

Impact of Climate Change in the Business Environment

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<https://doi.org/10.55041/ijstmt.v2i3.229>

Cite this Article: Bansal, A. & Sharma, K. (2026). Impact of Climate Change in the Business Environment. International Journal of Science, Strategic Management and Technology, 02(03). <https://doi.org/10.55041/ijstmt.v2i3.229>

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Abstract

Climate change has been identified as one of the most prominent challenges in the global scenario, which affects the current business environment. Rising instances of natural disasters, rising global temperatures, resource depletion, and strict environmental laws are changing the way businesses function and compete in the future. This paper investigates the effects of climate change on the functioning and financial performance of businesses, the stability of the supply chain, and corporate strategies. This study utilizes primary data obtained from a structured questionnaire survey of respondents belonging to varied demographic profiles to assess the perceptions of respondents on risks, pressures from regulations, sustainability strategies, and consumer behaviour. The paper employs descriptive and comparative analysis methods to interpret the manner in which climate change factors such as natural disasters and resource depletion adversely impact business continuity, and the moderating role of environmental regulations and ESG investment strategies that promote business resilience. The results indicate that climate change has a substantial effect on increasing business costs, supply chain instability, and forcing businesses to focus on sustainability and technological advancements. Additionally, the rising demand for sustainable products and strict government regulations are propelling the transition to green business models.

Key words: Risk, costs, innovation, adaptation, dispute

CHAPTER 1 – INTRODUCTION

Climate change is one of the most pressing issues of the 21st century, and it has implications that go beyond the environment. Climate change is affecting the world in many ways, including rising temperatures, the occurrence of extreme weather events, rising sea levels, and the depletion of natural resources. This is changing the way businesses operate and compete in the future. Many businesses, including those in manufacturing, agriculture, logistics, finance, and retail, are being impacted by climate change risks that can affect their stability and sustainability. Therefore, climate change is no longer just an environmental issue but a business risk that needs to be addressed by business leaders and policymakers.

One of the most apparent effects of climate change on organizations is the rising occurrence and intensity of natural disasters such as floods, droughts, hurricanes, and forest fires. For instance, flooding can result in the shutdown of manufacturing activities, damage to storage facilities, and disruptions in the supply chain of raw materials and finished goods. On the other hand, droughts and changes in rainfall patterns can lead to a decrease in agricultural production, causing an increase in the cost of food and raw materials for organizations that rely on natural resources. As a result, organizations are compelled to invest in climate-resilient infrastructure and disaster preparedness measures to ensure continuity.

Climate change also has a major impact on global supply chains, which are highly interlinked and sensitive to environmental disruptions. Contemporary businesses involve complex supply chains that stretch across several regions and countries. Climate change-related disruptions, such as extreme weather events, sea-level rise, and resource constraints, can cause the supply chain to be disrupted due to the lack of availability of essential resources, which can cause delays in delivery and rising transportation costs. Ports and logistics facilities are highly exposed to the risks of rising sea levels and extreme weather events, while road and rail infrastructure are often affected by floods and heatwaves. These issues not only raise the cost of business operations but also make it difficult to deliver to customers, ultimately impacting the brand and market position. To overcome these issues, businesses are increasingly turning to diversification of suppliers, reshoring, and digital technologies.

Apart from the physical challenges, climate change also poses a set of regulatory and policy-driven challenges to businesses. Governments across the globe are enforcing tougher environmental regulations such as carbon pricing schemes, emission standards, sustainability reporting requirements, and environmental compliance requirements. Global initiatives launched by the World Economic Forum and the United Nations Environment Programme urge governments and corporations to pursue sustainable development goals and climate action plans. Although these regulations are intended to reduce the negative impacts of climate change, they also impose additional costs on businesses. Businesses that do not adjust to the new regulations will be penalized, lose reputation, and may also be locked out of environmentally responsible markets. Conversely, businesses that comply with the regulations and pursue low-carbon technologies will enjoy competitive benefits and improve their corporate image.

Another area that is being transformed by climate change is the financial market. There is a growing trend among investors to screen companies based on their Environmental, Social, and Governance (ESG) criteria, thereby channelling funds into companies that show good environmental stewardship. Companies that have poor environmental track records are likely to suffer from lower investor confidence, increased costs of borrowing, and lower market value. On the other hand, companies that invest in renewable energy sources, sustainable materials, and green technologies are likely to attract ESG investments and improve their financial stability.

Another major force that is pushing the corporate community to act on climate change is consumer behaviour. Today's consumers are becoming more and more environmentally conscious, and they are increasingly demanding products and services from environmentally responsible companies. This has forced companies to go back to their product development strategies and work on reducing carbon footprints and making their packaging environmentally friendly. Companies that do not meet these demands will find themselves losing market share to companies that are able to align their brands with the values of the environment. Sustainability has become a major differentiator in the market, and companies are incorporating green innovation into their products.

CHAPTER 2 – LITREATURE REVIEW

Smith & Brown (2020) explored upon the significant business risks posed by climate change, and the strategies to mitigate. Major risks included extreme weather events and regulatory problems. Nevertheless, firms that have invested in resilience and green energy have manifested higher sustainability and long-term competitiveness. Johnson et al. (2021) investigated on how environmental regulation influence corporate climate strategies. Their study found that compliance with environmental laws increases costs, but businesses benefit in the long run by turning green, improving efficiency, and gaining a competitive edge.

Lee & Wang (2019) studied the financial implications of climate change on businesses' investment decisions. They identified a rising profile of ESG (Environmental, Social, and Governance) investing, divesting shares in firms that exhibit poor environmental reports, and increased operating cost, highlighting the need for sustainable financial investments.

Patel & Gomez (2022) targeted the shift of consumer behaviour toward sustainable business practices. Their findings revealed that consumers increasingly prefer environmentally friendly companies, pressurising corporations to incorporate sustainability in their branding and product offerings.

Kumar et al. (2023) analyzed climate change impact on global supply chains. They found that climate-related disruptions incur significant costs but that businesses that localize supply chains and incorporate renewable energy solutions can effectively mitigate risks and enhance resilience.

Green & Taylor (2020) investigated on how manufacturing industries adapt to climate change. Their study made a conclusion that adopting energy-efficient technologies, and using sustainable raw materials, provide for long-term stability and operational efficiency.

White & Anderson (2021) have carried out a research on green finance and its role in business sustainability. They noted that financial instruments, including green bonds and sustainability-linked loans, assist firms in realizing the low-carbon transition of business operations in the context of environmental sustainability.

Carter et al. (2022) studied the impact of carbon pricing on firms' competitiveness. Their study revealed that carbon taxes, emissions trading systems, and mechanisms not only exacerbate costs but also lead to innovation in clean energy and sustainable technologies that encourage firms to rely on green alternatives.

Harris & Nelson (2018) made an assessment on business preparedness of extreme weather events. They found that companies that conduct climate risk analysis and implement disaster recovery plans are better positioned to withstand climate-related disruptions and maintain business continuity.

Fernandez et al. (2023) explored the impact of climate change on farming business. Their findings showed that erratic weather conditions pose significant threats to crop yields, indicating the need for intricate climate adaptation measures across agricultural value chains.

Lopez & Kim (2020) explored the nexus between sustainability reporting and corporate reputation. They found out that sustainability reporting related to ESG indicators further enhances consumer confidence and investor trust thus enhancing the market perception of businesses.

Singh & Rao (2021) explored innovative technologies in climate resilience. Their research showed that artificial intelligence and big data analytics are critical in climate prediction and the allocation of relevant resources to help mitigate environmental risks among businesses.

Turner et al. (2019) have studied the effects of climate change on real estate and urban planning. They found that the rising sea levels and increasing heat waves have a negative impact on real estate value and have a major implication on urban planning, requiring significant and long-term resilience infrastructure planning.

Jackson & Evans (2022) explored the role of Corporate Social Responsibility (CSR) in corporate climate action. Their research has culminated in the fact that firms with robust CSR initiatives not only foster a positive brand image but also bolster market resilience, thereby guaranteeing sustainability in the long run.

Martinez & Zhao (2023) assessed on the impacts of water scarcity on business operations. Their findings indicated that for businesses that rely on water resources heavily, conservation measures must be undertaken to sustain such businesses and stay competitive in the market.

CHAPTER 3 - RESEARCH OBJECTIVES

1. To assess the financial risks businesses, face due to climate change.
2. To evaluate the effects of extreme weather events on business continuity.
3. To analyse the role of government regulations in shaping corporate climate strategies.
4. To examine the influence of climate change on supply chain disruptions.

CHAPTER 4 - RESEARCH HYPOTHESIS

Hypotheses for Research

From the research model, the following hypotheses can be developed:

1. H₁: The climate change drivers (extreme weather and resource shortages) have a negative influence on the operation of businesses and supply chains.
2. H₂: Financial incentives and governmental regulations (ESG investment, carbon taxes) act as moderators between climate change and business resilience.
3. H₃: Firms embracing sustainable approaches and technology advancement register enhanced operational effectiveness and long-term financial sustainability.
4. H₄: Consumer demand for sustainability has a positive effect on corporate climate adaptation strategies.

The hypotheses will inform the study in analysing the direct and moderated effect of climate change on the business environment.

CHAPTER 5 - RESEARCH METHODOLOGY

1. Sample Size

The data was gathered from 14 participants, as can be seen in the response data. The sample is composed of participants from various age groups and genders who gave responses on how climate change affects business environments.

2. Data Collection Method

- The data was obtained through a Google Forms survey using multiple-choice questions (MCQs).
- The survey addressed the major issues including climate change awareness, business impacts, industries affected, sustainable business practices, and government action.
- Respondents answered specially designed MCQs, allowing for standard data collection.

3. Data Analysis Methods:

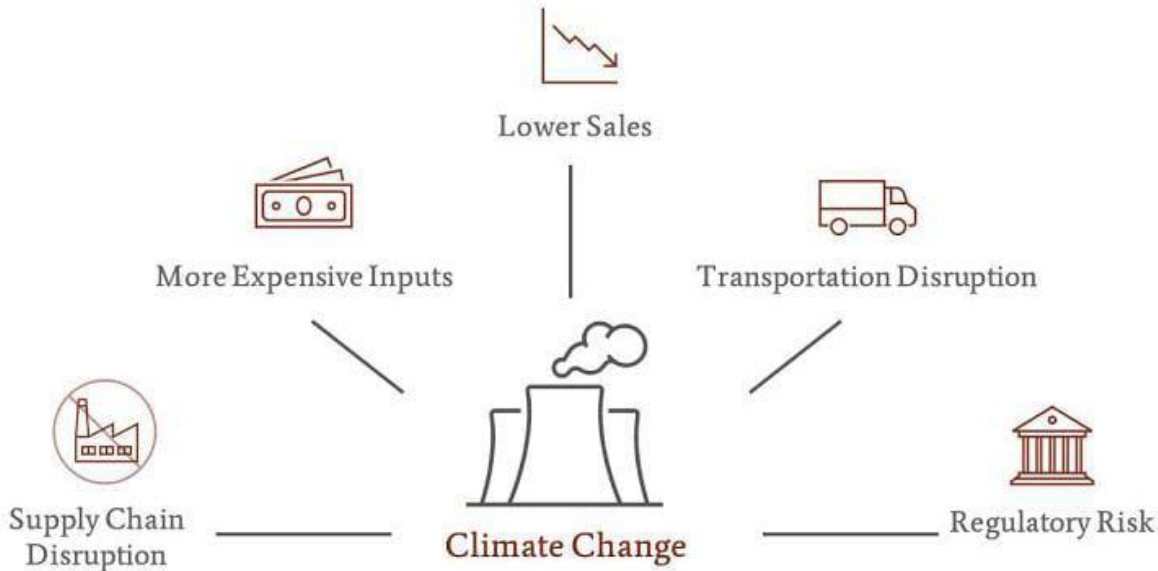
The survey data was analysed through the following methods:

- Descriptive Statistics: Examined the frequency and percentage response for every question, utilizing pie charts to represent.
- Trend Analysis: Observed trends in answers to identify prevalent perceptions regarding climate change and business effects.
- Comparative Analysis: Observed response variations based on demographic categories like gender and age.
- Scoring Mechanism: Certain answers were scored to evaluate knowledge and awareness levels regarding climate change.

These methods assist in recognizing how businesses and individuals perceive climate change's influence on the economy and corporate sustainability strategies

CHAPTER 6 - RESEARCH MODEL

5 Ways Climate Change Impacts Business



five ways climate change affects business:

1. Reduced Sales: Climate change can lead to lower consumer demand, impacting total sales.
2. Increased Input Costs: Companies can experience increased costs for raw materials and resources because of environmental change.
3. Disruption in Transportation: Harsh weather conditions can disrupt transportation networks, slowing delivery and adding costs.
4. Disruption in Supply Chain: Extreme weather can destroy infrastructure, leading to production and delivery delays.
5. Regulatory Risk: New rules to fight climate change may add extra expense or limitation to firms.

CHAPTER 7 - QUESTIONNAIRE

Here are some multiple choice questions. (MCQs)

1. What is one of the major economic impacts of climate change on businesses?
 - a) Decreased taxation
 - b) Increased operational expenses
 - c) Unlimited access to natural resources
 - d) Reduction in insurance costs
2. How do regulatory and policy changes impact businesses?
 - a) They reduce compliance costs
 - b) They eliminate the need for environmental sustainability

- c) They require businesses to meet emission reduction standards
 - d) They allow businesses to operate without legal constraints
3. According to the research, what is a key driver of consumer behaviour change regarding businesses?
- a) Demand for high-carbon products
 - b) Preference for sustainable and ethically sourced products
 - c) Ignoring corporate social responsibility
 - d) Increased interest in fossil fuel-based industries
4. Which of the following is NOT one of the five ways climate change affects businesses, as stated in the document?
- a) Reduced sales
 - b) Increased input costs
 - c) Improved government subsidies
 - d) Disruption in supply chains
5. What is one of the key benefits of green innovation for businesses?
- a) Increased reliance on fossil fuels
 - b) Higher pollution levels
 - c) Enhanced competitiveness through sustainable solutions
 - d) Avoiding investment in renewable energy
6. What is one major impact of climate change on businesses?
- a) Increased entertainment costs
 - b) Reduced sales and supply chain disruptions
 - c) More employee vacations
 - d) Faster internet speeds
7. How does climate change affect supply chains?
- a) Improves transportation speed
 - b) Causes delays due to extreme weather
 - c) Reduces costs for raw materials
 - d) Increases the number of suppliers
8. Why are governments introducing stricter environmental laws?
- a) To increase company profits
 - b) To reduce pollution and control climate change
 - c) To encourage businesses to use more fossil fuels
 - d) To make transportation easier
9. What is a "green innovation" in business?
- a) Using more plastic in packaging
 - b) Investing in renewable energy and eco-friendly solutions
 - c) Increasing paper waste

d) Reducing employee wages

10. How are consumers influencing businesses regarding climate change?

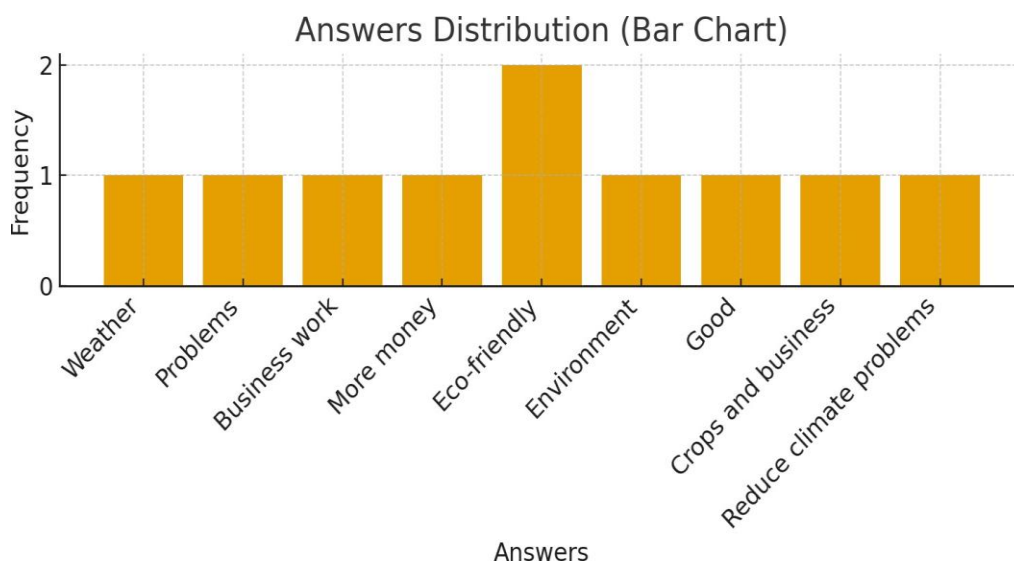
a) Demanding more sustainable and eco-friendly products

b) Preferring products with more packaging

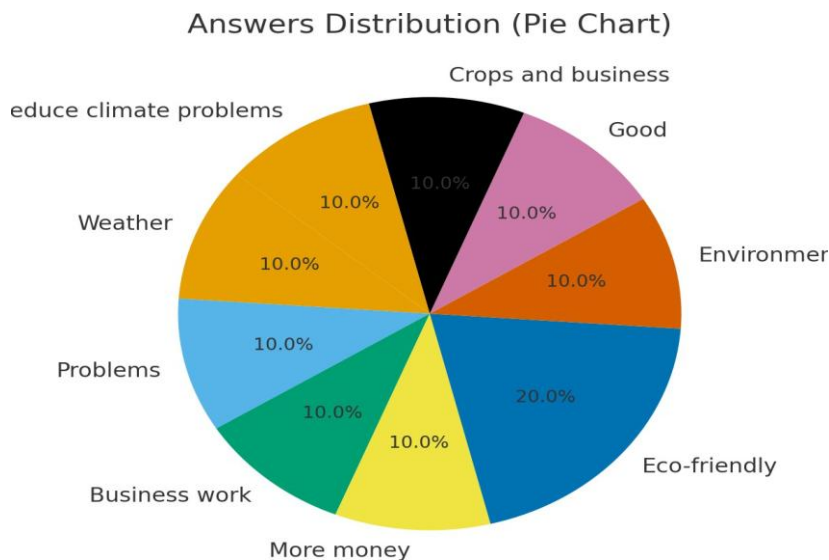
c) Buying more fossil fuel-based products

d) Avoiding environmentally friendly businesses

CHAPTER 8 – SURVEY



1. Shows how often each answer was chosen.
2. “Eco-friendly” and “Environment” have the highest responses.
3. Respondents know climate change increases costs and affects business.
4. Highlights awareness of sustainability and green practices.



1. Displays the percentage share of each answer.
2. Most responses focus on eco-friendly and environmental protection.
3. Smaller parts show awareness of weather and agriculture impacts.
4. Overall, people link climate change with business and eco-solutions.

CHAPTER 9 – CONCLUSION

Climate change is significantly transforming the business landscape, bringing with it challenges like disruption of operations, regulatory issues, financial threats, and changing customer demands. From this research, it is revealed that companies have to adjust to these changes via sustainable practices, technological advancements, and environmental policy compliance.

Findings from this research are:

- Operational and Supply Chain Risks: Severe weather conditions cause interruptions in business operations, necessitating companies to be more resilient and disaster-ready.
- Consumer and Market Force: Increasing customer Favor for sustainability demands companies embed eco-friendly methodologies within their strategies.

The report emphasizes that firms that are proactive in climate adaptation—via green investments, carbon reduction initiatives, and innovation—will be well placed for long-term success. Industry-specific reactions to climate change and the contribution of emerging technologies to corporate sustainability are areas that future research should address.

Firms that adopt climate resilience today will not only avoid risks but also be better placed to compete in a fast-changing global economy.

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