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A Climate Action Roadmap for GHG Reduction in the Textile Industry: Pathway to Sustainability

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ABSTRACT

The textile industry is one of the major contributors to greenhouse gas (GHG) emissions and countries like Bangladesh are among the key hubs of this industry in the developing world. Therefore, adopting sustainable strategies in these countries is essential for environmental protection and long-term economic resilience. In our study, a comprehensive Climate Action Roadmap (CAR) has been developed with the baseline year of 2018, aiming to reduce greenhouse gas emissions by 50% by 2030. This roadmap is designed to identify and quantify both direct and indirect GHG emissions, while evaluating energy consumption, production processes and waste management practices, thereby clearly highlighting areas for improvement. Innovative technologies and process enhancements, including the adoption of renewable energy (solar and wind) alternative heating methods and efficiency-driven production strategies-have been integrated into this roadmap strategy to support significant emission reductions. This roadmap has incorporated Collaboration and Best Practices Sharing into its framework in order to ensure stakeholder engagement, accountability and progress monitoring for effective implementation in the operations of any textile industry around the world, including Bangladesh. The CAR framework will undoubtedly make an important contribution to GHG reduction by providing practical strategies to reduce environmental impacts while promoting social responsibility and sustainable economic growth. This framework provides to the textile industry a methodical and efficient route to sustainability by methodically tackling energy efficiency, clean energy integration and performance optimization. Through a thorough evaluation of textile GHG profiles and emission calculation techniques, EQMS Consulting Limited was able to create and validate this framework. The firm has also applied the CAR framework in five textile facilities with encouraging results.

INTRODUCTION

The textile and apparel sector is responsible for 8–10% of total global GHG emissions, mainly due to fossil fuel use, energy-intensive production processes, and long, complex supply chains. In Bangladesh, where the textile and ready-made garment (RMG) industry drives the national economy, it is natural that the environmental impact of this sector would also be comparatively higher. Recent studies have shown that most emissions arise from on-site fuel consumption and electricity use, underscoring the need for sector-specific mitigation strategies (Alam *et al.,* 2022; Hasan *et al.,* 2023; Haque *et al.,* 2024).

Despite the importance of the industry, factory-level greenhouse gas emission data in Bangladesh is limited due to inadequate practices, lack of document control, and insufficient records. Evidence from earlier assessments indicates that spinning, dyeing, and finishing are particularly emission-intensive stages. However, comprehensive facility-based analyses remain scarce, which restricts the development of targeted interventions. Meanwhile, national climate strategies identify the textile sector as a high-priority area for achieving emissions reductions, especially through energy efficiency and wastewater treatment initiatives (United Nations Conference on Trade and Development [UNCTAD], 2025).

To address this gap, the present study evaluates GHG emissions in five textile facilities in Bangladesh affiliated with LINDEX: Divine Textile Ltd., IRIS Fabrics Limited, Maxcom International (BD) Ltd., Northern Corporation Limited, and Multifabs Limited. Four facilities were adopted in 2017 as their baseline year, while Multifabs Limited used 2018 due to unavailability of prior records. Emission data was obtained from factory monitoring reports, energy logs, and on-site surveys conducted by EQMS Consulting Limited. Both direct (Scope 1) and indirect (Scope 2) emissions were estimated following internationally recognized emission factor guidelines.

The results establish factory-level emission baselines, reveal trends, and identify mitigation opportunities. The research provides evidence-based insights for lowering the carbon footprint of the sector and supports larger initiatives for sustainable manufacturing in Bangladesh by coordinating these findings with the suggested Climate Action Roadmap.

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LITERATURE REVIEW

The operational method of the textile industries like energy-intensive production processes, extensive water usage and reliance on fossil fuels throughout the product lifecycle contributes approximately 10% of global greenhouse gas (GHG) emissions by the textile industry (Niinimäki *et al.,* 2020). The main causes of climate change are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N2O), which have a negative impact on weather patterns and biodiversity (Filonchyk *et al.,* 2024) hence reducing greenhouse gas emissions is difficult and needs for a variety of strategies, such as encouraging the use of low-carbon technologies, energy efficiency and resource preservation (Pollak *et al.,* 2011). The efficiency and costs of possible greenhouse gas reduction measures may differ by industry, city, nation or state depending on the sorts of natural resources, energy consumption trends and infrastructure that are currently in place in each of these countries (Cragg, 2009; Sweeney, 2008; Rausch, 2010). Utilizing renewable energy sources is one of the best strategies to lower pollution moreover combining solar and wind energy can significantly lower the carbon footprint of the textile manufacturing sector according to studies conducted in Bangladesh (Abdel-Dayem & Mohamad 2001). This change lowers expenses while addressing environmental issues and improving energy security. Waterless dyeing and digital printing are two examples of production process innovations that are essential for sustainability. By reducing resource usage and increasing productivity, these techniques save costs and boost competitiveness (Rahaman *et al.,* 2024). Furthermore, implementing the concepts of the circular economy-where materials are reused and waste is reduced-has become a game-changing strategy in the sector (Geissdoerfer *et al.,* 2017). By abandoning conventional linear economic models in favor of social, environmental and economic balance, the world community is advancing toward sustainable development. The accomplishment of the Sustainable Development Goals (SDGs) set forth by the United Nations in 2015 is what is driving this change (Marinina *et al.,* 2022). The Circular Economy (CE) idea, which seeks to combine industrial development, environmental health, and economic growth, is gaining global interest among researchers, managers, and politicians as a departure from the traditional linear economic model. Researchers believe that in developing nations like Bangladesh, which rely significantly on development and industry, this method will be critical in tackling sustainability issues (Silvério *et al.,* 2023) through this, large-scale circular economy projects can have a significant impact on the balance of primary and secondary product supply. (Upadhyay *et al.,* 2021). A study on the effects of financial resources, operational alignment and absorptive capacity on the adoption of the circular economy (CE) among small and medium-sized businesses (SMEs) in Malaysia was carried out where the findings indicates the adequate financial investment, company operations that are in line with CE principles and the capacity to assimilate and apply new information are all essential for the successful implementation of CE (Ahmed *et al.,* 2025). It have een evaluated that seven important sectors are essential that lowering the global GHG emissions which are buildings (7%), land use change and forestry (7%), transportation (13%), agriculture and waste (15%), industry and fossil fuel production (29%), electricity generation (25%) and fluorinated gases (3%). Transportation, power generation, industry and fossil fuel production are the most successful mitigation sectors among them (Tang & Mizunoya, 2021). Stakeholder mapping is an important part of these strategies, which makes the framework meaningful. Engaging stakeholders, including workers and consumers, is essential. Organizations that prioritize Corporate Social Responsibility (CSR) and involve stakeholders in sustainable initiatives are found to achieve better outcomes and build a sustainable culture that enhances brand loyalty (Jalonen *et al.,* 2018). In summary, for the textile industry, achieving significant greenhouse gas emission reductions requires the adoption of a comprehensive strategy that incorporates the use of renewable energy, innovative production methods and stakeholder engagement-minimizing environmental impacts while providing a supportive pathway toward a fair and sustainable future.

MATERIALS AND METHODS

To reduce greenhouse gas (GHG) in textile factories A Climate Action Roadmap (CAR) was developed and implemented in five separate factories in Bangladesh. The framework is structured and multi-stage research design. This approach ensured methodological rigor, reproducibility and contextual relevance. The process integrated quantitative emission assessments with site-specific evaluations to provide both technical accuracy and practical feasibility.

Preliminary Assessment and Data Acquisition

As an initial part of this strategy, a baseline review was conducted in five textile factories in Bangladesh, namely-Divine Textile Ltd., IRIS Fabrics Limited, Maxcom International (BD) Ltd., Northern Corporation Limited, and Multifabs Limited. Operational data-including fuel consumption, electricity use, production throughput and waste management practices- were collected from factory observation reports, energy logs and throughout on-site surveys. These datasets were verified for completeness, consistency and subsequently served as the basis for greenhouse gas assessments.

Emission Source Classification and Quantification

Emissions were classified in accordance with the GHG Protocol (WRI/WBCSD) into two categories:

Scope 1: Direct emissions from stationary combustion (boilers, furnaces), mobile combustion (vehicles), and process-related activities.

Scope 2: Indirect emissions from purchased electricity, heat, and steam.

Emission quantification was carried out using IPCC

(2006) Guidelines for National Greenhouse Gas Inventories and internationally recognized emission factors. All emissions were estimated according to the following standard equation:

GHG Emission (tCO_2-e) = ∑(Activity Data × Emission Factor) ----1

where Activity Data referred to fuel or electricity consumption and Emission Factor represented standardized CO_2-equivalent conversion factors.

Review of Existing Mitigation Measures

Mitigation measures that had been implemented since 2017—including high-efficiency boilers, process optimizations, and partial renewable energy adoption—were systematically reviewed. Their effectiveness was evaluated through comparative analysis of pre- and post-intervention emission data, allowing differentiation between historical improvements and further reduction potential.

Identification of Additional Reduction Opportunities

New mitigation opportunities were identified through detailed site visits and technical assessments. Options considered included:

1. Retrofitting with energy-efficient equipment (e.g., high-efficiency motors, LED lighting),
2. Installation of waste heat recovery systems,
3. Deployment of on-site renewable energy systems (solar PV, wind turbines), and
4. Process optimization measures for thermal energy demand reduction.

Opportunities were screened using a best-available-technology (BAT) approach, ensuring sector-specific applicability.

Technical and Economic Feasibility Assessment

At this stage, the technical and financial feasibility of each identified measure was evaluated. Technical feasibility was assessed based on expected emission savings, integration potential, and operational compatibility. At the same time, cost-benefit indicators such as simple payback period, energy savings, operating expenditure (OPEX) and capital expenditure (CAPEX) were used to examine economic feasibility.

Prioritization of Interventions

To prioritize the interventions, potential measures were ranked based on their contribution to the 50% reduction target compared to the 2017 baseline, their economic feasibility and their relative impact on greenhouse gas reduction. An incremental abatement curve was also developed to illustrate the remaining gaps and to assess progress toward the 2030 target.

Development of the Climate Action Roadmap

A structured and actionable framework named climate action road map was developed for each factory which included-

1. Clearly defined interventions (energy efficiency, renewable energy adoption, waste heat utilization),
2. A phased implementation schedule (2023–2030),
3. Defined roles and responsibilities for implementation teams, and
4. Estimated costs, including CAPEX, operational expenses, and projected savings.

Stakeholder Engagement, Monitoring, and Verification

As the final stage of this framework, mechanisms were established for stakeholder engagement and continuous monitoring to ensure accountability and adaptive management. A Monitoring, Reporting and Verification (MRV) framework was developed and implemented to track progress, generate transparent reports and facilitate stakeholder participation, thereby supporting the long-term implementation of the roadmap in textile factories.

GHG Reduction Strategy

In the greenhouse gas reduction strategy in the textile sector is designed to significantly reduce emissions while simultaneously improving energy efficiency and sustainability. To minimize energy consumption and the carbon footprint, key components include replacing mechanical uses with energy-efficient equipment such as motors, LED lights and exhaust gas boilers. The CAR strategy has been developed to encourage the adoption of renewable energy sources in textile industries, where factories explore on-site systems such as solar panels and wind turbines (Horizontal Axis Wind Turbine, Vertical Axis Wind Turbine, Domestic (small-scale), Domestic (Savonius type), Domestic (small-scale) (Darrieus type) etc. and purchase off-site renewable energy to reduce emissions. Additionally, the strategy emphasizes heat recovery systems, focusing on capturing and reusing waste heat from processes-for example, recovering heat from gas engine jacket water for hot water applications. This strategy specifically emphasizes that monitoring and measurement are essential, as they track energy and water usage, enabling improved resource management and continuous improvement. Based on the 2017 baseline, each factory aims to reduce greenhouse gas emissions by 50%, with most of the strategies set for implementation within 1–3 years. This strategy encourages greenhouse gas reduction efforts by fostering collaboration among factories and sharing best practices through the adoption of the Eco-Industrial Parks concept. Overall, the strategy integrates energy efficiency improvements, renewable energy adoption, waste heat recovery and continuous monitoring, positioning factories as leaders in environmental sustainability within the textile industry while demonstrating the coexistence of economic growth and environmental stewardship.

Table 1: Hierarchy of Strategies for GHG Emission Reduction and Sustainability in Factories

Level	Strategy	Details
Main Goal	GHG Emissions Reduction	50% reduction target based on 2017 baseline; timeline: 1–3 years.
Primary Strategy 1	Energy Efficiency Improvement	Upgraded equipment: energy-efficient motors, LED lighting, exhaust gas boilers.
Primary Strategy 2	Renewable Energy Adoption	On-site solar panels and wind turbines; off-site renewable energy purchases.
Primary Strategy 3	Waste Heat Recovery	Capture and reuse waste heat (e.g., jacket water of gas engines for hot water applications).
Primary Strategy 4	Monitoring and Measurement	Invest in advanced metering systems for energy and water usage tracking.
Primary Strategy 5	Collaboration and Best Practices Sharing	Factories collaborate to share strategies, innovations, and continuous improvements.
Supporting Action	Continuous Improvement Programs	Ongoing optimization and resource management based on data collected from metering systems.
Overarching Outcome	Environmental Sustainability Leadership	Demonstrate economic growth and environmental stewardship within the textile industry.

Climate Action Roadmap

This study presents the Climate Action Roadmap (CAR) for five factories, detailing feasible GHG reduction options and a timeline for implementation starting in 2023. The factories' emissions were as follows: Divine Textile Ltd. (14,175 tons), IRIS Fabrics Limited (21,719 tons), Maxcom International (BD) Ltd. (6,809 tons), Northern Corporation Limited (8,795 tons) in 2017, and Multifabs Limited (16,975 tons) in 2018. The reduction plan aims to cut emissions by 50% of the baseline by 2030. A tentative roadmap has been developed based on the analysis in the previous greenhouse gas reduction strategies.

Here, illustrates the GHG Reduction Roadmap for five

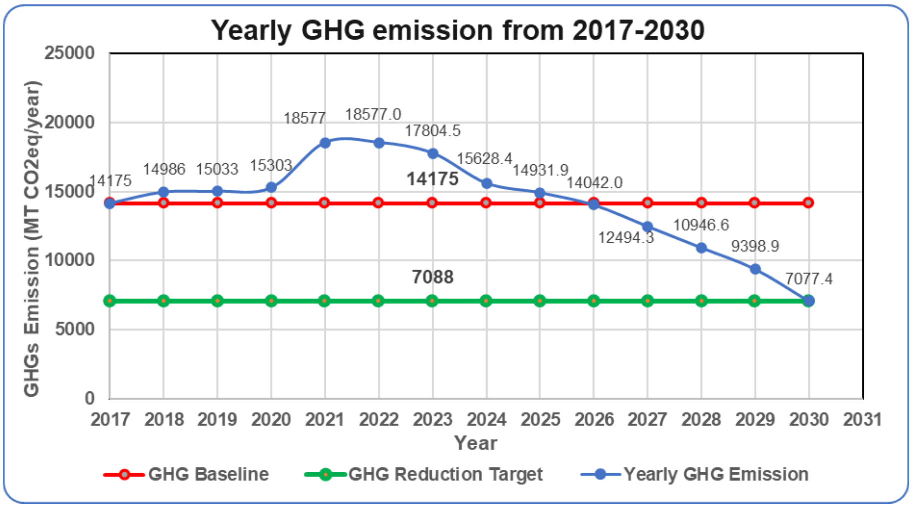

Figure 1: Climate Action Roadmap of Divine Textile Ltd. to achieve 50% GHG emission reduction

factories, outlining the strategic actions and timelines necessary to achieve a 50% reduction in greenhouse gas emissions by 2030 Figure 1 to Figure 5. The horizontal axis represents the timeline, spanning from 2023 to 2030, indicating when each action will be implemented. The vertical axis categorizes various initiatives, including energy efficiency improvements, renewable energy integration, waste management, and process optimization. A line graph may show how these actions are executed over time to project the cumulative decrease in emissions. The roadmap provides a structured approach to GHG reduction, ensuring accountability, effective stakeholder communication, and adaptability to new opportunities or challenges. For textile factories like those where CAR has been implemented, CAR will be considered an important framework to support sustainability and the commitment to reducing environmental impacts, exploring off-site solar or on-site heat system alternatives in the context

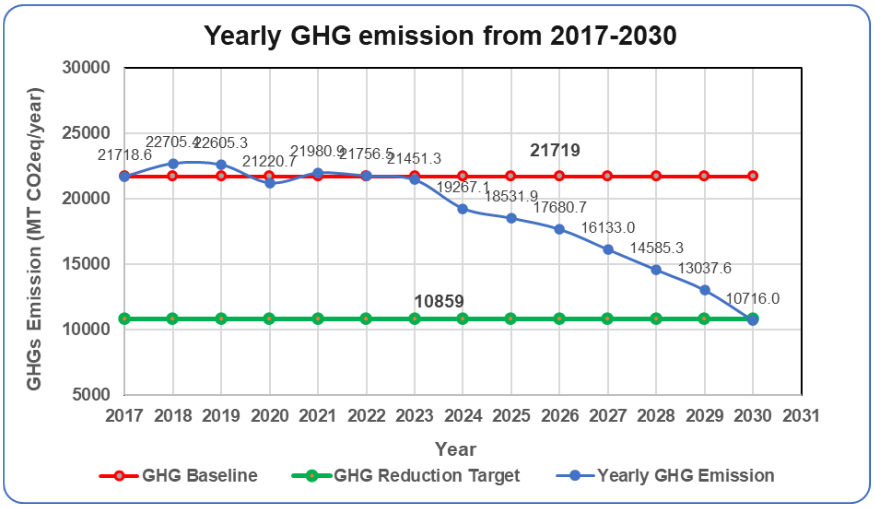

Figure 2: Climate Action Roadmap of IRIS Fabrics Limited to achieve 50% GHG emission reduction

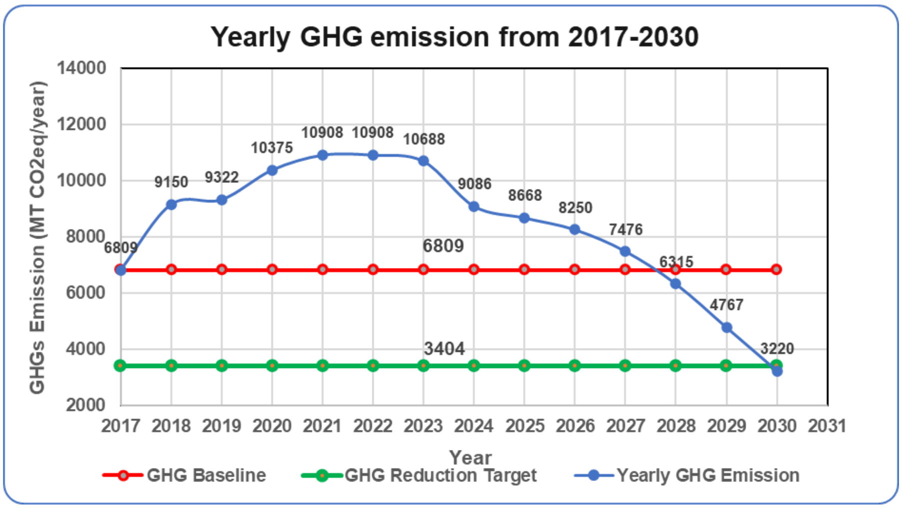

Figure 3: Climate Action Roadmap of Maxcom International (BD) Ltd. to achieve 50% GHG emission reduction

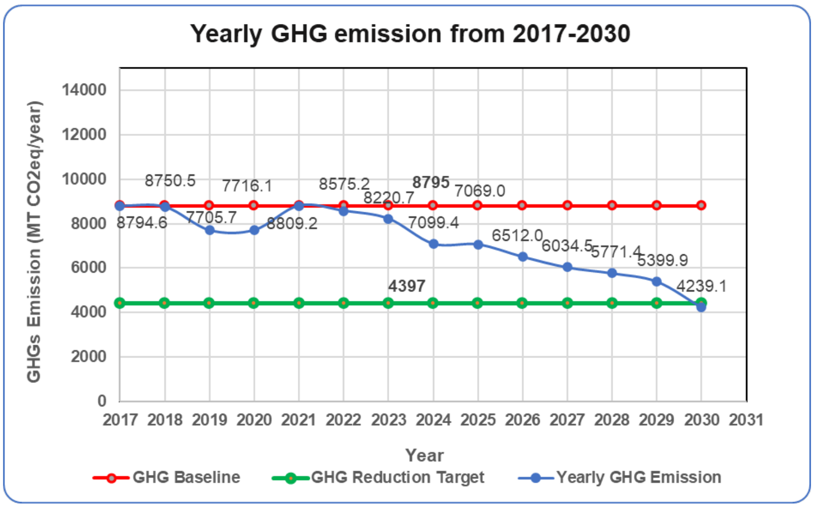

Figure 4: Climate Action Roadmap of Northern Corporation Limited to achieve 50% GHG emission reduction

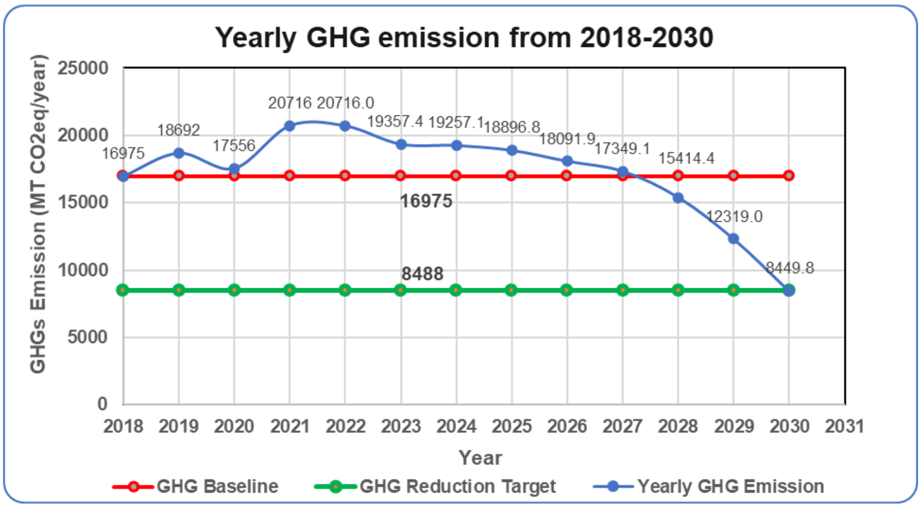

Figure 5: Climate Action Roadmap of Multifabs Limited factories to achieve 50% GHG emission reduction

analysis proposes adopting biomass and electric boilers as effective alternatives. By evaluating these options, the objective of the analysis is to identify potential solutions that enhance energy security and make a significant contribution to greenhouse gas reduction efforts. This approach underscores the importance of transitioning to sustainable energy practices to mitigate environmental impacts and promote long-term sustainability.

RESULTS AND DISCUSSION

Result of GHG Estimation

The GHG emissions for five factories were assessed for Scope 1 (direct emissions from fuel consumption) and Scope 2 (indirect emissions from electricity usage) over the period 2017 to 2021, shown in Figure 6. Four of these factories used 2017 as their baseline year, while only one factory adopted 2018 as its baseline, due to unavailable data for 2017.

Emissions were quantified by applying standardized emission factors to fuel and electricity data, providing an accurate estimate of each factory's total GHG emissions. While some data gaps were encountered, the resulting trends offer a clear foundation for developing the roadmap to achieve a 50% reduction in GHG emissions by GHG emissions of five factories between the years from 2017 to 2021 have been shown in Figure 1, provides

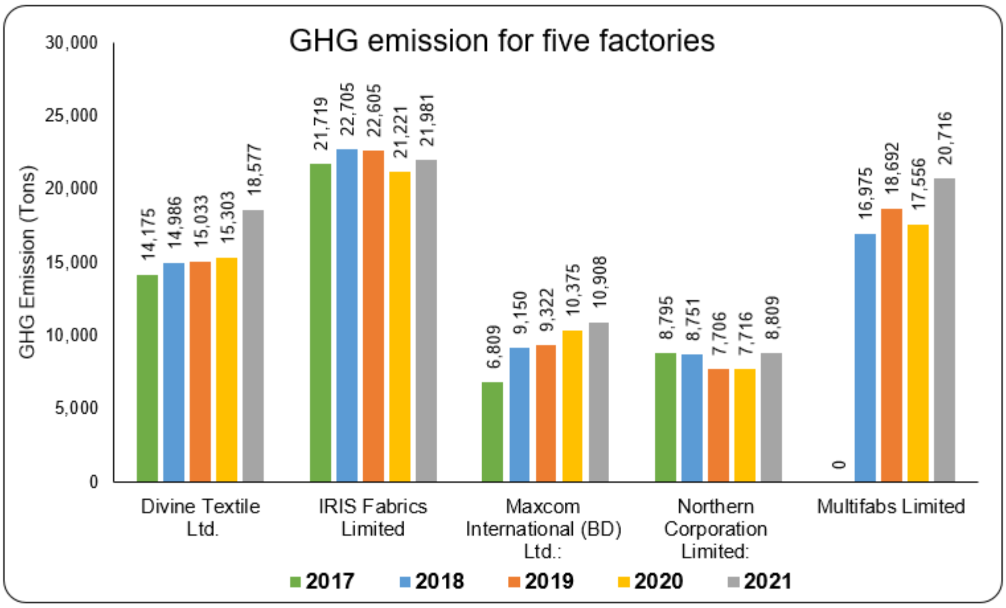

Figure 6: GHG emissions of five factories from 2017 to 2021

a snapshot of the greenhouse gas emissions from five different factories over five years (2017 to 2021). Here's a unique take on the data:

Table 2: Annual Emissions (Metric Tons) of Various Textile Factories (2017-2021)

Factory Name	2017 (MT)	2018 (MT)	2021 (MT)
Divine Textile Ltd.	14,175	--	18,751
IRIS Fabrics Limited	21,719	--	21,981
Maxcom International (BD) Ltd.	6,809	--	10,908
Northern Corporation Limited	8,795	--	8,809
Multifabs Limited	--	16,975	20,716

Sources: EQMS Consulting Limited, annual Monitoring Report

Table 3: Implementation of School DRRM Program (n=259)

Energy Sources	Greenhouse gas emission in garments industries tons (CO_2 eq.)			Greenhouse gas emission in textile industries tons (CO_2 eq.)			Greenhouse gas emission in dyeing industries tons (CO_2 eq.)			For all Industries greenhouse gas emission in tons (CO_2 eq.)		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Natural Gas	8517.54	8207.4	8867.5	27375	26034.6	27988.4	29027	26267.9	32675.3	64920.2	60510	69531.4
Diesel	12.88	10.73	13.59	61.1	44.36	87.29	935.11	838.52	1034.56	1009.09	893.61	1135.44
Electricity	9330.83	3709.69	3938.06	36991.7	31283.3	39411.8	22163.8	20027.8	24133.5	63086.3	55020.8	67213.4
Total	12461.3	11927.8	12819.2	64427.8	57362.3	67217.5	52125.9	47134.2	57843.4	129016	116424	137880
Sum	24922.5	23855.6	25638.1	128856	114725	134435	104252	94268.4	115687	258031	232849	275760

Sources: Hasan et. al 2024

Discussions

A decarbonization strategy for five textile manufacturing facilities is outlined in the Climate Action Roadmap (CAR), which aims to reduce CO_2-equivalent (CO_2-e) emissions from baseline years (2017/2018) by 50% by 2030. The strategy blends supply-side activities such as on-site renewable energy installations and grid decarbonization with demand-side interventions such as energy efficiency upgrades and process optimization.

It recommends switching from natural gas to low-carbon options, such as biomass and electric boilers, to meet thermal energy demands while lowering Scope 1 emissions. The phased deployment strategy allows for incremental mitigation while maintaining operational continuity by utilizing monitoring, reporting and verification (MRV) systems to monitor performance. Using integrated energy transition strategies, this systems-based approach demonstrates that considerable emission reductions in the textile industry are both technically and financially achievable.

CONCLUSION

A strong climate action plan is essential for significantly lowering greenhouse gas emissions for the countries like Bangladesh hence integrating renewable energy sources such as solar and wind as well as alternative heating solutions like biomass and electric boilers can considerably improve energy security and encourage towards sustainability. The recommended measures address the compelling need to mitigate climate change while also promoting economic and social sustainable growth. Continuous review, improvement and refining of these techniques will be required to ensure their effectiveness in attaining the successive emission reduction targets. Finally, a strong commitment to sustainable practices will be critical in creating a healthier environment and a more resilient future.

REFERENCES

Abdel-Dayem, A. M., & Mohamad, M. A. (2001). Potential of solar energy utilization in the textile industry

— a case study. *Renewable Energy, 23*(3-4), 685–694. https://doi.org/10.1016/s0960-1481(00)00154-3

Ahmed, S., Ahsan, N., Alam, S. S., & Kokash, H. A. (2025). Advancing Circular Economy Implementation in Malaysian SMEs: The Role of Financial Resources, Operational Alignment, and Absorptive Capacity. *Circular Economy and Sustainability, 5*, 2843–2871. https://doi.org/10.1007/s43615-025-00533-3

Burtraw, D., Sweeney, R., & Walls, M. (2008). The Incidence of U.S. Climate Policy: Where You Stand Depends on Where You Sit. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.1272667

Cragg, M. I. (2009, May). *Carbon Geography: The Political Economy of Congressional Support for Legislation Intended to Mitigate Greenhouse Gas Production.* NBER Working Papers; National Bureau of Economic Research, Inc. https://ideas.repec.org/p/nbr/nberwo/14963.html

Filho, W. L., Perry, P., Heim, H., Dinis, M. A. P., Moda, H., Ebhuoma, E., & Paço, A. (2022). An overview of the contribution of the textiles sector to climate change. *Frontiers in Environmental Science, 10*(1), 1–5. https://doi.org/10.3389/fenvs.2022.973102

Filonchyk, M., Peterson, M. P., Yan, H., Gusev, A., Zhang, L., He, Y., & Yang, S. (2024). Greenhouse gas emissions and reduction strategies for the world's largest greenhouse gas emitters. *Science of the Total Environment, 944*(0048-9697), 173895–173895. https://doi.org/10.1016/j.scitotenv.2024.173895

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy - a New Sustainability paradigm? *Journal of Cleaner Production, 143*(1), 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Greening global value chains: Textile sector decarbonization in Bangladesh. (2025). *United Nations Conference on Trade and Development (UNCTAD).* https://unctad.org/system/files/non-official-document/-smep-ghg_01-08-2025.pdf?utm_source=chatgpt.com

Jalonen, H., Tuominen, S., Ryömä, A., Haltia, J., Nenonen, J., & Kuikka, A. (2018). How Does Value Creation Manifest Itself in the Nexus of Sport and Business? A Systematic Literature Review. *Open Journal of Business and Management, 06*(01), 103–138. https://doi.org/10.4236/ojbm.2018.61008

Marinina, O., Kirsanova, N., & Nevskaya, M. (2022). Circular Economy Models in Industry: Developing a Conceptual Framework. *Energies, 15*(24), 9376. https://doi.org/10.3390/en15249376

Mulyasari, G., Djarot, I. N., Sasongko, N. A., & Putra, A. S. (2023). Social-life cycle assessment of oil palm plantation smallholders in Bengkulu province, Indonesia. *Heliyon, 9*(8), e19123. https://doi.org/10.1016/j.heliyon.2023.e19123

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The Environmental Price of Fast Fashion. *Nature Reviews Earth & Environment, 1*(4), 189–200. https://doi.org/10.1038/s43017-020-0039-9

Pollak, M., Meyer, B., & Wilson, E. (2011). Reducing greenhouse gas emissions: Lessons from state climate action plans. *Energy Policy, 39*(9), 5429–5439. https://doi.org/10.1016/j.enpol.2011.05.020

Rahaman, Md. T., Pranta, A. D., Repon, Md. R., Ahmed, Md. S., & Islam, T. (2024). Green Production and Consumption of Textiles and Apparel: Importance, Fabrication, Challenges and Future prospects. *Journal of Open Innovation, 10*(2), 100280–100280. https://www.sciencedirect.com/science/article/pii/S219985312400074X

Rausch, S. (2010, June). *Distributional Implications of Alternative U.S. Greenhouse Gas Control Measures.* NBER Working Papers; National Bureau of Economic Research, Inc. https://ideas.repec.org/p/nbr/nberwo/16053.html

Silvério, A. C., Ferreira, J., Fernandes, P. O., & Dabić, M. (2023). How does circular economy work in industry? Strategies, opportunities, and trends in scholarly literature. *Journal of Cleaner Production, 412*, 137312. https://doi.org/10.1016/j.jclepro.2023.137312

Tang, A. Q., & Mizunoya, T. (2021). A Study on Selecting Greenhouse Gas Reduction Options: A Simulation Analysis for Vietnam. *Sustainability, 13*(24), 13530. https://doi.org/10.3390/su132413530

Upadhyay, A., Laing, T., Kumar, V., & Dora, M. (2021). Exploring barriers and drivers to the implementation of circular economy practices in the mining industry. *Resources Policy, 72*, 102037. https://doi.org/10.1016/j.resourpol.2021.102037