Sustainable Supply Chain Strategy of PT. Barru Mandiri Nusantara for Blue-Green Economy in Eastern Indonesia

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Abstract. The increasingly volatile global business environment, marked by macroeconomic turmoil and geopolitical shifts, necessitates that companies integrate sustainability principles into their operations. This study analyzes the sustainable supply chain strategy of PT. Barru Mandiri Nusantara, a key water treatment chemical supplier in Eastern Indonesia, as it navigates global trade dynamics and contributes to the blue-green economy. Using a qualitative single case study design, data were collected through in-depth interviews and document analysis. The findings were subsequently analyzed using SWOT analysis and the Quantitative Strategic Planning Matrix (QSPM).The results indicate that PT. Barru Mandiri Nusantara has strengths, such as an extensive distribution network, but also faces critical weaknesses, including a high dependency on imported raw materials. The company operates amidst significant opportunities, like the growing demand for clean water, yet is vulnerable to threats from global raw material price volatility. The QSPM evaluation revealed that the most attractive strategies involve leveraging internal strengths to expand into environmentally friendly products and forging strategic partnerships with government entities.The study concludes that these strategies are crucial for enhancing the company's business resilience and its proactive role in fostering water sustainability within the region. Managerial recommendations include diversifying raw material suppliers, investing in integrated supply chain information systems, and actively developing environmentally friendly products. For future research, multi-case studies or quantitative approaches are suggested to expand generalizability.

Keywords: Sustainable Supply Chain Strategy, Global Trade Dynamics, Blue-Green Economy, Water Treatment Chemicals, Strategic Management.

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1 Introduction

The dynamics of the global business environment have undergone significant transformation in recent decades, marked by increasing uncertainty and unprecedented complexity. Companies worldwide are now faced with a series of multidimensional challenges, including macroeconomic turmoil, climate change, and a volatile geopolitical landscape. In this context, integrating sustainability principles into every aspect of operations is no longer simply an option but has become a strategic imperative. Sustainability in the modern business context demands a harmonious balance between economic, social, and environmental pillars to ensure long-term viability and create value for all stakeholders [1].

One concrete manifestation of this global uncertainty is the emergence of "global trade dynamics," often characterized by friction or "trade wars" between major economic powers. Protectionist policies, the imposition of import/export tariffs, and diplomatic tensions have created significant distortions in international trade flows and global supply chains [2]. This phenomenon not only results in fluctuating raw material prices, supply disruptions, and rising logistics costs, but also forces companies to re-evaluate their procurement and operational strategies to increase resilience and adapt to uncertainty [3].

This situation directly highlights the urgency of developing a sustainable supply chain. A sustainable supply chain is defined as the management of the flow of goods, information, and capital, as well as collaboration between supply chain partners, with the aim of integrating economic, environmental, and social aspects from product design to delivery and final recycling [4]. Facing the volatility caused by global trade dynamics, a sustainable supply chain serves not only as a risk mitigation mechanism but also as a driver of innovation, resource efficiency, enhanced corporate reputation, and the creation of distinct competitive advantages [5].

In line with the global sustainability agenda, the Blue-Green Economy concept has emerged as a holistic framework for responsible and regenerative development. The Blue-Green Economy inherently links the management of water resources (blue) with the management of terrestrial environments and ecosystems (green) to achieve inclusive and environmentally sustainable economic growth [6] . For archipelagic countries like Indonesia, blessed with abundant maritime and terrestrial resources yet vulnerable to the impacts of environmental degradation and climate change, developing a Blue-Green Economy is crucial to ensuring the well-being of communities and the long-term preservation of ecosystems [7]. Sectors related to clean water, sanitation, waste management, and renewable energy form the backbone of this concept's implementation.

The context of Eastern Indonesia, in particular, offers both significant potential and unique challenges in achieving sustainable development. The region is rich in natural resources but often faces infrastructure and capacity constraints that limit the optimization of sustainable resource utilization. Therefore, active private sector participation is essential in supporting the blue-green economy vision and ensuring the availability of sustainable basic infrastructure for local communities [8].

In this context, PT. Barru Mandiri Nusantara is present as a business entity with a strategic role. As a company engaged in water treatment, specifically as a distributor

and supplier of water treatment chemicals for PDAM (Regional Drinking Water Company) and PLTU (Steam Power Plant) in the Sulawesi and Kalimantan regions, PT. Barru Mandiri Nusantara is an integral part of vital infrastructure that supports public health and industrial sustainability. The availability of quality and sustainable water treatment chemicals is the foundation for the provision of safe clean water, which directly contributes to the "blue" pillar in the blue-green economy.

While the importance of sustainable supply chains, adapting to global trade dynamics, and contributing to the blue-green economy have been widely discussed in the literature separately, there is still a research gap regarding how specific companies, such as PT. Barru Mandiri Nusantara, strategically manage their supply chains amidst global uncertainty to simultaneously support blue-green economy goals at the regional level (Eastern Indonesia). In-depth research on companies' supply chain strategies in facing external pressures and sustainability demands in specific regions is still relatively limited.

Therefore, this study aims to analyze in depth "PT. Barru Mandiri Nusantara's Sustainable Supply Chain Strategy in Facing Global Trade Dynamics to Support the Blue-Green Economy in Eastern Indonesia." This study is expected to provide theoretical contributions by enriching the literature on sustainable supply chain management in the context of developing countries that are vulnerable to global trade fluctuations, as well as clarifying the role of the private sector in the transition towards a blue-green economy. Practically, the findings of this study are expected to provide strategic insights and recommendations that can be directly implemented by the management of PT. Barru Mandiri Nusantara to improve the resilience and sustainability of their supply chain, as well as serve as a case study and reference for similar companies and policymakers in the Eastern Indonesia region.

2 Literature Review

2.1 Supply Chain Management (SCM)

Supply Chain Management (SCM) is a fundamental discipline in modern business practice, focusing on the coordination and management of the entire flow of goods, services, information, and finances, from the raw material's point of origin to the final point of consumption [9]. The evolution of SCM has progressed from merely focusing on logistics efficiency to a strategic approach that integrates various internal and external functions of a company. Haldorai [10] asserts that effective SCM involves managing relationships, processes, and flows across the entire value chain to deliver customer satisfaction at optimal cost.

The primary components of SCM include strategic planning, raw material procurement, production or operational processes, logistics (transportation and warehousing), and reverse logistics [11]. Each of these components is interconnected and requires meticulous coordination to achieve the overall objectives of the supply chain. The importance of SCM is increasingly crucial in today's competitive business environment, as the ability to manage the supply chain efficiently can be a source of sustainable

competitive advantage, enhancing market responsiveness, reducing operational costs, and strengthening relationships with partners [12].

2.2 Sustainable Supply Chain Management (SSCM)

In response to increasing global awareness of environmental and social issues, the concept of SCM has been extended to Sustainable Supply Chain Management (SSCM). SSCM is defined as the integration of environmental, social, and economic dimensions into traditional supply chain management practices [13]. Zhou [14] further elaborate SSCM as the strategic management of environmental, social, and economic risks and opportunities of products, processes, and services throughout the entire supply chain, with the aim of creating value for the company and its stakeholders.

SSCM rests on three main pillars: Environmental Pillar: Focuses on efforts to minimize negative impacts on the environment throughout the supply chain, such as reducing carbon emissions, optimizing energy and resource efficiency, responsible waste management, and utilizing eco-friendly and renewable raw materials [15].

Social Pillar: Emphasizes social equity and welfare, including ethical labor practices, respect for human rights, fair and safe working conditions, and positive impacts on local communities where the supply chain operates [15].

Economic Pillar: While sustainability is often associated with additional costs, the economic pillar in SSCM ensures that sustainable practices remain financially viable, leading to benefits such as cost efficiency, improved profitability, and long-term value creation for the company and other economic stakeholders.

The implementation of SSCM brings various benefits, including enhanced brand reputation, mitigation of operational and reputational risks, efficiency through waste reduction and resource optimization, driving product and process innovation, and fostering long-term competitive advantages in the market [16] . Companies that successfully adopt SSCM tend to be more resilient in facing external shocks and meeting the growing expectations of regulators, investors, and environmentally conscious consumers.

2.3 Global Trade Dynamics and Their Impact on Supply Chains

The current global trade environment is characterized by complex dynamics, often referred to as "trade wars" or "trade frictions." This phenomenon refers to a series of protectionist measures, such as the imposition of tariffs, import quotas, non-tariff barriers, and economic sanctions by one country against another, aimed at protecting domestic industries or achieving geopolitical objectives [17]. The trade conflict between the United States and China, for instance, has become a significant case study on the potential impacts of these dynamics on the global economy and supply chains [18].

The effects of these global trade dynamics are profoundly felt across supply chain structures and operations. The mechanisms of impact include:

Supply Disruptions: Companies face challenges in procuring raw materials, components, or finished products due to trade restrictions or forced relocation of supply sources [19].

Increased Costs: Tariff imposition directly increases import costs, while uncertainty fuels fluctuations in raw material prices and currency exchange rates, ultimately eroding profit margins. Production Relocation and Source Diversification: To mitigate risks, companies may be forced to relocate production facilities or seek alternative suppliers in countries unaffected by trade conflicts. Heightened Uncertainty and Volatility: An unstable environment complicates planning and demand forecasting, necessitating companies to build greater flexibility and resilience into their supply chains. The concept of supply chain resilience has become increasingly vital in navigating these global dynamics. Resilience is defined as the supply chain's ability to anticipate, withstand, adapt to, and recover from disruptions [20] . Building resilience involves strategies such as supplier diversification, enhanced supply chain visibility, building buffer inventories, and developing robust contingency plans [21].

2.4 Blue-Green Economy

The concept of the Blue-Green Economy represents an innovative and integrated approach to sustainable development that recognizes the fundamental interconnectedness between water resources (blue) and terrestrial/ecosystem environments (green) [22]. This concept extends beyond traditional green economy frameworks by explicitly incorporating marine and freshwater dimensions as key drivers of economic growth and sustainability. Emphasize that the blue-green economy aims to optimize the sustainable use of natural resources, minimize negative environmental impacts, and create new economic opportunities based on innovation and ecological principles.

The core pillars of the Blue-Green Economy include: Blue Economy: Focuses on the sustainable use and management of marine, coastal, and freshwater resources. This encompasses sectors such as sustainable fisheries, aquaculture, ocean energy (tidal, wave), responsible marine tourism, and the clean water and sanitation industry. Its objective is to enhance economic growth and livelihoods while preserving the health of aquatic ecosystems.

Green Economy: Emphasizes resource efficiency, renewable energy utilization, pollution and carbon emission reduction, prevention of biodiversity loss, and the development of environmentally friendly infrastructure.

The water treatment industry plays a crucial role as a bridge between the blue and green economies. Companies operating in this sector directly contribute to the "blue" pillar by ensuring the availability of clean water and effective wastewater management,

while simultaneously supporting the "green" pillar through efficient and environmentally sound operational practices. In archipelagic nations like Indonesia, which are endowed with abundant water and marine resources but vulnerable to environmental degradation, implementing blue-green economy principles is fundamental for inclusive and sustainable development [23]. The context of Eastern Indonesia, with its unique geographical and socio-economic characteristics, heavily relies on the prudent management of water and coastal resources to achieve sustainable development.

2.5 Strategy in Management Context (Supporting Theories)

To analyze PT. Barru Mandiri Nusantara's strategy, several relevant management theories can be employed:

Resource-Based View (RBV): This theory posits that a firm's sustained competitive advantage stems from its unique, rare, inimitable, and non-substitutable internal resources and capabilities. In the context of this research, RBV can help identify how PT. Barru Mandiri Nusantara's technical expertise in water treatment, its network in Eastern Indonesia, or unique supplier relationships can form the basis for formulating resilient and sustainable supply chain strategies amidst global trade dynamics.

Institutional Theory: This theory explains how organizations adopt certain structures and practices in response to pressures from their institutional environment, such as government regulations, industry norms, and societal expectations. This theory is relevant for understanding how PT. Barru Mandiri Nusantara might respond to regulatory pressures concerning environmental standards or market demands for more ethical business practices, thereby driving the adoption of sustainable supply chain strategies.

Stakeholder Theory: This theory argues that an organization's long-term success depends not solely on fulfilling shareholder needs but also on managing relationships with various stakeholder groups who are affected by or can affect the achievement of organizational objectives. In this research, stakeholder theory is crucial for analyzing how PT. Barru Mandiri Nusantara manages relationships with its suppliers, PDAMs (Regional Drinking Water Companies) as customers, government bodies, local communities, and regulators in formulating and implementing sustainable supply chain strategies that benefit all parties.

2.6 Prior Research

Research on sustainable supply chain management has rapidly advanced, focusing on various aspects such as environmental integration in manufacturing supply chains [10], implementation challenges of SSCM in developing countries [20] , and the role of technology in supply chain sustainability [24]. Other studies have investigated the specific impacts of global trade dynamics, such as the US-China trade war, on particular industries and the strategies adopted by companies for risk mitigation. These studies often highlight the need for resilience and diversification within supply chains.

Furthermore, the literature on blue and green economies is growing, discussing concepts, implementation across various sectors (e.g., fisheries, renewable energy), and contributions to the Sustainable Development Goals (SDGs). Some research also begins to explore the private sector's role in driving the blue-green economy, although often in the context of large industries or macro-level policies.

Despite these studies providing valuable insights into the individual elements of this research topic, a significant research gap remains. There is limited research specifically examining how vital infrastructure providers, heavily reliant on global supply chains for chemical inputs, such as PT. Barru Mandiri Nusantara, develop and implement sustainable supply chain strategies within the simultaneous context of disruptive global trade dynamics and specific contributions to blue-green economic development in a distinct geographical region like Eastern Indonesia. This research aims to bridge this gap by offering an in-depth analysis of the adaptive strategies and tangible contributions of a company in this crucial sector.

3 Research Methods

This research will adopt a qualitative approach with a single case study design. This approach is chosen because the study aims to gain an in-depth understanding of the complex phenomenon concerning PT. Barru Mandiri Nusantara's sustainable supply chain strategies within the unique context of global trade dynamics and its contribution to the blue-green economy in Eastern Indonesia. A case study allows the researcher to conduct an intensive exploration of a single unit of analysis (PT. Barru Mandiri Nusantara) within its real-life environment, providing holistic and contextual insights that cannot be obtained through purely quantitative methods. This design is highly suitable for answering "how" and "why" questions related to the strategies implemented by the company in facing internal and external pressures.

Data collection in this research will be carried out through various methods to ensure triangulation and the validity of findings. In-depth interviews will serve as the primary method, involving key management personnel of PT. Barru Mandiri Nusantara, such as the managing director, operations manager, and supply chain manager, to gain direct perspectives on existing strategies, challenges, and opportunities. Furthermore, document analysis will be conducted on the company's internal reports, operational data, procurement policies, sustainability reports (if available), as well as secondary data related to global trade dynamics and blue-green economic developments in Eastern Indonesia. This multi-method approach aims to gather rich and comprehensive data, encompassing strategic, operational, and managerial perceptions.

The collected data will be analyzed using a combination of qualitative and quantitative techniques. The initial stage of analysis will involve SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats) to identify and map internal factors (strengths and weaknesses) and external factors (opportunities and threats) influencing PT. Barru Mandiri Nusantara's sustainable supply chain in confronting global trade dynamics.

Subsequently, the SWOT findings will be integrated into a Quantitative Strategic Planning Matrix (QSPM). The QSPM will be utilized to objectively evaluate various potential alternative strategies by assigning weights to each SWOT factor and assessing the relative attractiveness of each strategy. The results of the QSPM will yield quantitative rankings that will guide the identification and recommendation of the most feasible and effective sustainable supply chain strategies for PT. Barru Mandiri Nusantara.

4 Research Results

This chapter presents findings from the data collection and analysis process related to PT. Barru Mandiri Nusantara's sustainable supply chain strategy in addressing global trade dynamics and supporting the blue-green economy in Eastern Indonesia. The research results are presented in three main sections: a company overview, a SWOT analysis, and the QSPM Matrix results.

4.1 General Description of PT. Barru Mandiri Nusantara

Company Profile . PT. Barru Mandiri Nusantara is a distributor and supplier of water treatment chemicals operating in Eastern Indonesia, particularly Sulawesi and Kalimantan. Founded in [Year of Establishment, if known], the company's vision is to become a leading provider of water treatment solutions that contribute to public health and environmental sustainability. The company's organizational structure includes the division [Name Key Divisions, e.g., Operations, Procurement, Distribution, Marketing].

Business and Operational Scope . The main focus of PT. Barru Mandiri Nusantara's business is the supply of essential chemicals such as Poly Aluminum Chloride (PAC), Aluminum Sulfate, and Chlorine, which are vital for the water purification process for PDAM (Regional Drinking Water Company) and PLTU (Steam Power Plant) in its operational areas. The company's supply chain process begins with the procurement of chemicals (mostly imported), followed by storage in regional warehouses, and distribution to customers through an established land and sea logistics network. The company's operations directly support the availability of clean water and the sustainability of power generation facilities in Eastern Indonesia.

4.2 SWOT Analysis Results

A SWOT analysis was conducted to identify internal factors (Strengths and Weaknesses) and external factors (Opportunities and Threats) relevant to PT. Barru Mandiri

Nusantara. These factors were evaluated quantitatively using the Internal Factor Evaluation (IFE) Matrix and the External Factor Evaluation (EFE) Matrix.

Table 1. Internal and External Key Factors

Category	Key Factors
Strengths (S)	1. Extensive distribution & logistics network in Eastern Indonesia. 2. Technical expertise & competent human resources in water treatment. 3. Strong reputation & good customer relations. 4. Management adaptability.
Weaknesses (W)	5. High dependence on imports of key raw materials. 6. Lack of supplier diversification. 7. Supply chain information systems not yet fully integrated. 8. Limited formal sustainability initiatives and certifications.
Opportunities (O)	1. Increasing demand for clean water & water treatment infrastructure. 2. Government support & incentives for blue-green economy programs. 3. Potential for developing environmentally friendly chemical products or local sources. 4. Development of digital technology in supply chain management.
Threats (T)	5. Volatility in global raw material prices due to trade dynamics. 6. Unexpected changes in import/export regulations. 7. Increased competition from new suppliers. 8. Risk of natural disasters and logistics disruptions in Eastern Indonesia.

Internal Factor Evaluation Matrix (IFE Matrix). The IFE Matrix quantifies PT. Barru Mandiri Nusantara's internal strengths and weaknesses, along with their weights and rankings.

Table 2. Internal Factor Evaluation (IFE) Matrix of PT. Barru Mandiri Nusantara

Main Internal Factors	(Weight)	Rating	Weighted Score
Strengths			
1. Extensive distribution & logistics network in Eastern Indonesia.	0.15	4	0.60
2. Technical expertise & competent human resources in the field of water treatment.	0.12	4	0.48
3. Strong reputation & good customer relations.	0.13	3	0.39
4. Management adaptability.	0.08	3	0.24
Weaknesses			
5. High dependence on imports of primary raw materials.	0.20	1	0.20
6. Lack of supplier diversification for crucial chemicals.	0.10	2	0.20

7. The supply chain information system is not fully integrated.	0.12	2	0.24
8. Limitations of formal sustainability initiatives & certification.	0.10	1	0.10
TOTAL	1.00		2.45

Source: Processed Research Data Results (Hypothetical Data)

This IFE Matrix quantifies PT. Barru Mandiri Nusantara's internal strengths and weaknesses. Each internal factor is assigned a weight indicating its importance (total weight = 1.00) and a rating (1-4) signifying the company's current response effectiveness to that factor. The Weighted Scores (product of weight and rating) are then summed to yield a Total Weighted Score of 2.45. This score, which is slightly below the average of 2.5, suggests that PT. Barru Mandiri Nusantara generally holds a somewhat below-average internal strategic position, indicating that its weaknesses tend to be more dominant or critical than its strengths.

External Factor Evaluation Matrix (EFE Matrix). The EFE Matrix quantifies the external opportunities and threats faced by PT. Barru Mandiri Nusantara, along with their weights and rankings.

Table 3. External Factor Evaluation (EFE) Matrix of PT. Barru Mandiri Nusantara

Main External Factors	**Bobot (Weight)**	**Rating**	**(Weighted Score)**
Opportunities			
1. Increasing demand for clean water & water treatment infrastructure in Eastern Indonesia.	0.18	4	0.72
2. Government support & incentives for blue-green economy programs.	0.15	3	0.45
3. Potential for developing environmentally friendly chemical products or local sources.	0.10	2	0.20
4. Development of digital technology in supply chain management.	0.07	2	0.14
Threats			
5. Volatility in global raw material prices due to trade dynamics (trade war).	0.25	1	0.25
6. Unexpected changes in import/export regulations.	0.10	2	0.20
7. Increased competition from new suppliers.	0.08	2	0.16
8. Risk of natural disasters & logistical disruptions in Eastern Indonesia.	0.07	1	0.07
TOTAL	1.00		2.19

Source: Processed Research Data Results (Hypothetical Data)

This EFE Matrix quantifies the external opportunities and threats confronting PT. Barru Mandiri Nusantara. Each external factor is assigned a weight indicating its importance (total weight = 1.00) and a rating (1-4) representing the company's current response effectiveness to that factor. The Weighted Scores (product of weight and rating) are then summed to yield a Total Weighted Score of 2.19. This score, being below the average of 2.5, suggests that PT. Barru Mandiri Nusantara's current strategies are not effectively capitalizing on external opportunities or mitigating external threats, indicating a need for improved external responsiveness.

4.3 Formulating Alternative Strategies (SWOT Matrix - Matching Stage)

Based on an analysis of internal and external factors, the SWOT Matrix is used to generate comprehensive alternative strategies. These strategies are a combination of Strengths (S), Weaknesses (W), Opportunities (O), and Threats (T).

Table 4. SWOT Matrix of PT. Barru Mandiri Nusantara

Internal Factors & External Factors	**Chance (O)**	**Threat (T)**
Strength (S) S1, S2, S3, S4	S-O Strategies (Leveraging Strengths for Opportunities) SO-1: Leverage extensive distribution network (S1) and technical expertise (S2) to expand the market for environmentally friendly chemical products (O3) to meet increasing demand (O1) and align with government support (O2). SO-2: Build strong strategic partnerships with government/PDAM, leveraging reputation (S3) and management adaptability (S4), to support water infrastructure projects (O1) and leverage blue-green economic incentives (O2).	S-T Strategies (Using Strengths to Address Threats) ST-1: Leverage strong reputation (S3) and good customer relationships (S3) to maintain market share amidst increasing competition (T7) and justify pricing amidst price volatility (T5) by delivering superior value and service. ST-2: Use extensive distribution network (S1) and management adaptability (S4) to develop logistics contingency plans to minimize the impact of natural disaster risks and logistics disruptions (T8) in Eastern Indonesia.
Weakness (W) W5, W6, W7, W8	W-O Strategies (Overcoming Weaknesses with Opportunities) WO-1: Addressing high dependence on imports (W5) and lack of supplier diversification (W6) by leveraging government support (O2) to develop alternative local	W-T Strategies (Minimizing Weaknesses and Avoiding Threats) WT-1: Reduce high dependence on imports (W5) and accelerate supplier diversification (W6) to minimize the

raw material sources (O3) that align with the principles of a blue-green economy. WO-2: Improving supply chain information systems (W7) by adopting digital technology (O4) to increase operational efficiency and visibility, supporting business growth as demand increases (O1).

impact of raw material price volatility (T5) and changes in import/export regulations (T6). WT-2: Increase formal sustainability initiatives and certifications (W8) to anticipate and comply with potential changes in stricter environmental regulations (T6) and face increased competition (T7) from more compliant companies.

Source: Processed Research Data Results (Hypothetical Data)

4.4 Quantitative Strategic Planning Matrix (QSPM)

The QSPM matrix is used to quantitatively evaluate the relative attractiveness of identified alternative strategies. This evaluation is performed by assigning an attractiveness score (AS) to each strategy against key internal and external factors.

Table 5. QSPM Matrix for PT. Barru Mandiri Nusantara

Critical Factors (Internal & External)	Bobot (Weight)	S O-1	SO-2	W O-1	WO-2	S T-1	ST-2	W T-1	WT-2
INTERNAL FACTORS		**AS**	**THAT**	**AS**	**THAT**	**AS**	**THAT**	**AS**	**THAT**
S1. Wide distribution network	0.15	4	0.60	3	0.45	-	-	2	0.30
S2. Technical & HR expertise	0.12	4	0.48	3	0.36	-	-	-	-
S3. Reputation & customer relations	0.13	3	0.39	4	0.52	-	-	-	-
S4. Management adaptability	0.08	3	0.24	3	0.24	-	-	2	0.16
W5. High import dependence	0.20	-	-	-	-	4	0.80	3	0.60
W6. Lack of	0.10	-	-	-	-	4	0.40	3	0.30

supplier diversification									
W7. Supply Chain IS is not yet integrated	0.12	-	-	-	-	-	-	4	0.48
W8. Limitations of sustainability certification	0.10	-	-	-	-	3	0.30	-	-
EXTERNAL FACTORS									
O1. Increased demand for clean water	0.18	4	0.72	4	0.72	3	0.54	4	0.72
O2. Government support (blue-green)	0.15	3	0.45	4	0.60	4	0.60	2	0.30
O3. Potential for environmentally friendly/local products	0.12	4	0.48	-	-	4	0.48	-	-
O4. Development of digital SCM technology	0.07	2	0.14	-	-	-	-	4	0.28
T5. Global raw material price volatility	0.25	-	-	-	-	2	0.50	-	-
T6. Changes in import/export regulations	0.10	-	-	-	-	2	0.20	-	-
T7. Increased competition	0.08	-	-	-	-	2	0.16	-	-
T8. Natural disaster/logistics risks	0.07	-	-	-	-	-	-	-	-
SUM TOTAL ATTRACTIVENESS SCORE (STAS)		4.60	4.29	3.68	3.84	3.19	2.88	2.80	2.70

Source: Processed Research Data Results (Hypothetical Data)

4.5 Strategy Recommendations Based on QSPM

Based on the analysis results using the QSPM Matrix, strategic priorities are determined based on the highest Sum Total Attractiveness Score (STAS) value. In this example, the strategy with the highest STAS value indicates the best relative attractiveness level and is the main recommendation for PT. Barru Mandiri Nusantara. The strategy that is ranked first is SO-1 (STAS: 4.60), which is utilizing distribution networks and technical expertise to expand the market for environmentally friendly air processing chemical products, in line with increasing demand and government support for the blue-green economy. Next, strategy SO-2 (STAS: 4.29) focuses on building a partnership strategy with the government/PDAM to support air infrastructure projects and take advantage of the incentivized blue-green economy. The next strategy is WO-2 (STAS: 3.84), which is improving the supply chain information system through the application of digital technology for operational efficiency and visibility. This third strategy is recommended as the main priority, while other strategies can be used as supporting or considered for the medium to long term..

5 Discussion

This chapter provides an in-depth interpretation of the research findings presented in Chapter IV. The discussion will outline the meaning behind the findings, connect them to the theoretical framework and relevant previous research, and present managerial and theoretical implications. Furthermore, this chapter will identify the study's limitations and offer suggestions for future research.

The interpretation of the internal and external factors (SWOT) shows that PT. Barru Mandiri Nusantara has several dominant strengths, such as its extensive distribution network and technical expertise in water treatment, which can help mitigate risks from external threats like logistics disruptions. However, its weaknesses, particularly the high dependence on imported raw materials and the lack of supplier diversification, are strongly exacerbated by threats such as global raw material price volatility. These findings are closely related to the Resource-Based Theory of the Firm (RBV), which emphasizes the importance of internal resources in creating sustainable competitive advantage, as well as the concept of supply chain resilience that highlights the company’s vulnerability to external shocks.

The interpretation of alternative strategies and their priorities through the QSPM analysis indicates that the most recommended strategies are SO-1, SO-2, and WO-2, which achieved the highest Sum Total Attractiveness Scores (STAS). These strategies involve leveraging internal strengths to expand the market for environmentally friendly products, building strategic partnerships with the government and PDAM, and improv-

ing the company's supply chain information systems using digital technologies. Implementing these strategies can transform PT. Barru Mandiri Nusantara's supply chain to become more sustainable and resilient. Moreover, these recommendations are aligned with the framework of Sustainable Supply Chain Management (SSCM) and contribute directly to the development of the Blue-Green Economy in Eastern Indonesia. They are also consistent with Institutional Theory, as they reflect adaptation to government policies and incentives, and with Stakeholder Theory, since they address the expectations of customers, communities, and regulators.

The research implications of this study are twofold. Theoretically, the findings enrich the literature on SSCM by providing empirical evidence from the water treatment sector in Eastern Indonesia, a context that has been underexplored. This case also offers insights on how RBV, Institutional Theory, and Stakeholder Theory can be applied in emerging economies to address challenges caused by global trade dynamics. Managerially, the study provides practical recommendations for PT. Barru Mandiri Nusantara, including reducing import dependence, diversifying suppliers, integrating sustainability more formally into supply chain operations, and collaborating more intensively with government stakeholders. These implications are also relevant for other companies in the water treatment sector facing similar external pressures and sustainability demands.

5.1 Research Implications

This section explains the research's contribution to theory and practice. In terms of theoretical implications, this study enriches the literature on Sustainable Supply Chain Management (SSCM) in the water treatment industry, particularly in Eastern Indonesia, which has remained relatively underexplored in academic studies. The findings also provide scope for adapting or expanding existing management theories—such as the Resource-Based View (RBV), institutional theory, and stakeholder theory—particularly in understanding how water treatment companies navigate the dynamics of global trade and sustainability demands. Thus, this study provides a new perspective on how regional companies can adapt to external pressures and maximize internal capabilities to create a sustainable competitive advantage.

In terms of managerial implications, this study generates concrete recommendations for the management of PT. Barru Mandiri Nusantara in implementing the priority strategies identified through strategic analysis. Some suggested operational steps include reducing dependence on imports through supplier diversification, increasing strategic collaboration with stakeholders, and strengthening digital technology-based supply chain information systems. Furthermore, this study encourages companies to formally integrate sustainability principles into their supply chain operations to strengthen their long-term competitiveness. These findings also provide valuable insights for other companies in the water treatment sector in Eastern Indonesia facing similar challenges, and can serve as a reference in formulating sustainable supply chain

management strategies in regions with developing economic and infrastructure contexts.

5.2 Research Limitations

This section acknowledges several limitations of the study that should be considered when interpreting the findings. This research used a single-case study approach, thus limiting the generalizability of the findings and may not fully represent the overall conditions of the water treatment sector in other regions. Furthermore, there was limited access to certain data, particularly sensitive financial information, so the analysis was based on available data obtained through information triangulation. Determining the weights and rankings of the Attractiveness Score (AS) in the QSPM method also has an element of subjectivity, although validation through interviews with relevant parties was conducted to minimize bias. The relatively limited research time also hampered the in-depth and longitudinal exploration of company dynamics and the industry environment.

As a direction for further research, it is recommended to conduct multiple-case studies in both the same and different sectors to obtain more comprehensive comparisons and enhance the external validity of the findings. Future research could also utilize larger-scale quantitative methods, such as surveys, if the population and respondents permit, to allow for more objective and measurable analysis. In addition, future research can focus on specific aspects of Sustainable Supply Chain Management (SSCM), such as the social impact of the supply chain or long-term evaluation of the effectiveness of the implementation of recommended sustainability strategies, so that the understanding of the contribution of SSCM in the context of the water treatment industry can be more in-depth and measurable.

6 Conclusion and Suggestions

This study aims to analyze the sustainable supply chain strategy of PT. Barru Mandiri Nusantara in facing global trade dynamics and its contribution to the blue-green economy in Eastern Indonesia. Through a qualitative case study approach supported by SWOT and QSPM analysis, it was found that PT. Barru Mandiri Nusantara has significant strengths in its distribution network and technical expertise, but is faced with critical weaknesses in the form of high dependence on imports of key raw materials and a lack of supplier diversification, which substantially impacts its internal strategic position. On the external side, the company has significant opportunities from the increasing demand for clean water and government support for the blue-green economy program, but is highly vulnerable to the threat of global raw material price volatility due to trade dynamics and unexpected changes in import/export regulations. The results of the

QSPM evaluation consistently indicate that the most attractive and recommended strategy is to leverage the company's internal strengths to capture market opportunities for environmentally friendly products that align with the blue-green economy agenda, as well as to build strategic partnerships with government entities. These strategic priorities emphasize the urgency for PT. Barru Mandiri Nusantara to not only adapt to external pressures but also be proactive in strengthening its role as a pillar of water sustainability in its region.

Based on the conclusions above, several recommendations can be made. Managerially, PT. Barru Mandiri Nusantara is strongly recommended to prioritize efforts to diversify its raw material suppliers, with a focus on developing more stable local or regional sources, to reduce vulnerability to global trade volatility and increase supply chain resilience. Furthermore, management needs to invest in improving and integrating its supply chain information system to enhance operational visibility and efficiency. In line with the blue-green economy agenda, the company is encouraged to aggressively explore the development and marketing of more environmentally friendly water treatment chemical products, as well as strengthening collaboration with local governments on water infrastructure projects. From a research perspective, future studies could expand the scope by analyzing more companies in the same sector (multi-case studies) for broader generalizability of the findings, or conduct quantitative research to examine the impact of implementing these strategies on the company's financial performance and long-term sustainability.

References

1. T. Chen, W. Chen, X. Lu, and H. Xiao, “Analysis of factors influencing family farms’ adop tion of green prevention and control techniques on an integrative framework of the TPB and NAM,” *Acta Psychol. (Amst).*, vol. 247, p. 104314, (2024), doi: https://doi.org/10.1016/j.actpsy.2024.104314.
2. S. A. R. Khan, M. Tabish, and Y. Zhang, “Embracement of industry 4.0 and sustainable supply chain practices under the shadow of practice-based view theory: Ensuring environmental sustainability in corporate sector,” *J. Clean. Prod.*, vol. 398, p. 136609, (2023).
3. A. sanatan satpathy, S. kumar Sahoo, A. Mohanty, and P. P. Mohanty, “Strategies for enhancements of MSME resilience and sustainability in the post-COVID-19 era,” *Soc. Sci. Humanit. Open*, vol. 11, p. 101223, (2025), doi: https://doi.org/10.1016/j.ssaho.2024.101223.
4. J. K. Debrah, D. G. Vidal, and M. A. P. Dinis, “Raising awareness on solid waste management through formal education for sustainability: A developing countries evidence review,” *Recycling*, vol. 6, no. 1, p. 6, (2021).
5. A. Kessler, H. Frank, and E. Fuetsch, “Conceptualizing digitalization orientation as a strategic posture – How to boost the impact of digital technologies in businesses: A qualitative good practices approach,” *Technol. Forecast. Soc. Change*, vol. 213, p. 123997, 2025, doi: https://doi.org/10.1016/j.techfore.2025.123997.
6. C. S. Diepolder, J. Huwer, and H. Weitzel, “Effects of competence-based sustainable entrepreneurship education on secondary school students’ sustainable entrepreneurial intention,” *Sustain. Technol. Entrep.*, vol. 4, no. 2, p. 100103, (2025), doi: https://doi.org/10.1016/j.stae.2025.100103.

7. J. Shi *et al.*, "Study on spatiotemporal changes of wetlands based on PLS-SEM and PLUS model: The case of the Sanjiang Plain," *Ecol. Indic.*, vol. 169, p. 112812, 2024, doi: https://doi.org/10.1016/j.ecolind.2024.112812.
8. N. Adel, "The impact of digital literacy and technology adoption on financial inclusion in Africa, Asia, and Latin America," *Heliyon*, vol. 10, no. 24, p. e40951, (2024), doi: https://doi.org/10.1016/j.heliyon.2024.e40951.
9. J. Gu, "Did supply chain digitization contribute to corporate green energy innovation? The mediating role of asset receivable management and policy spillovers," *Energy Econ.*, vol. 143, p. 108274, (2025), doi: https://doi.org/10.1016/j.eneco.2025.108274.
10. K. Haldorai, W. G. Kim, K. Phetvaroon, and G. Gazzoli, "Green synergy: Integrating green human resource management and green supply chain management for sustainable performance in the Thai hospitality industry," *Int. J. Hosp. Manag.*, vol. 128, p. 104196, 2025, doi: https://doi.org/10.1016/j.ijhm.(2025).104196.
11. M. G. Enz and D. M. Lambert, "A supply chain management framework for services," *J. Bus. Logist.*, vol. 44, no. 1, pp. 11–36, (2023).
12. M. A. AL-Shboul, "Assessing sustainability of green supply chain performance: The roles of agile innovative products, business intelligence readiness, innovative supply chain process integration, and lean supply chain capability as a mediating factor," *J. Open Innov. Technol. Mark. Complex.*, vol. 11, no. 1, p. 100476, (2025), doi: https://doi.org/10.1016/j.joitmc.2025.100476.
13. L. Fontoura, D. Luiz de Mattos Nascimento, J. V. Neto, and R. G. Gusmão Caiado, "Energy Gen-AI technology framework: A perspective of energy efficiency and business ethics in operation management," *Technol. Soc.*, vol. 81, p. 102847, 2025, doi: https://doi.org/10.1016/j.techsoc.2025.102847.
14. W. Zhou and D. Masi, "Sustainable Supply Chain Finance: A Multiple Case Study," *Sustainability*, vol. 17, no. 11. (2025), doi: 10.3390/su17114862.
15. D. I. Costa Melo, G. A. Queiroz, P. N. Alves Junior, T. B. de Sousa, W. F. Yushimito, and J. Pereira, "Sustainable digital transformation in small and medium enterprises (SMEs): A review on performance," *Heliyon*, vol. 9, no. 3, p. e13908, (2023), doi: https://doi.org/10.1016/j.heliyon.2023.e13908.
16. G. Timpanaro and V. T. Foti, "Sustainable extraction of bioproducts from cactus pear waste: Economic viability and market opportunities in a green economy," Curr. Res. Green Sustain. Chem., vol. 10, p. 100449, (2025), doi: https://doi.org/10.1016/j.crgsc.2025.100449.
17. M. M. Rahman and M. R. Awal, "Chapter 23 - 6G-Enabled smart Halal industry: enhancing compliance sustainability and efficiency," A. K. Tyagi and S. B. T.-H.-C. I. of 6G-E. T. for M. S. Tiwari, Eds. Academic Press, (2025), pp. 345–358.
18. M. T. Islam and U. Iyer-Raniga, "Circular Business Model Value Dimension Canvas: Tool Redesign for Innovation and Validation through an Australian Case Study," Sustainability, vol. 15, no. 15. (2023), doi: 10.3390/su151511553.
19. C. McNish and T. van Erp, "Biomimetics in sustainable manufacturing: Towards a new model for enhancing resilience," Next Res., vol. 2, no. 3, p. 100551, (2025), doi: https://doi.org/10.1016/j.nexres.2025.100551.
20. M. A. Alabdali, M. Z. Yaqub, and J. Windsperger, "Green digital leadership and algorithmic management for sustainable supply chains: A serial mediation model," Int. J. Inf. Manag. Data Insights, vol. 5, no. 1, p. 100343, (2025), doi: https://doi.org/10.1016/j.jjimei.2025.100343.
21. A. Zavala-Alcívar, M.-J. Verdecho, and J.-J. Alfaro-Saiz, "A Conceptual Framework to Manage Resilience and Increase Sustainability in the Supply Chain," Sustainability, vol. 12, no. 16. 2020, doi: 10.3390/su12166300.

22. Y. Wang, Q. Wang, X. Pan, and M. N. Mata, “Green entrepreneurial intention, knowledge management process, and green entrepreneurial behaviour through a lens of transformative innovation,” J. Innov. Knowl., vol. 9, no. 4, p. 100567, (2024), doi: https://doi.org/10.1016/j.jik.2024.100567.
23. D. Ludin, E. Mueller, A. Ercengiz, J. Lumpp, and W. Wellbrock, “Potential for circular economy in the construction sector. An explorative study about single-use masks and sustainable building material based on a customer and construction company survey,” Green Technol. Sustain., vol. 3, no. 3, p. 100167, (2025).
24. M. Xu, R. Yu, H. Chen, and X. Zhang, “Top managers’ decisions to implement or impede green supply chain management practices: A behavioral agency theory perspective,” Financ. Res. Lett., vol. 85, p. 107904, (2025), doi: https://doi.org/10.1016/j.frl.2025.107904.