organization considers and manages its social, environmental, and economic implications. Therefore, a company's ability to adapt and flourish determines its longevity. Rahman et al. (2022b) characterize corporate sustainability as exhibiting responsible leadership, a robust talent reservoir, ample resources, proactive employee engagement, and a pervasive culture that prioritizes a prosperous future. In essence, "sustainability" refers to an organization's approach to environmental, social, and economic viability.

Corporate sustainability depends on its responsiveness and accomplishments (Rahman et al., 2023). They asserted that organizational sustainability is a comprehensive strategy that enhances the ability to respond to environmental, social, economic, and political, as well as institutional, changes. To achieve this, organizations require proficient leadership, a commendable talent pool, adequate resources, effective organizational behavior, and a culture that tackles sustainability challenges and fosters overall organizational sustainability (Rahman et al., 2023). To ensure the sustainability of industrial enterprises in the era of modern technology, organizations must prioritize societal impact, environmental considerations, stakeholder engagement, and employee behavior. Manufacturing enterprises are progressively acknowledging their fiscal, environmental, and social obligations, striving for global success and enhanced value (Rahman et al., 2022a). The ready-made apparel sector, characterized by labor-intensive manufacturing, makes a significant contribution to sustainability. Sustainability in the manufacturing sector emphasizes the development of ecologically sustainable products and services. Harmonizing organizational strategy with sustainability enhances the competitiveness of industrial systems.

The Industrial Revolution has prompted an emphasis on sustainable practices in workplaces, with "corporate sustainability" being the predominant acronym (Al Amin et al., 2025; Micheli et al., 2020). This entails implementing corporate strategies that address current needs while safeguarding and enhancing people and natural resources (Rahi et al., 2024). Research indicates that 45% of worldwide greenhouse gas emissions are linked to product manufacturing and disposal, underscoring the necessity for sustainable production methods (White House OSTP, 2023). The manufacturing sector propels global economic expansion and supplies vital goods and products (Islam et al., 2024). Ecological concerns, such as the use of harmful chemicals, carbon emissions, waste generation, and water quality contamination, particularly affect the ready-made garments sector (Karmoker et al., 2024). The media's emphasis on sustainability crises and workforce dissatisfaction highlights the necessity for corporate sustainability (LaGree et al., 2023). Notwithstanding these apprehensions, the sector must adopt economically viable and ecologically friendly processes to guarantee long-term profitability and regulatory compliance (Al Amin & Baldacci, 2024).

Bangladesh is a significant global participant in the apparel and garment sector, ranking as the second-largest garment producer with exports of $55.55 billion (WTO, 2023). This expansion has prompted concern over stricter labor regulations and voluntary conduct guidelines (Berik, 2017). The ready-made garments sector has created employment opportunities, particularly for women, and has fostered socioeconomic development by earning foreign money and employing over a billion individuals, predominantly women (Alam, 2025; Paul, 2023). This sector has also helped diminish child marriage and empower women (Alam, 2025; Swazan and Das, 2022). The 2013 Rana Plaza accident in Bangladesh

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highlighted the importance of corporate sustainability within the garment industry, underscoring the need for ethical, economic, and regulatory reforms (Uddin et al., 2023). Nonetheless, current infrastructure and knowledge constraints provide obstacles to effective adoption. Prior studies have frequently concentrated on compliance, overlooking the broader ramifications of technology capabilities, supply chain flexibility, governmental support, and the circular economy. This study aims to bridge the gap by offering a cohesive, pragmatic framework that is both practical and adaptable to the varied conditions of the ready-made garments industry, with a focus on assessing and efficiently executing corporate sustainability.

The study adopts a progressive structure, with Section 2 delineating the employed methodology. Section 3 provides a comprehensive analysis of the pertinent literature. Section 4 addresses the issues associated with corporate sustainability in the ready-made garment business, emphasizing the study's fundamental concepts, along with their evolution and elucidation. Section 5 assesses the prospects for corporate sustainability in Bangladesh's ready-made garment sector, while Section 6 examines the study's implications and conclusions. Ultimately, Section 7 delineates the constraints and proposes avenues for future inquiry.

2. Research Methodology

This study adopts a comprehensive literature review technique to examine the major drivers influencing corporate sustainability in the Bangladeshi ready-made garments industry. This assessment methodology resembles the procedure described and used by Thorpe et al. (2005) and Rahman et al. (2025a), ensuring a systematic and transparent approach.

Table 1: Summary of the Literature Selection Process

SPAR-4-SLR (PRISMA)	Consideration	Decision
Assembling (Identification)	Search Focus	Corporate sustainability in the ready-made garments industry
	Search Keywords	• Circular Economy • Technological Capabilities • Supply Chain Flexibility • Corporate Sustainability • Government Role • Emerging Nation • Ready-Made Garments
	Search Database	Scopus, ScienceDirect
	Search Field	Article title, abstract, and keywords
	Search Result	1675 Documents
Arranging (Screening and Eligibility)	Search Period	2015 to 2025
	Subject Area	"Sustainability", "Organizational/ Corporate Sustainability", "Business and Management", "Technological Capabilities and Digitalization", "Supply Chain Management", and "Social Sciences", " 697
	Document Type	"Article" 591
	Publication Stage	"Final" 484
	Source Type	"Journal" 430
	Language	"English" 389
	Developing Nation	"Bangladesh, India, China, Vietnam, etc.", 91
	Search Result	91 Documents

The scoping review method is ideal for exploratory research, as it offers greater flexibility than systematic reviews. It enables researchers to adjust the scope of the literature and refine key study terms during the review process, which is why it was specifically chosen for this study. Among the resources examined to

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locate similar information were Scopus and ScienceDirect. Scopus was initially selected due to its comprehensive coverage of nearly every peer-reviewed paper across various topic areas (Rahman et al., 2025b). ScienceDirect, recognized for its multidisciplinary focus on business, management, leadership, technology, and sustainable organizational performance, was determined suitable for this research (Zhao et al., 2023). This inclusion was driven by its extensive collection of distinctive and sustainable issues that could raise standards or expose revolutionary innovations. The subsequent key phrases were employed to discover essential papers for the investigation. Table 1 demonstrates the literature selection technique followed in this investigation. The review technique identified a comprehensive collection of 91 relevant publications. It is worth highlighting that each picked article incorporates published works solely from developing countries, including Bangladesh, India, China, and Vietnam. Stringent inclusion and exclusion criteria were implemented during the literature review to assess the relevance and acceptability of the chosen publications.

3. Literature Review

3.1 Corporate Sustainability

Corporate sustainability encompasses the mitigation of adverse environmental impacts, the enhancement of social responsibility, and the pursuit of economic, environmental, and social viability (Tessema et al., 2025; Cantele et al., 2024). The basic concept of corporate sustainability is the "triple bottom line of sustainability" as described by Elkington (1998). The implementation of this philosophy emphasizes the principle of the Triple Bottom Line (TBL), integrating social, environmental, and economic considerations within its business strategy. The primary objective of corporate sustainability is for corporations to positively and collaboratively influence economic growth, social equity, and human development, while leveraging risk management and competitive advantages (Cho et al., 2018). This technique provides enduring value by integrating financial and non-financial data (Rustam et al., 2019). Although it is essential to draw attention to the increasing expectations placed on individuals and organizations operating across various geographical boundaries, the scientific community emphasizes the need to enhance corporate sustainability from conceptual, methodological, and operational perspectives. This improvement will enable corporations to achieve more cohesive outcomes in their commercial performance from a sustainability perspective (Baumgartner, 2014; Wagner, 2005) and thus remain aligned with global contemporary challenges related to corporate performance and sustainable development.

The economic dimension of corporate sustainability comprises metrics such as profitability, cost reduction, return on investment, and sales growth (Khan et al., 2020). The adoption of sustainable business practices by firms enhances competitiveness, mitigates operational risks, and improves brand recognition, ultimately leading to long-term economic sustainability (Genovese et al., 2017). Circular economy practices, including remanufacturing and recycling, directly enhance profitability by enabling effective resource utilization and reducing material costs (Bag & Rahman, 2023). Employee welfare, occupational health and safety, equitable work practices, job creation, and community relations constitute components of social performance (Dubey et al., 2021). The ready-made garments business in Bangladesh exhibits a dialectic wherein economic expansion via export development must be reconciled with addressing social issues such as labor discontent and environmental unsustainability (Akter, 2020). By sustaining balance among these elements, enterprises can cultivate corporate sustainability that endures in dynamic, sustainability-oriented marketplaces and bolsters national development initiatives. Government incentives strengthen the connection between environmental, social, and governance (ESG) practices, promoting green innovation performance and business innovation, and facilitating sustainable development (Zhang, 2023). Government interventions are essential in fostering corporate social responsibility, as voluntary sustainability projects necessitate regulated and supportive frameworks (Wirba, 2023). Baumgartner and Rauter (2017) argue that

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achieving specific corporate sustainability objectives necessitates an examination of how management can provide value to businesses, society, and the environment.

3. 2 Government Support

Governments possess both the responsibility and the possibility to forecast the increasing worldwide demand for sustainable products, services, and systems. Governments play a crucial role in facilitating the transition toward efficient, equitable, and sustainable corporate practices (Gorica et al., 2012). Numerous nations heavily involve their governments in planning and administrative processes that hinder and undermine the development of a circular economy. Regional administrations in numerous countries are primarily accountable for managing waste. In Denmark as well as in most neighboring Scandinavian countries, this need includes the development and implementation of policies, plans, and processes for the recycling, reclamation, and disposal of material flows (Christensen, 2021). Furthermore, incident studies underscore various approaches through which townships and governments can act as change agents, both independently and in collaboration with other stakeholders, to advance the transition to a circular economy, thereby enhancing their relevance to the existing literature on the role of local governments in this movement (Gravagnuolo et al., 2019).

Consequently, the Bangladesh government has assumed a pivotal role as a catalyst for adapting to the automation of the Fourth Industrial Revolution in the ready-made garments sector, aiming to augment export revenues. It provided substantial financial and regulatory advantages to the ready-made apparel sector, hence generating new prospects in global supply chains (Mian, 2020). The governments of Bangladesh have initiated a program to enhance the skills of more than two million members of the RMG workforce by employing highly technological collaboration approaches and an additional 1.5 million ready-made garment employees in the form of 'Training and Development for Quality Expansion' to secure a prosperous future amidst the challenges of the Fourth Industrial Revolution (BGMEA, 2020; WEF, 2020). Additionally, a 1% financial subsidy, a 4% cash incentive, loans with reduced interest rates for computerization and industrialization, specialized export fiscal policies, and a designated fund for technology imports for garment manufacturers have been allocated (Mridha, 2020). The government intends to rectify the transportation system by establishing the "Multimodal Transport System" and amending the "Labor Law" in 2015 to safeguard labor rights (BGMEA, 2020).

Moreover, Christensen (2021) highlighted that the two circumstances examined offer opportunities to close the loops related to specific urban material flows through strategic actions undertaken by government entities in collaboration with local stakeholders. The government further supports companies by providing tax incentives for the use of circular materials and the procurement of eco-innovative technologies (Milios, 2021), which promotes corporate sustainability within the ready-made garment sector. Government assistance promotes the advancement of a circular economy by offering incentives and regulations, such as subsidies for recycling facilities, which are essential in Bangladesh's resource-constrained context (Chowdhury et al., 2020). Experts consider government support, which includes financial, non-financial, and regulatory assistance, as a crucial catalyst for boosting technological capabilities in the industrial sector towards corporate sustainability. This improvement may significantly enhance the manufacturing industry's ability to create and sustain a competitive advantage in transactions (Doh & Kim, 2014).

3.3 Technological Capabilities

Technological capabilities describe the way individuals, corporations, or society accept, integrate, and efficiently employ technology. This course of action encompasses the steps from a basic understanding of the technology to its widespread and practical implementation (Sark er, 2024). Purposeful technical capabilities are vital for green economic success in any nation. This trajectory should encompass a holistic, environmental, and strategic approach to corporate sustainability. Implementing sustainable technological solutions could pave the way for sustainability and technical innovation. These innovations may improve

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ecological balance and sustainable development (Ali et al., 2024). Various technologies can promote circularity by optimizing resources and innovating (Kristoffersen et al., 2020; Liu et al., 2022). Big technologies, the most researched emergent technologies in the circular economy, are data analytics, blockchain, and the 'internet of things.' Kristoffersen (2021) demonstrates that big data analytics enhances the adoption of the circular economy and organizational effectiveness. Consequently, technological capabilities are essential for improving a company's sustainability.

Zhou and Wang (2021) asserted that technological capabilities enhance output through green financing and investment, thereby attaining corporate sustainability. He et al. (2023) produced outcomes that are essentially consistent throughout Asian nations. Conversely, blockchain technology enables circular procurement, approach reclamation, and reconstruction (Khan et al., 2021). Moreover, it has been observed that progress in clean energy technology may alleviate adverse environmental externalities and promote green growth by utilizing sustainable and renewable energy sources (Miao et al., 2022). In Bangladesh, technological advancements enable the ready-made garment industry to implement closely integrated strategies, resulting in a 19% decrease in carbon intensity per production unit (Matarneh et al., 2024). Pradhan and Ghosh (2022) asserted that technical capacities could alleviate environmental consequences and promote sustainable development in India. Several additional studies validated this concept, producing similar results for rural China and OECD countries, as documented by Wu and Han (2022) and Hu et al. (2022), respectively.

Engelhorn and Müsgens (2021) expanded the issue, asserting that clean technology capabilities are crucial for green growth and sustainable development, as environmental issues may pose obstacles to practical implementation. Du and Li (2022) have indirectly examined this relationship, emphasizing that technological capacities within the context of urbanization can achieve green growth. Pournader et al. (2021) argue that the garment manufacturing industry has leveraged technologies such as machine learning, sustainable supply chain improvements, rapid data analytics, 3D capabilities, and personalized production runs to enhance productivity and reduce costs. Technological capabilities enhanced the organization's capacity to acquire knowledge about its approaches. Moreover, technical skills enable collaboration and communication with other entities in the supply chain. Conversely, enterprises that incorporated pertinent technical capabilities enhanced their operational coordination and supply chain integration, resulting in improved company sustainability and increased competitiveness. The corporation's superior technological conditions enabled it to outperform other entities in supply chain flexibility (Khan et al., 2021).

3.4 Supply Chain Flexibility

Another corporate sustainability concern is that supply chain flexibility enables the supply chain to adapt to market unpredictability, driven by changing customer needs, improved customer service, and faster delivery (Bai et al., 2020; Rajesh, 2017). Supply chains should have high SC flexibility to respond to market uncertainty quickly and economically and increase organizational competitiveness (Bai et al., 2020). Companies recognize the need for supply chain flexibility due to market conditions. Thus, supplier networks must strike a balance between flexibility and business environmental goals. However, supply chain flexibility addresses only a small portion of the risk (Chirra et al., 2020; Mangla, 2020). Larrea-Gallegos et al. (2022) argue that adaptability and flexibility are crucial for promoting sustainability, particularly in unexpected situations. Supply chain management necessitates flexibility to mitigate risks and expand operations. Bai et al. (2020) emphasize that supply chain flexibility boosts company sustainability. Circular supply chains can better handle temporary difficulties by encouraging responsive flexibility. This intended method integrates circular economy capabilities across the entire supply chain, from concept and production to distribution, end use, and resource recapture (Hazen et al., 2021). Supply chain flexibility is

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essential for competitiveness in today's globalized, technologically advanced, consumer-driven, and complex corporate environment (Fayezi et al., 2017).
Supply chain flexibility enables companies to respond to market disruptions, regulatory requirements, and sustainability demands while maintaining eco-efficiency (Dubey et al., 2021). In Bangladesh, supply chain flexibility enables dynamic supply networks and modular product architecture, leading to a 19% reduction in carbon intensity (Matarneh et al., 2024). Despite the growing recognition of flexibility as essential (Piprani et al., 2022), recent literature reviews indicate a deficiency in research on supply chain flexibility. Limited research has examined the sustainability aspect of flexibility (Shahid & Aneja, 2017), including Matarneh (2024), which focused on green supply chains employing reverse logistics flexibility. Bai and Sarkis (2017) proposed unbiased flexibility requirements to enhance the manufacturing process, whereas Matarneh (2024) highlighted the potential of information systems to improve green supply chain flexibility. Bai et al. (2020) presented an optimal scenario for supply chain flexibility integrated with ecological sustainability. The incorporation of sustainability flexibility within logistics networks is becoming essential for sustainable growth and competitive advantage (Bag & Rahman, 2023). The implementation of circular economy practices provides pragmatic strategies to meet the increasing sustainability requirements of competitors and consumers. This adoption may simultaneously reduce environmental risks, raw material consumption, energy loss and waste, process emissions, and waste discharge in a supply chain seeking to enhance its agility and flexibility (Bai et al., 2020). Circular economy approaches enhance the environmental image of the supply chain (Bai & Sarkis, 2017), resulting in increased supply chain flexibility.

3.5 Circular Economy

The circular economy is a structural framework that minimizes waste and perpetually energizes the ecosystem. Maintenance, reuse, refurbishment, remanufacturing, recycling, and composting sustain the flow of goods and resources within the circular economy. The circular economy addresses sustainability and other environmental concerns, such as biodiversity degradation, waste, and pollution, by decoupling business operations from the consumption of scarce natural resources (Noman, 2024). The circular economy has emerged as a promising approach to achieving corporate sustainability by enhancing resource efficiency and reducing waste generation. Adopting circular economy techniques in Bangladesh's textile and garment industry can offer considerable benefits, including reduced reliance on virgin resources through reuse and recycling, which limits environmental degradation and enhances long-term resilience against resource shortages and price volatility. In addition to ecological advantages, the circular economy model supports economic viability by extending product lifecycles, generating new revenue streams, and lowering waste disposal costs (Rashid et al., 2025). The proposal of a circular economy might be considered a response to the widespread social and environmental devastation caused by the ever-increasing destruction of the world's natural resources. For instance, between 1970 and 2017, worldwide exploitation of renewable assets more than tripled and is expected to continue rising (IRP, 2019).
The primary objective of a circular economy is to minimize waste and enhance resource efficiency (Chowdhury et al., 2022). This goal can be accomplished by closing nutrient loops that can re-enter the biosphere or materials that can cycle inside economic activities, while reducing overall resource consumption through process transformation (Haas et al., 2015). Recycling becomes a viable option when reusing or reducing products is not feasible. This strategy is the most prevalent, as it enables the efficient utilization of finite resources by converting end-of-life items into valuable materials (Haas et al., 2015; De Corato, 2020). Although there is no agreement on the enduring question of whether the initiation of corporate sustainability practices positively and causally influences a firm's financial status (Bassetti et al., 2021), recent research concentrating on circular economy strategies (Schögg et al., 2024) consistently indicates a beneficial correlation. Kwarteng (2022) demonstrates that the implementation of circular

economy practices, specifically strategies for reduction, reuse, recycling, recovery, or rehabilitation, enhances business performance, with this relationship being affected by the organizational environment.
A modification to the circular economy in the EU is expected to increase GDP by approximately 0.5% and create seven million jobs by 2030, according to an assessment by the European Commission (European Commission, 2020). The EU posited that a circular economy might facilitate a 4% increase in the attraction and retention of its labor force. The cumulative benefit would total 1.8 trillion euros, representing a nearly 50% decrease in CO_2 emissions and a rise of 3,000 euros in household income by 2030 (Company, 2015). These initiatives may lead to employment reductions in developing countries, such as Bangladesh. (Kirchherr, 2021; Repp et al., 2021). It fosters collaboration among stakeholders across the value chain, encompassing manufacturers, suppliers, retailers, and consumers, thereby enhancing collective responsibility for business sustainability. This connection not only fosters environmental objectives but also furthers Bangladesh's extensive obligations under international agreements, notably the United Nations' Sustainable Development Goals and the Paris Agreement. Nonetheless, despite the potential of the circular economy to transform business practices, its implementation, especially in the apparel accessories sector, encounters substantial obstacles due to the sector's intricate role within the larger garment manufacturing industry's ecosystem (Rashid et al., 2025). This technique can enhance performance by reconciling economic, social, and environmental issues. By embracing supply chain flexibility, technological advancements, governmental support, and circular economy principles, the textile industry in Bangladesh can achieve economic, environmental, and social sustainability, thereby securing its long-term viability and mitigating adverse effects (Islam et al., 2024).

4. Problems for Corporate Sustainability in the Ready-Made Garments Industry

The garment sector in Bangladesh is thriving, underscoring the need for efficient training facilities to keep pace with technological advancements. There is a deficiency in training programs for advanced garment technology, which hinders the enhancement and cultivation of operational proficiency within organizations. People remain unqualified in the textile industry; technical advancements cannot be effective without expertise and comprehension (Shahriar et al., 2022). Significant changes to the factory layout, environment, or product quality characterize the technology installation in garment factories. Incorporating advanced technology in textile companies may involve installing fundamental Internet of Things sensors on existing machines or acquiring specialized equipment equipped with comprehensive Industry 4.0 solutions. Leaders in the textile industry often refrain from investing or dedicate insufficient resources (Maware & Parsley, 2022). Every manufacturing firm has unique, defined information that contributes to market competitiveness, including worker efficiency, pricing, expenditures, and garment sewing data (GSD). Management contends that augmented data protection is essential due to the advancement of digital developments, as competitors may otherwise gain access to the data. The absence of data protection is a significant obstacle to the implementation of new technical innovations (Yeung & Bygrave, 2022).
The government can stimulate the growth of its garment industry through research and development by acquiring new equipment, improving the efficiency of current machinery, and implementing advanced technologies. Nevertheless, our government provides inadequate support to the garment sector. The government also lacks essential regulations to reduce withholding and sales taxes, as well as to avert internal disputes among ready-made garment exporters (Moser & Yared, 2022). Government legislation and incentives for the garment industry are insufficient, and taxes on the procurement of raw materials for garment producers have significantly increased. Consequently, almost all industrial facilities continue to provide their staff with reduced ticket incentives (Rybak et al., 2022). The Department of Inspection for Factories and Establishments (DIFE) and other governmental entities in Bangladesh are failing to execute

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their responsibilities. They are unable to manage a formidable and politically connected class; therefore, their labor force is constrained (Islam, 2025).

The use of supply chain methods in Bangladeshi garment companies confronts a variety of problems. Technological restrictions pose a substantial challenge, hindering the general adoption of eco-friendly practices. Many organizations face difficulties in acquiring and purchasing contemporary technology targeted at sustainability, which hampers their ability to update machinery and infrastructure (Aziz et al., 2023). The absence of government aid and legislation contributes to the high cost of sustainability adoption. Without government financial assistance and sustainability-friendly regulations, the garment and apparel sector cannot make significant strides in its journey toward achieving supply chain flexibility and corporate sustainability (Karim et al., 2021).

There appears to be no coordination on circular economy procedures, even in specific industrial zones, which likewise lack a central Effluent Treatment Plant (Jahan, 2017). Additionally, the expenditure represents another significant limiting factor in the evolving circular economy. Islam and Jabber (2022) observed that deploying circular economy technology in factories is 2.5 to 3 times pricier than the usual configuration. Technological limitations, a lack of knowledge and skills, and insufficient cooperation among industry stakeholders were the most widely reported hurdles in adopting the circular economy in the fashion industry (Ahmed et al., 2022). Disparities in knowledge between stakeholders from the industry, ranging from the dissemination of circular economy information throughout the academic community and professionals, are limited in the Bangladesh ready-made garments industry (Islam & Jabber, 2022).

The scarcity of resources and insufficient technical expertise provide significant challenges, as the restricted resources and existing infrastructure of industrial facilities hinder the integration of new technology. Employees who are unwilling to adapt struggle to consistently integrate innovation into a new cultural context, particularly when faced with technical advancements (Sharma et al., 2022). Potential hazards, including supplier reliability, financial stability, social and environmental issues, and transportation constraints, must be thoroughly assessed and addressed to ensure the effectiveness of supply chain flexibility strategies in the garment sector (Alshehri et al., 2022). The predominant obstacles to waste reduction and the adoption of a circular economy in developing countries, such as Bangladesh, India, and Vietnam, include apathy, financial constraints, technological inadequacies, limited human resources, and consumer ignorance (Saha et al., 2021).

This study presents a conceptual framework, illustrated in Figure 1, based on the available literature.

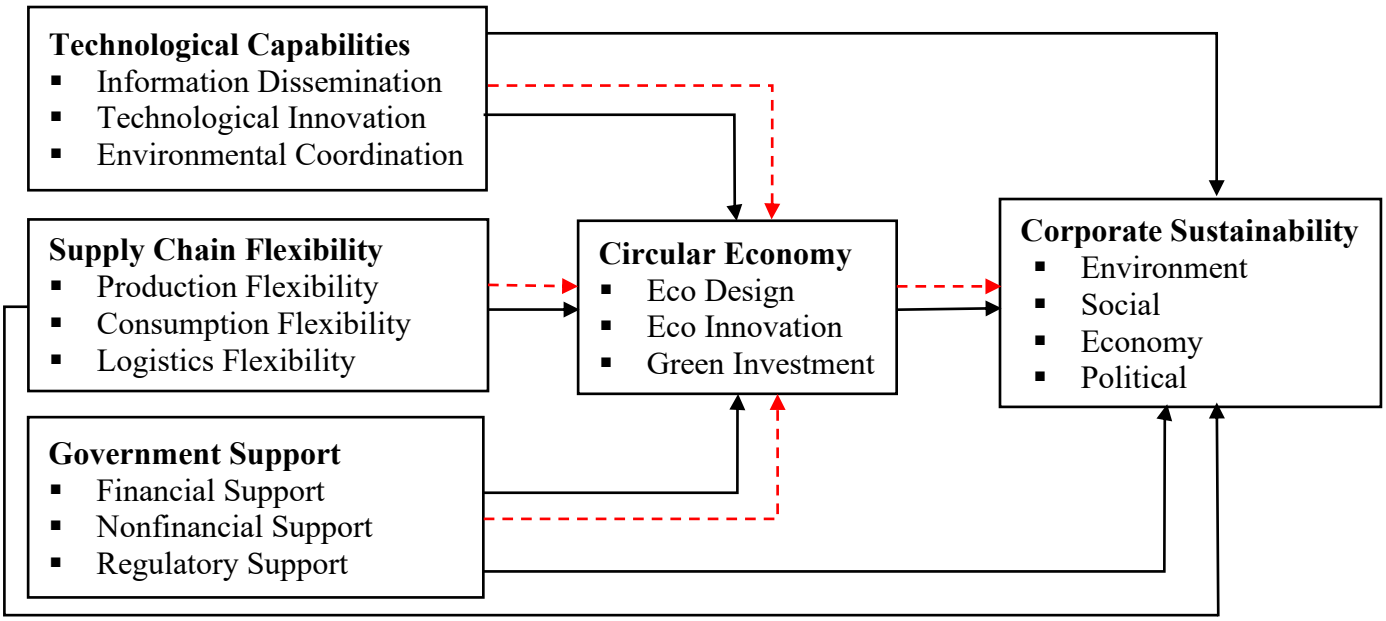

Fig.1: Proposed Research Framework of the Study

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The conceptual framework presented in this study (Figure 1) illustrates that the corporate sustainability of the ready-made garments industry can be achieved through technological capabilities, supply chain flexibility, and government support. By facilitating technological advancements in information dissemination, technological innovation, and environmental coordination, the framework aids managers and proprietors in their pursuit of sustainability. These managers' and proprietors' supply chain flexibility approach fosters production flexibility, consumption flexibility, and logistics flexibility, which ultimately contribute to corporate sustainability. The government can also play a vital role by providing financial, non-financial, and regulatory support. In this proposed framework, the ready-made garments industry in Bangladesh ensures corporate sustainability through the collaboration of technological capabilities, supply chain flexibility, government support, and the adoption of a circular economy approach. This platform establishes a direct connection between the corporate sustainability of manufacturing organizations, technology, innovation, supply chains, and circular economies. This framework represents that the circular economy has both direct and indirect relations with corporate sustainability. It mediates the relationship between technological capabilities, supply chain flexibility, and government support for corporate sustainability.

5. Prospects for Corporate Sustainability in the Ready-Made Garments Industry

The recent trend towards supply chain flexibility is essential for Bangladesh's garment sector to maintain its competitive advantage globally (Akter, 2024). The current deployment of supply chain flexibility in textiles has been increasingly popular, focusing primarily on enhancing supply chain prominence, efficiency, and cost reduction (Ahmed et al., 2018). According to the BGMEA data for the fiscal year 2021–22, the export of ready-made garments accounts for approximately 81.82% of Bangladesh's overall exports. The large population significantly influences the creation of different strategies to meet consumer demands (Karim et al., 2024). The government must assume a pivotal role in formulating public policies that address the environmental and socioeconomic needs of the ready-made garments sector, fostering both theoretical and practical knowledge, while advancing initiatives for sustainable growth and innovation (Srisathan et al., 2023). The government of developing nations, such as Bangladesh, has recently pledged to achieve sustainable management and efficient utilization of natural resources, making significant efforts to minimize waste through prevention, reduction, recycling, and reuse by 2030 (BPC, 2018; Rahman, 2021). In 2020, the Bangladeshi government announced the National IR 4.0 Policy, aiming to modernize the country's industrial sector. The authority in charge, along with the commercial sector and fresh start-ups, has already adopted recent advances in technology to increase productivity and competitiveness (Salman et al., 2023). The policy outlines strategies for digitizing and automating industrial activities by leveraging the Internet of Things, AI, and big data. Technologies associated with Industry 4.0 represent a component of the Digital Bangladesh agenda, which aims to establish a digital ecosystem in the country (Mazumdar & Alharahsheh, 2020). Bangladesh has immense untapped potential to utilize these exceptional methods for transforming garment waste and adding circular value to the manufacturing sector. Studies have revealed that if Bangladesh were to reuse 100% of its cotton, along with its cotton-elastane waste stream, it might decrease virgin cotton purchases by 20%, saving USD 50 million per year (Syrett et al., 2021). Currently, the garment sector recycles less than 5% of the combined textile waste into fibers. Use of less expensive recycled materials also translates into economic profitability for businesses, as the price of raw materials is a key variable in production costs (Akhter, 2023). The ready-made garments industry is the backbone of Bangladesh's economy, significantly contributing to employment, export earnings, and industrial growth. However, the sector faces increased criticism due to its environmental impact, labor rights concerns, and lack of supply chain transparency (BGMEA, 2024; Islam, 2025). The Bangladeshi government maintained aid to the garment industry by reducing customs and taxes on the shipment of initial supplies, dyes, and

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chemicals. Additionally, it lowered the interest rates on both short- and long-term loans (Akter, 2020). As global markets demand more sustainable and ethically created clothes, the necessity for traceable and transparent supply chain flexibility processes has become increasingly critical. Technological innovations, such as blockchain technology, have emerged as a promising approach to overcoming these challenges by enhancing transparency, sustainability, and stakeholder responsibility in the ready-made garments sector in Bangladesh (Al Amin & Baldacci, 2024; Shah et al., 2023).

6. Implication and Conclusion

This research provides valuable insights for all stakeholders in Bangladesh's ready-made garment sector and other related industries. Government assistance via financial incentives, coupled with regulatory frameworks and skills development programs, is crucial for promoting sustainability in Bangladesh's ready-made garments sector. The National Reduce, Reuse, and Recycle Strategy, along with financial incentives for eco-innovative technology, aims to promote the adoption of a circular economy. Policymakers and authorities can utilize this information to develop evidence-based policies that enhance industry competitiveness, sustainability, and resilience. Government investments in infrastructure, education, and technology can foster an environment that encourages innovation, skill development, and inclusive growth. Inadequate financial resources and ineffective enforcement of regulatory norms hinder progress. The journey toward sustainable transformation and global competitiveness is attainable through enhanced public-private partnerships and targeted infrastructure expenditures, including the development of effluent treatment plants. Technological innovation primarily supports the sustainability of Bangladesh's garment industry. To deploy technological innovation, companies start by progressively expanding their Internet of Things infrastructure, first in logistics, which provides immediate efficiencies and mitigates additional financial risk. By mitigating financial risk, the RMG industry may achieve optimal output through technical innovation. Implementing subsidized training programs to mitigate skill deficiencies and management's hesitance to educate staff on digital tools is crucial, as this approach will enable the industry to achieve numerous objectives with a singular initiative. Consequently, the corporation will effectively and efficiently leverage its people resources and technology advancements.

The flexibility of the supply chain enables the Bangladesh ready-made garments sector to adjust to market volatility, regulatory demands, and environmental considerations. It entails investment in established connections with suppliers in the ready-made garment sector, improving real-time visibility across various manufacturing stages, and allocating resources to logistics to facilitate recycling and minimize waste within the ready-made garment industry. In the absence of adequate managerial assistance, supply chain flexibility may lack the necessary guidance and resources for full implementation. The ready-made garments industry in Bangladesh must prioritize training and development, collaborative initiatives, and a stringent regulatory framework to achieve supply chain flexibility. Enhancing supply chain flexibility mitigates environmental impacts and elevates the industry's competitiveness in the global market, securing long-term success and corporate sustainability.

Bangladesh significantly relies on its ready-made garments sector. The circular economy offers a feasible approach to enhance sustainability in the industry, grounded in the principles of material rotation, waste and pollution mitigation, and natural system regeneration. It possesses the capacity to enhance consumer satisfaction, elevate product quality, reduce costs, foster innovation, and optimize resource efficiency. To facilitate the implementation of a circular economy, the ready-made garment industry in Bangladesh must confront its financial limitations, governmental and regulatory challenges, technological and infrastructural deficiencies, and resistance to change. The ready-made garment industry in Bangladesh can adopt various strategies, including enhancing awareness, offering incentives, establishing uniform practices, fostering collaboration, upgrading infrastructure, incorporating technology, developing local capacity, mobilizing financial resources, formulating a comprehensive national strategy, consolidating policies, and engaging

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stakeholders, all of which facilitate the implementation of a circular economy and promote corporate sustainability.

The development of the garment sector in Bangladesh necessitates a circular economy, driven by technological advancements, government support, and adaptability in the supply chain. The "Digital Bangladesh Vision" aims to educate 37,000 garment trainees annually; however, recent energy shortages impede this objective. The circular economy facilitates business sustainability through the integration of green innovation, financial and non-financial regulations, and statistically driven activities. Nonetheless, the implementation of these initiatives is costly, and practitioners face proficiency challenges due to inadequate training. Organizations ought to cultivate awareness and educate their human resources. Furthermore, regional facilities must enhance digital capabilities, as power outages and inadequate internet connectivity impede worker productivity. Structural reforms are essential to realize the advantages of digital transformation, yielding time and cost efficiencies in supporting expatriates. The government ought to endorse corporate sustainability in ready-made garment management strategies.

7. Limitations and Future Directions

This research delineates insights into responsible circular economy techniques for corporate sustainability within Bangladesh's ready-made garment sector, which faces numerous shortcomings. The review of pertinent literature revealed that it lacks the incorporation of significant local studies and regional perspectives, which could potentially improve understanding of the social and economic context of Bangladesh. Researchers examined secondary data from a comprehensive literature review, which limited their access to current industry dynamics and direct insights from workers in the ready-made garment sector, factory managers, and local sustainability leaders. The research outcomes may become disconnected from Bangladesh's government initiatives and immediate technical progress. The study focused on the Dhaka industrial region and does not sufficiently reflect the whole spectrum of operational issues and benefits faced by manufacturing centers like Chittagong, Gazipur, and Narayanganj, which are influenced by their unique infrastructural and logistical circumstances.

This study utilizes a systematic literature review methodology that integrates theoretical models with practical implementation strategies to propose a conceptual framework. Consequently, empirical research methodologies ought to be the central focus of forthcoming investigations. The human element of this transformation requires further investigation through studies that evaluate worker technological adaptation, middle management operational adjustments, and the local community's impacts from circular economy initiatives. The analysis of sustainability implementation across different industrial zones in Bangladesh should be compared with benchmarking studies of South Asian garment hubs such as Vietnam and Sri Lanka to identify effective strategies and context-based solutions. Action research must involve industry stakeholders directly to co-create solutions that focus on small and medium-sized enterprises, which constitute the majority of Bangladesh's ready-made garments sector supply chain but struggle to implement significant sustainability transitions. Future research should investigate the intersection of digital transformation and sustainability by examining the applications of artificial intelligence, blockchain, and the Internet of Things, which enable businesses to develop models that benefit Bangladesh's economy without harming social structures or environmental resources.

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