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How Salt Production Trends Correlate with the Blue Economy Transformation: A Case Study on the Sustainability of Smallholder Salt Businesses in Tuban Regency

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Abstract

Tuban Regency, East Java, is one of the main producers of community salt with highly suitable land potential. However, smallholder salt businesses in Tuban still face various challenges, including dependence on primary products, low productivity, environmental impacts from bittern waste, and vulnerability to price fluctuations and climate change. This study aims to formulate a sustainability strategy for smallholder salt businesses using an integrative Flourishing Business Canvas and SWOT analysis approach. The Flourishing Business Canvas analysis identified internal and external factors from economic, social, and environmental aspects. SWOT and IFAS-EFAS matrix analysis positioned the Strength-Opportunity (SO) strategy as the main priority. The study's results indicate that the local salt industry has high production potential but faces challenges from an inefficient traditional production system, environmental impacts from bittern waste, and reliance on primary products. Through the analysis of internal and external factors, a priority strategy (SO Strategy) was formulated to leverage strengths in capturing opportunities, which includes developing a cooperative-based downstream industry cluster, adopting appropriate technology, and economic empowerm ent through building a sustainable premium salt brand. The implementation of this strategy is expected to transform the salt business model into a high - value-added, resilient, and sustainable production system .

Keywords: smallholder salt, business sustainability, Tuban regency

1. Introduction

The prospects for the salt industry are considered good due to the gap between high demand and still low production capacity. East Java's contribution to national salt production is very significant, with the region producing up to 802 thousand tons, making it one of the main producers. The area with the largest salt contribution in East Java is Tuban Regency, which is also the second-largest salt producer in the region. According to the 2020 Master Plan, Tuban Regency's salt production generally increased and peaked

at 31,000 tons in 2019. However, 2016 was an exception with realized production of only 5,137 tons (Kementerian Kelautan dan Perikanan, 2024).

Based on the calculation of the Salt Suitability Index (IKG), the location in Leranwetan Village, Tuban Regency, scored 86.84%, thus classified as a Very Suitable area for the development of community salt production. Production location suitability is one of the key factors determining success in salt production. A raw water source saturation level reaching an average of ± 2 °Be makes salt production locations in Tuban Regency suitable for salt ponds, even though they are not located in coastal areas (Kuncoro et al., 2022).

Almost all salt farmers' production is still in the form of base crystals sold directly to collectors. Production that still relies on raw salt output without added value from further processing impacts depressed prices and weak bargaining power in market competition (Kurniawan et al., 2019). Consequently, the economic benefits that can be achieved by farmers and the region are very limited because the product is valued based on the price of raw materials.

Limited further processing in Tuban causes its salt industry to be unable to optimize the added value of abundant natural resources. Production still dominated by primary products follows the traditional linear economic model take-make-dispose. This pattern is inefficient in terms of resource use and is no longer in line with sustainability principles. The technical potential for salt production of 120 tons/hectare/year has not been achieved in Tuban, as farmers still rely on open solar evaporation with a productivity of only 70-80 tons/hectare/year (Agustin et al., 2024).

Research related to sustainability strategies is highly necessary to assess the feasibility of community salt businesses, considering this industry is full of opportunities and challenges. The aspects of opportunities and threats (Opportunities and Threats) within the SWOT framework are appropriate tools for examining the sustainability of a salt business. Opportunities and challenges in the salt business are diverse and determined by the role of each actor in that industry. Although operating in the same industry, the opportunities and challenges faced by salt farmers and salt traders are not entirely the same. However, there are still some overlapping aspects because both are part of an interconnected ecosystem.

Flourishing Business Canvas (FBC) offers a suitable approach in business plan preparation, aiming to create positive and significant social, economic, and environmental impacts, and strengthen the practical and sustainability aspects of community salt businesses. Through a participatory approach, Flourishing Business Canvas (FBC) supports the development of sustainable business model designs. This approach results in increased organizational capacity in terms of learning and reflection on sustainability and strengthens its ability to carry out practical actions (Rochwulaningsih et al., 2019).

This research has high urgency to assess the feasibility of salt businesses in Tuban Regency currently, so that business actors can formulate solutions to achieve sustainability of the salt industry in Tuban Regency. The main focus of this research is to analyze the social, economic, and environmental opportunities and challenges for salt entrepreneurs in the Tuban region.

The explicit application of the SWOT-FBC framework in community salt studies is still relatively rare, where most previous research still relies on AHP methods or qualitative SWOT analysis. Specifically, using the FBC analysis tool as a business model design in sustainable business model research, this technique has not been widely used

by researchers in generating sustainable business model strategies, including those used by (Hope, 2018)–(Elkington & Upward, 2016). This research is expected to provide solutions for the sustainability of salt businesses in Tuban Regency. The novelty of this research lies in the use of Flourishing Business Canvas (FBC) in designing a sustainable community salt business model strategy, and there has been no previous research on community salt business sustainability strategies using the Flourishing Business Canvas (FBC) business model; this can be said to be the first.

2. Literature Review

2.1. Existing Conditions of Salt Ponds in Tuban Regency

Salt land in Tuban Regency is generally located far from the sea. Therefore, in choosing production locations, priority should be given to land that is spacious and has easy access to seawater intake. Good location requirements include optimal distance from the sea and swamps, accompanied by minimal air humidity levels (Amin et al., 2021).

The total salt production land in 2018 was 272.75 hectares. This production is concentrated in Palang District, consisting of Leran Wetan Village, Karang Agung Village, Cepokorejo Village, and Ketambul Village, while in Tambakboyo District it is located in Dasin Village. According to the 2020 Master Plan, Tuban Regency's salt production generally increased and peaked at 31,000 tons in 2019. However, 2016 was an exception with realized production of only 5,137 tons (Kementerian Kelautan dan Perikanan, 2024).

In general, the total seawater crystallization system is the salt production method applied by farmers in Tuban Regency, both on open land conventionally and covered land with a tunnel system. The main principle of this method is crystallizing salt from seawater through evaporation using sunlight. The salt production process consists of four sequential stages. The first stage involves the use of a bozzom, which is an initial holding pond that functions to collect seawater with an initial concentration of 3–5° Be. Next, the second stage is carried out through a series of four evaporation ponds (peminihan) that act as evaporation areas, where seawater is evaporated until it reaches a concentration of 20–22° Be. The third stage takes place in a banker pond, which serves as a sedimentation area, with the seawater concentration at about 25° Be. Finally, the fourth stage, which serves as the crystallization pond, is where seawater is crystallized into salt (Coetzer & Bisset, 2023). Salt making requires a continuous evaporation process for approximately 7 to 10 days (Taufiq-SPJ et al., 2016).

Most salt production tables in the Tuban region use complex construction, by managing large land divided into several plots. Each plot in a 1-hectare salt pond is generally 6 x 25 meters in size. The land division consists of bozeem and peminihan (each 30-40% depending on the system), bunker (5%), and crystallization table (20-25%). Salt crystallization occurs in an area called the crystallization table. This area receives thickened seawater (25°Be or air tua) from the peminihan process, and through evaporation, the water deposits salt crystals (Amin et al., 2021).

2.2. Flourishing Business Canvas (FBC)

According to Brazilian Micro and Small Enterprise Support Service (Sebrae, 2015), Canvas is a methodology and strategic planning tool created to facilitate the creation and analysis of business models. This tool is used to develop and outline business models, both new and existing. According to (Benkeltoum, 2026), the essence of the Business Model Canvas (BMC) is dividing a company's business model into nine blocks. The Business Model Canvas is a relevant tool for strategic planning. However, BMC is not equipped with variables that support sustainable development. Thus, the Flourishing Business Canvas tool is an enhanced extension of the Business Model Canvas, which enables companies to obtain a potentially sustainable business model.

Flourishing Business Canvas (FBC) facilitates the development of sustainable business model designs by applying a participatory approach in business modeling. The result is an approach that strengthens the organization's ability to learn and reflect on sustainability aspects while increasing its capacity to take real action (Rochwulaningsih et al., 2019).

Unlike the Business Model Canvas (Osterwalder & Pigneur, 2013), which focuses on profit, the elements in the Flourishing Business Canvas (FBC) have evolved to integrate economic, social, environmental, and stakeholder contexts. Implementing sustainability within a company can be complex due to its broad context. Research on sustainable business models is a constantly evolving field (Amaliah et al., 2019). This expansion makes FBC a more radical model (Lüdeke-Freund et al., 2016), (Upward & Jones, 2016). Essentially, this tool is designed to answer how an organization defines its economic, environmental, and social success through the lens of all stakeholders (Van den Broeck, 2017).

2.3. SWOT Analysis

As an analysis tool, SWOT is a classic analysis tool that has been used globally. This tool breaks down a condition into four aspects: Strengths, Weaknesses, Opportunities, and Threats (Puyt et al., 2023). Strengths, as internal factors, provide a competitive advantage to individuals or groups. On the other hand, weaknesses, which are also internal, make achieving predetermined goals more difficult (Kotler & Keller, 2016). Opportunities are situations in the external environment that provide benefits and can be utilized to build a competitive advantage. On the other hand, threats are external situations that can weaken or become obstacles to the desired competitive advantage (Sammut-Bonnici & Galea, 2015).

2.4. Strategic Planning Related to Community Salt Business Sustainability

To survive and compete in the market, an entity must have well-designed planning and strategy and execute it effectively. According to (Falsarella & Jannuzzi, 2017), the planning function in management is to formulate a series of actions to achieve goals. How should community salt businesses design and implement adequate sustainable strategic planning, so as not only to face but also to utilize changes in the business environment to create a competitive advantage? To understand the definition of sustainability and identify how it can be incorporated into the business environment, it is important to

understand the Triple Bottom Line (TBL). Triple Bottom Line (TBL) is a concept developed by John Elkington, which presents three basic dimensions - social, economic, and environmental. This concept becomes a reference for companies desiring corporate sustainability (Elkington, 1999).

3. Research Methods

This study uses an exploratory approach with a quantitative research approach where quantitative exploration is research that emphasizes numbers and logical strategies using factual instruments. According to (Sugiyono, 2015), quantitative exploration is essentially built on measurable information, both in the form of numerical values and scoring results.

This study uses 16 respondents from PUGAR groups as a sample taken through survey techniques (Sugiyono, 2021). Research instruments consist of, first, interviews to collect information regarding four perspectives (outcomes, people, values, processes) in three contexts (economic, social, environmental) referring to (Hope, 2018). The second instrument is an open questionnaire distributed to 16 respondents to map the strengths, weaknesses, opportunities, and threats to the sustainability of the salt industry.

The research stages are as follows:

1. Collecting data located in the research instruments.
2. Designing the elements of Flourishing Business Canvas (FBC) covering economic, social, and environmental levels (Upward, 2015).
3. As a strategic step, SWOT analysis is designed to examine potential strengths, weaknesses, opportunities, and threats in the community salt industry (Aprilila et al., 2021), (Anisa, 2022).
4. Determining appropriate strategies that can be formulated by considering internal and external conditions.
5. Determining a sustainable community salt production system management.

4. Results and Discussion

The text of the article should be at least 6 pages to 10 pages (Time New Roman, 12 pt) Here introduce the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 12 pt. Here follows further instructions for authors.

4.1. Existing Factor Analysis using Flourishing Business Canvas (FBC)

As a holistic framework, Flourishing Business Canvas (FBC) is grouped based on four perspectives (outcomes, people, values, processes) that simultaneously consider economic, social, and environmental contexts (Amaliah et al., 2019). The depiction of salt product sustainability in FBC is attached in Fig. 1. Color differences on the sticky note boxes are used to differentiate contexts: red for economic context, yellow for social context, green for environmental context, and blue if the factor in that sticky note relates to several contexts.

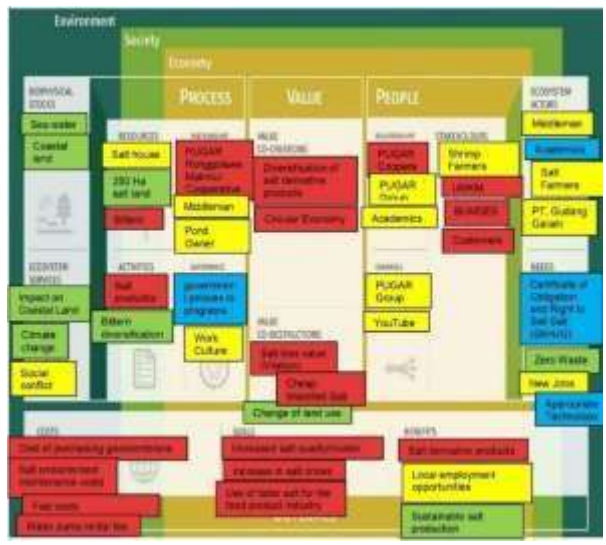

Fig. 1. Flourishin g Business Canvas (FBC) of the Smallholder Salt Industry in Tuban Regency (Source: Data processing, 2025)

The existing analysis aims to identify the environmental conditions of the smallholder salt production management system, both internal and external. Existing factors are reviewed and identified based on 3 aspects: economic, social, and environmental. Subsequently, all factors identified based on these 3 aspects will be classified according to the 16 FBC elements (Upward & Jones, 2016). Table 1 presents the analysis of existing factors.

Table 1. Analysis of Existing Factors

No.	FBC Element	Analysis of Environmental Factors People
1	Ecosystem Actors	✓ Salt farmers have limited skills in adopting new technology. ✓ Collectors or middlemen play a role in determining salt prices.
2	Stakeholders	✓ The institutional system (Cooperative) equipped with SKHJG has the potential to strengthen the position of salt farmers.
3	Relationships	✓ There is an opportunity for cooperation with universities/researchers for salt technology innovation.
4	Channels	✓ Salt farmers are members of PUGAR groups.

5	Needs	✓ The salt industry has created stable employment for the community. ✓ Limited ownership of the Obligation and Salt Sales Rights Certificate (SKHJG) (Only owned by pond entrepreneurs included in the Cooperative). ✓ An environmentally friendly production system based on the circular economy can be applied. ✓ Appropriate technology in accelerating the evaporation process.
Values		
6	Value Co-Creations	✓ Diversification of salt derivative products has good prospects in increasing the economic value of salt. ✓ An environmentally friendly production system based on the circular economy can be applied.
7	Value Co-Destructions	✓ The younger generation is less interested in working in the salt industry. ✓ Salt shrinkage value (vilasi). ✓ Cheap imported salt is a serious threat to local salt farmers. ✓ Conversion of coastal land for non-salt purposes or other ponds (such as industry and tourism).
Processes		
8	Partnership	✓ The local community strongly supports the sustainability of the salt industry.
9	Governance	✓ Local wisdom and the community's work culture strengthen the salt industry. ✓ Support from government policies or programs that strengthen salt businesses.
10	Resources	✓ Salt production infrastructure (ponds, technology) has implemented energy and local resource efficiency. ✓ The Tuban salt industry has a salt pond area of 250 Ha. ✓ Salt waste (bittern, residue) has the potential to be utilized into value-added products.
11	Activities	✓ The salt production process still generates waste that pollutes the environment. ✓ Salt production is highly vulnerable to extreme weather and climate change.
12	Biophysical Stocks	✓ The salt production method is able to maintain land quality and coastal ecosystems. ✓ Seawater intrusion or pollution that can affect raw water quality.
13	Ecosystem Service	✓ Salt land expansion has the potential to damage coastal ecosystems. ✓ Climate change (tidal flooding, extreme weather) threatens the sustainability of salt production. ✓ Social conflict can arise due to competition in the use of salt land with other sectors.

Outcomes		
14	Costs	✓ Fluctuations in national salt prices threaten the sustainability of farmers' businesses. ✓ Salt farmers face difficulties in accessing capital and financing.
15	Benefits	✓ The salt business contributes significantly to increasing family income. ✓ The environmental conditions around the ponds support the sustainability of salt production.
16	Goals	✓ Salt as an irreplaceable commodity.

4.2. SWOT Analysis

To obtain preferred scenarios for waste handling in the smallholder salt production system, a study was conducted by combining internal variables (strengths and weaknesses) and external variables (opportunities and threats) through four combinations: SO (Strength-Opportunity), ST (Strength-Threat), WO (Weakness-Opportunity), and WT (Weakness-Threat). Table 2 presents the SWOT matrix analysis.

Table 2. SWOT Matrix Analysis

	Strength	*Weakness*
Internal	1. Local community strongly supports the sustainability of the salt industry. 2. Local wisdom and community work culture strengthen the salt industry. 3. The salt industry has created stable employment for the community. 4. The salt business contributes significantly to increasing family income. 5. The salt production method is able to maintain land quality and coastal ecosystems. 6. Salt production infrastructure (ponds, technology) already implements energy and local resource efficiency. 7. Support from government policies or programs that strengthen salt businesses.	1. Younger generation is less interested in working in the salt industry. 2. Salt farmers have limited skills in adopting new technology. 3. Salt farmers face difficulties in accessing capital and financing. 4. The salt production process still generates waste that pollutes the environment. 5. Salt production is highly vulnerable to extreme weather and climate change. 6. Salt shrinkage value (vilasi). 7. Limited ownership of the Obligation and Salt Sales Rights Certificate (SKHJG) (Only owned by pond entrepreneurs included in the Cooperative).

External	8. Environmental conditions around the ponds support the sustainability of sa lt production. 9. Salt farmers are members of PUGAR groups.	
Opportunity 1. Opportunity for cooperation with universities/researchers for salt technology innovation. 2. Diversification of salt derivative products has good prospects in increasing the economic value of salt. 3. The institutional system (Cooperative) equipped with SKHJG has the potential to strengthen the position of salt farmers. 4. An environmenta ly friendly production system based on the circular economy can be applied. 5. Salt waste (bittern, residue) has the potential to be utilized into value-added products. 6. Salt as an irreplaceable commodity. 7. Appropriate technology to accelerate the evaporation process. 8. The Tuban salt industry has a salt pond area of 250 Ha.	SO Strategies (Maximize Opportunities with Internal Strengths) 1. Development of a cooperative-based downstream industry cluster by establishing an innovation center with universities to develop salt derivative products and utilize waste (bittern) into marketable products. 2. Consolidating salt farmers through cooperatives to adopt appropriate technology that accelerates the evaporation process to increase production quantity and quality. 3. Economic empowerment by building a unique and sustainable "Local Premium Salt" brand to increase selling value.	WO Strategies (Utilize Opportunities to Overcome Weaknesses) 1. Regeneration & HR capacity building program through internship and training programs with universities for the younger generation and farmers, focusing on technology, business management, and marketing. 2. Strengthening the role of cooperatives as guarantors to help salt farmers access business capital and financing. 3. Partnering with researchers in implementing clean and adaptive production technology, such as adopting simple and affordable technology to reduce waste and increase resilience to extreme weather.
Threat 1. Social conflict can arise due to competition in the use of salt land with other sectors.	ST Strategies (Use Strengths to Counter Threats) 1. Product differentiation by establishing quality	WT Strategies (Defensive Strategies to Minimize Weaknesses & Threats)

2. Cheap imported salt is a serious threat to local salt farmers. 3. Fluctuations in national salt prices threaten the sustainability of farmers' businesses. 4. Salt land expansion has the potential to damage coastal ecosystems. 5. Climate change (tidal flooding, extreme weather) threatens the sustainability of salt production. 6. Collectors or middlemen play a role in determining salt prices. 7. Seawater intrusion or pollution that can affect raw water quality. 8. Conversion of coastal land for non-sa lt purposes or other ponds (such as industry and tourism).	standards and a "Quality People's Salt" brand to compete with imported salt and reduce dependence on middlemen. 2. Implementing a business diversification model on existing land (multi-product ponds) to stabilize income and reduce pressure for land conversion. 3. Utilizing cooperatives to build an independent marketing and distribution system, breaking the cha in of detrimental middlemen.	1. Social safety net and regeneration program with capital incentives and salt farmer insurance to attract the younger generation and mitigate crop failure risks. 2. Land consolidation encourages small landowners to consolidate to facilitate access to technology, capital, and improve bargaining power. 3. Development of a community-based early warning weather system and climate risk management to help farmers during crop failures due to extreme weather.

As the initial stage of SWOT analysis, identification of the system conditions includes an internal review visualized through strength (S) and weakness (W) variables, with the evaluation focus on the conditions, performance, and problems of solid waste management (Rangkuti, 2015). External analysis focuses on identifying and exploring opportunity (O) and threat (T) variables, while strength and weakness variables represent the results of the internal review (Arda, 2019).

The obtained SWOT matrix was then analyzed using IFAS-EFAS to determine the recommendations needed for the next steps. The analysis process was carried out by assigning weights and ratings to each factor, then determining their position in quadrant I, II, III, or IV based on the results obtained (Kusmayanti et al., 2021). The results of the SWOT analysis and weighting calculations are provided in Table 3 and Table 4.

Table 3. Internal Factors of the Salt Industry Sub-Sector

Internal Strategic Factors	Weight	Rating	Score
Strengths (S)			
(S1) Local community strongly supports the sustainability of the salt industry	0.06	2.00	0.13
(S2) Local wisdom and community work culture	0.06	3.00	0.19

strengthen the salt industry			
(S3) The salt industry has created stable employment for the community	0.06	4.00	0.25
(S4) The salt business contributes significantly to increasing family income	0.08	5.00	0.39
(S5) The salt production method is able to maintain land quality and coastal ecosystems	0.06	5.00	0.31
(S6) Salt production infrastructure (ponds, technology) already implements energy and local resource efficiency	0.06	3.00	0.19
(S7) Support from government policies or programs that strengthen salt businesses	0.08	5.00	0.39
(S8) Environmental conditions around the ponds support the sustainability of salt production	0.06	4.00	0.25
(S9) Salt farmers are members of PUGAR groups	0.06	5.00	0.31
Sub Total	0.59		2.41
Weaknesses (W)			
(W1) Younger generation is less interested in working in the salt industry	0.06	1.00	0.06
(W2) Salt farmers have limited skills in adopting new technology	0.06	2.00	0.13
(W3) Salt farmers face difficulties in accessing capital and financing	0.06	2.00	0.13
(W4) The salt production process still generates waste that pollutes the environment	0.03	3.00	0.09
(W5) Salt production is highly vulnerable to extreme weather and climate change	0.06	2.00	0.13
(W6) Salt shrinkage value (vilasi)	0.06	2.00	0.13
(W7) Limited ownership of the Obligation and Salt Sales Rights Certificate (SKHJG) (Only owned by pond entrepreneurs included in the Cooperative)	0.06	3.00	0.19
Sub Total	0.41		0.84
Total	1.00		3.25
P = *Strengths - Weaknesses*			1,56

Table 4. External Factors of the Salt Industry Sub-Sector

External Strategic Factors	Weight	Rating	Score
Opportunities (O)			
(O1) Opportunity for cooperation with universities/researchers for salt technology	0.06	3.00	0.18

innovation			
(O2) Diversification of salt derivative products has good prospects in increasing the economic value of salt	0.06	2.00	0.12
(O3) The institutional system (Cooperative) equipped with SKHJG has the potential to strengthen the position of salt farmers	0.06	4.00	0.24
(O4) An environmentally friendly production system based on the circular economy can be applied	0.06	1.00	0.06
(O5) Salt waste (bittern, residue) has the potential to be utilized into value-added products	0.07	3.00	0.22
(O6) Salt as an irreplaceable commodity	0.07	5.00	0.37
(O7) Appropriate technology to accelerate the evaporation process	0.07	5.00	0.37
(O8) The Tuban salt industry has a salt pond area of 250 Ha	0.06	4.00	0.24
Sub Total	0.51		1.78
Threats (T)			
(T1) Social conflict can arise due to competition in the use of salt land with other sectors	0.06	4.00	0.24
(T2) Cheap imported salt is a serious threat to local salt farmers	0.07	1.00	0.07
(T3) Fluctuations in national salt prices threaten the sustainability of farmers' businesses	0.06	1.00	0.06
(T4) Salt land expansion has the potential to damage coastal ecosystems	0.04	5.00	0.22
(T5) Climate change (tidal flooding, extreme weather) threatens the sustainability of salt production	0.07	3.00	0.22
(T6) Collectors or middlemen play a role in determining salt prices	0.06	2.00	0.12
(T7) Seawater intrusion or pollution that can affect raw water quality	0.07	3.00	0.22
(T8) Conversion of coastal land for non-salt purposes or other ponds (such as industry and tourism)	0.04	5.00	0.22
Sub Total	0.49		1.37
Total	1.00		3.15
Q = *Opportunities - Threats*			0,41

4.3. Priority Strategy Calculation

Furthermore, the IFAS and EFAS calculations are used to determine the priority strategies that can be taken in addressing the environmental condition issues of the sustainable smallholder salt production management system. Priority strategy calculation can be done by determining the sum of internal and external factors according to the results in the IFAS and EFAS matrices. The strategies to be measured include Strengths (S) + Opportunities (O); Strengths (S) + Threats (T); Weaknesses (W) + Opportunities (O); Weaknesses (W) + Threats (T) (Indrajaya et al., 2022). This calculation is presented in Fig. 2.

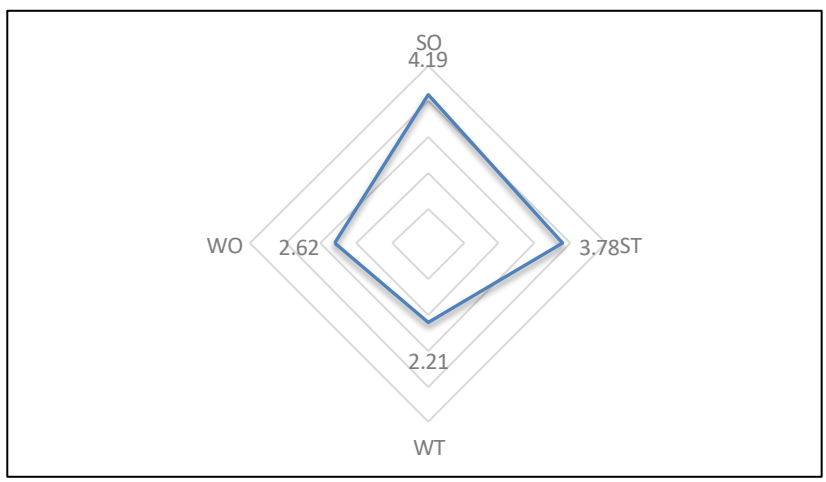

Fig. 2. Strategy Combination Priority Diagram

After calculation, the Strength-Opportunity or SO strategy was obtained as the priority strategy. The SO strategy is carried out by maximizing existing strengths to utilize available opportunities. In this analysis, the main strength lies in three pillars:

1. Development of a cooperative-based downstream industry cluster by establishing an innovation center with universities to develop salt derivative products and utilize waste (bittern) into marketable products.
2. Consolidating salt farmers through cooperatives to adopt appropriate technology that accelerates the evaporation process to increase production quantity and quality.
3. Economic empowerment by building a unique and sustainable "Local Premium Salt" brand to increase selling value

4.4. Strategic Initiatives

Initiative 1. Development of a cooperative-based downstream industry cluster by establishing an innovation center with universities to develop salt derivative products and utilize waste (bittern) into marketable products. The salt production process produces crystallized salt and increases wastewater with high concentrations of salt, magnesium,

and other minerals called bittern. Bittern or concentrated brine is a large-scale byproduct of high-purity salt production in salt farms and industries (Abdel-Aal et al., 2017).

Initiative 2. Consolidating salt farmers through cooperatives to adopt appropriate technology that accelerates the evaporation process to increase production quantity and quality. For example, Tuban salt farmers still rely on open solar evaporation with a productivity of 70-80 tons/hectare/year, far below the technical potential of 120 tons/hectare (Rochwulaningsih et al., 2019). The use of geomembrane can absorb solar heat better due to the black color, so the time required for the crystallization process is faster (Abdullah & Susandini, 2018).

Initiative 3. Economic empowerment by building a unique and sustainable "Local Premium Salt" brand to increase selling value. Each package of salt or its derivative products can be accompanied by a narrative about how the salt was produced by a local community that preserves the environment, how its waste is utilized, and how purchasing this product empowers the people's economy.

5. Conclusion

Based on an integrative analysis using the Flourishing Business Canvas (FBC) and SWOT approach, this study successfully formulated a sustainability strategy for community salt enterprises in Tuban Regency. The priority strategy is the Strength-Opportunity (SO) Strategy, which focuses on utilizing internal strengths to aggressively seize external opportunities. The three main strategic initiatives generated are: (1) Development of a cooperative-based downstream industry cluster with an innovation center for the diversification of salt derivative products and theutilization of bittern waste; (2) Consolidation of salt farmers through cooperatives to adopt appropriate technology to increase production quantity and quality; and (3) Economic empowerment through the development of a sustainable "Local Premium Salt" brand. The implementation of this strategy is expected to transform the community salt industry from a vulnerable traditional linear model into a high-value-added, sustainable, and resilient production system based on circular economy principles.

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