Abstract. Salt is one of the basic needs of Indonesian society. The salt production areas in Indonesia reach 37.4 thousand hectares, but the potential areas are merely around 53.2%. People’s salt production has only been able to meet the need for households’ daily consumption, while the industrial need is met from imports. The people’s salt production needs to be increased to maintain the sustainability of salt farmers’ business. Salt farmers require training about the strategies to improve the quality of salt production, manage finished products, and run the salt business independently. Studies on the analysis of the sustainability of people’s salt business, particularly in terms of entrepreneurship aspect, are limited. Therefore, this present study analyzes the sustainability of people’s salt business entrepreneurship with three triple bottom line criteria: people, planet, and profit. This study aims to formulate the framework of business strategies suitable for the condition of the salt business. The framework is constructed from the factors synthesized from the literature on previous studies. The results of this study are expected to be implemented by the government and business actors in making a decision and setting policies to determine the strategies for maintaining SMEs’ salt business sustainability. This study applied the Analytical Network Process (ANP) method to determine the rating of the factors contributing to the continuity of the SMEs’ salt business. The factors underlying sustainable entrepreneurship were identified from the literature studies based on the triple bottom line concept adapted to the conditions in Madura. The criteria of people include collaborative development, risk seizing, and innovative thinking, while the requirements of the planet cover eco-friendly packaging and waste controlling. Profit was seen from the aspects of government policy and unsettled finance. Then, the TOPSIS analysis was applied to analyze strategies based on the highest performance score. The results of data analysis show that government policy has the highest score as an alternative, and implementation of an e-supply chain is the strategy with the highest-ranking performance score.

Keywords: Sustainable entrepreneurship, business concept, SMEs in a salt business, triple bottom line, the new normal era

I. INTRODUCTION

Salt is one of the leading business sectors in Madura, which is the island with the largest salt production area in Indonesia. Approximately 15,000 hectares of salt area are located in Sumenep, Pamekasan, and Sampang regencies. Sampang is the largest salt-producing area in Madura, with an area of 3583.8 m$^2$ and a total of 2,730 salt farmers (Bachri et al., 2020). In 2014, salt production in Sampang contributed 10.25% to the total salt production in Indonesia (Salim and Munadi, 2016). However, the large salt-producing areas are not in line with the economic condition of salt farmers or mantong in Madura, most of whom are below the poverty line (Holis et al., 2019). The domination of salt farmers who occupy larger areas over those occupying narrower areas contributes to the polarization of marginalization among salt farmers since the community of salt industry in Madura has not been well established (Ihsannudin, Pinujib, Subejo, Bangko, 2016). Government policy regarding salt imports also causes the decline of the salt selling price (Gani & Gitayuda, 2020).

Moreover, the outbreak of the COVID-19 pandemic in 2020 worsens the economic conditions of salt farmers. Salt farmers in Madura can only produce salt for households’ daily consumption. They have not been able to diversify products such as making salt for industrial needs.

Research on the analysis of the sustainability of the people’s salt business has not been widely...
done. The commentary on the economic, ecological, institutional, cultural, and social factors of salt business sustainability in Madura was carried out by Astutik et al., which concluded that the people's salt business in Madura was entirely sustainable. (Astutik, Nurmalina, and Burhanuddin, 2019). Research on the strategies for empowering salt farmers through certification of salt land ownership to support farmers' access capital has been conducted by Ihsannudin (Ihsannudin et al., 2018). However, studies on the entrepreneurial aspect of the sustainability of people's salt business have not been presented. This study analyzes the sustainability of the people's salt business entrepreneurship from three criteria of the triple bottom line, which include people, planet, and profit (Dhiman & Marques, 2018; Muñoz & Cohen, 2018). This study aims at formulating the framework of business strategies that are suitable for the salt business. The framework was constructed from various factors synthesized from literature studies on sustainable entrepreneurship. The results of this study are expected to be adopted by the government and business actors in making a decision and setting policies to determine the sustainability of SMEs' salt business in the new normal era.

II. RESEARCH METHOD

This research was conducted in two stages of analysis. The first stage was an alternative priority analysis of the criteria performed using the Analytic Network Process (ANP) to obtain alternative rankings based on the weight. Compared to the AHP method, the ANP method produces more objective comparisons, more accurate predictions, and more stable results. ANP is a network, has dependencies and provides feedback in the model (Kadoić, Ređep, & Divjak, 2017).

The second stage was the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) analysis to determine the ranking of strategies for ensuring sustainable entrepreneurship of salt SMEs by taking advantage of the results of weighing through ANP.

The following stages are the procedures of this research:

1. Designing a sustainable entrepreneurship model that suits the condition of the salt business in Sampang and then setting the goals, criteria, and alternatives that have dependencies on other options. Dependence in one criterion of the cluster becomes an inner dependency. If the alternative appears to have a dependency outside the criterion of the cluster, it becomes an extreme dependency. The ANP design model is described in Table 1.

2. Compiling questionnaire I to assess the importance of alternatives with the Saaty scale presented in Table 1 (Saaty, 2013). The respondents to the questionnaire were three heads of salt farmer groups in Sampang Regency having more than 15 years of experience in the business. The responses to the questionnaire were then analyzed using Super Decisions software.

3. Analyzing the priority ranking obtained from the ANP sensitivity calculation output.

4. Formulating business strategies from literature studies. The four proposed business strategies include e-commerce (Shahzad et al., 2020), eco-manufacturing (Pacheco et al.,

| Table 1. ANP questionnaire assessment criteria |
|-----------------------------------------------|
| **Level of importance** | **Definition** | **Description**       |
| 1. Equally important  | Both alternatives are equally important. |
| 3. Slightly more important  | One alternative is slightly more important than the other alternative. |
| 5. More important  | One alternative is more essential than the other alternative. |
| 7. Very important  | One alternative is highly more important than the other alternative. |
| 9. Absolutely important  | One alternative is absolutely more important than the other alternative. |
| 2, 4, 6, 8 Mean  | The scores of both alternatives are close to each other. |
Developing questionnaire II to assess the effects of alternatives on the strategies. The respondents to the questionnaire are the same as those to the questionnaire I.

Analyzing the responses to the questionnaire with the TOPSIS method to evaluate the ideal strategy, namely a technique for assessing alternative performance through similarity with the perfect technique. According to this technique, the best alternative is the closest one to the positive-ideal solution, which consists of all the best values that can be achieved by the criteria, and the negative-ideal solution, which covers all the worst values that can be acquired by the requirements (Hwang & Masud, 2012). The stages are as follows:

a. Determining normalized matrix ($\overline{X}_{ij}$);
$$\overline{X}_{ij} = \frac{x_{ij}}{\sqrt{\sum_{j=1}^{n} x_{ij}}^{0.5}}$$  

b. Determining normalized weighted matrix ($V_{ij}$), where $W_j$ is the weight resulted from ANP calculation;
$$V_{ij} = \overline{X}_{ij} \times W_j$$

Table 2 shows the description of the scale applied in TOPSIS.

| Scale | Description |
|-------|-------------|
| 1     | contributes very weakly to the strategy that will be applied to the system |
| 2     | contributes weakly to the strategy that will be applied to the system |
| 3     | contributes fairly to the strategy that will be applied to the system |
| 4     | contributes strongly to the strategy that will be applied to the system |
| 5     | contributes very strongly to the strategy that will be applied to the system |

c. Determining the ideal best value ($V^+$) and the ideal worst value ($V^-$);
$$\max \text{ or } \min V_{ij}$$

d. Determining the euclidean distance of ideal best ($S^+$);
$$S^+ = \left[ \sum_{j=1}^{n} (V_{ij} - V^+)^2 \right]^{0.5}$$

e. Determining the euclidean distance of ideal worst ($S^-$);
$$S^- = \left[ \sum_{j=1}^{n} (V_{ij} - V^-)^2 \right]^{0.5}$$

f. Calculating the performance score ($P_i$);
$$P_i = \frac{S^-}{S^+ + S^-}$$

Table 3 shows the description of the scale applied in TOPSIS.

### Table 3. ANP model design

| Goal                          | Criteria                  | Alternative                          | Inner Dependence | Outer Dependence |
|-------------------------------|---------------------------|--------------------------------------|------------------|------------------|
| Sustainable entrepreneurship   | People                    | Communal development (Wu, Xie, & Tsai, 2015) | Government policy |
|                                |                            | Innovative thinking (González-Serrano, Añó Sanz, & González-García, 2020) | Government policy |
|                                |                            | Risk seizing (Hoogendoorn, Van der Zwan, & Thurik, 2019) | Government policy |
|                                |                            | Eco-friendly packaging (González-Serrano et al., 2020) | Government policy |
|                                |                            | Waste controlling (González-Serrano et al., 2020) | Government policy |
|                                |                            | Government policy (Hoogendoorn et al., 2019) | Government policy |
|                                |                            | Unsettling financial (Hoogendoorn et al., 2019) | Government policy |
|                                | Planet                     | Innovative thinking                   | Government policy |
|                                |                            | Communal development                  | Government policy |
|                                |                            | Risk seizing                           | Government policy |
|                                |                            | Innovative thinking                   | Government policy |
|                                |                            | Waste controlling                      | Government policy |
|                                |                            | Eco-friendly packaging                 | Government policy |
|                                |                            | Unsettling financial                   | Government policy |
|                                |                            | Government policy                      | Government policy |
|                                | Profit                     | Communal development                  | Government policy |
|                                |                            | Eco-friendly packaging                 | Government policy |
|                                |                            | Waste controlling                      | Government policy |
|                                |                            | Innovative thinking                   | Government policy |
|                                |                            | Communal development                  | Government policy |
|                                |                            | Innovative thinking                   | Government policy |
|                                |                            | Risk seizing                           | Government policy |
III. RESULT AND DISCUSSION

The alternative of each criterion of the sustainable entrepreneurship model is displayed in Table 3. The requirements of people consist of communal development, risk seizing (Hoogendoorn et al., 2019), and innovative thinking (González-Serrano et al., 2020). The second criterion, planet, covers eco-friendly packaging and waste controlling (González-Serrano et al., 2020), while profit includes government policy and unsettled finance (Hoogendoorn et al., 2019).

The aspect of people is seen from communal development (T.-C. E. Wu et al., 2015). Figure 1 depicts the model of sustainable entrepreneurship using the ANP method. Figure 2 demonstrates the model of sustainable salt entrepreneurship using Super Decisions software.

The data analysis using Super Decisions software resulted in a Consistency Ratio that met the requirements of the response consistency, 0.09158 or < 0.1, as presented in Figure 3. After the CR was obtained, ANP sensitivity was calculated to bring the aggregate weight of inner and outer dependencies of alternatives. The weight ranks of other options of sustainable entrepreneurship can be seen in Table 4, and the comparison of alternative weights is shown in Figure 4. The ANP calculation confirmed that government policy had the highest weight (0.418) while community development had the lowest (0.036) of all the aspects. This calculation indicates that the Indonesian government policy is the most effective alternative for the salt business’s sustainability. Meaning that particular critical matters can affect the sustainability of the salt business even though the players have improved the quality and efforts of SMEs in the salt business.

The alternative of communal development received the lowest score because of the absence of strong centers of SMEs that can be empowered...
using the group method in Madura, leading to the low level of togetherness in business. The salt businesses that have been run in Sampang are handed down across generations. New entrepreneurs rarely come from a family without a background in the salt business.

The waste controlling was weighed 0.159, in which the salt liquid waste or bittern (30° Be) was processed into an ingredient for fish salting that can sustain the salt business. The risk seizing was weighed 0.106 and became the third priority, affecting the business decision. When a crisis or a decline occurs, risk-taking must be implemented to continue the business, supported by innovative thinking, which was weighed 0.098, and community development, which was considered 0.036.

The application of eco-friendly packaging with a weight value of 0.098 builds an image to consumers that the salt business also plays a role in environmental preservation and improves the appearance of SMEs. These are supported by various salt products, such as powdered salt, instead of merely rock salt. Technology is expected to enhance the innovations, where SMEs in the salt business produce salt for households’ needs and industrial and pharmaceutical needs so that the price will increase. SMEs in the salt business only produced household salt, and their mastery of technology was also limited. And thus, the score for innovative thinking was low. The aspect of unsettled finance was valued low (0.094).

After the weight calculation using ANP was performed, strategies that could be implemented in Sampang were formulated using the TOPSIS method by considering the situation in the area. Table 5 presents the responses to the questionnaire using the TOPSIS method. The results were then calculated through several stages. The outcomes of the normalized matrix are presented in Table 6, the normalized

| Table 4. Ranking of the weights of alternatives after sensitivity calculation |
|---|
| Alternative | Score after sensitivity | Rank |
| Government policy | 0.418 | 1 |
| Waste controlling | 0.159 | 2 |
| Risk seizing | 0.106 | 3 |
| Eco-friendly packaging | 0.098 | 4 |
| Unsetting financial | 0.094 | 5 |
| Innovation thinking | 0.089 | 6 |
| Communal development | 0.036 | 7 |

| Figure 4. Chart of weights resulted from ANP calculation |
|---|
| GC = Government policy, WC = Waste controlling, RS = Risk seizing, EFP = Eco-friendly packaging, UF = unsettled finance, CD = Communal development |

| Table 5. The combination of the formulation of criteria of strategies and alternative ANP |
|---|
| Strategy | GC | WC | RS | EFP | UF | IT | CD |
| e-Commerce | .424 | .457 | .169 | .566 | .298 | .707 | .236 |
| Eco-manufacturing | .566 | .762 | .507 | .707 | .596 | .566 | .236 |
| Tourist destination | .707 | .457 | .845 | .424 | .745 | .424 | .943 |
| e-Supply chain | .424 | .457 | .169 | .424 | .298 | .707 | 1.197 |

| Table 6. The results of normalized matrix calculation |
|---|
| Strategy | GC | WC | RS | EFP | UF | IT | CD |
| e-Commerce | .424 | .457 | .169 | .566 | .298 | .707 | .236 |
| Eco-manufacturing | .566 | .762 | .507 | .707 | .596 | .566 | .236 |
| Tourist destination | .707 | .457 | .845 | .424 | .745 | .424 | .943 |
| e-Supply chain | .424 | .457 | .169 | .424 | .298 | .707 | 1.197 |

| Tabel 7. The results of normalized weighed matrix calculation |
|---|
| Strategy | GC | WC | RS | EFP | UF | IT | CD |
| e-Commerce | .418 | .159 | .106 | .094 | .094 | .089 | .036 |
| Eco-manufacturing | .177 | .073 | .018 | .055 | .028 | .063 | .008 |
| Tourist destination | .236 | .121 | .054 | .069 | .056 | .050 | .008 |
| e-Supply chain | .296 | .073 | .090 | .042 | .070 | .038 | .034 |
The weighted matrix in Table 7, the ideal best and ideal worst values in Table 8, the euclidean distance of ideal best and worst values, and the performance score in Table 9. The maximum ideal best value ($V^+$) for alternative government policy (GC) was taken since when the government is more involved in SMEs' system, SMEs will be more difficult to develop their businesses and determine independent strategies. The determination of the ideal best value for alternative waste controlling (WC) applied the same way because better waste-controlling will contribute to a better image of SMEs in maintaining their production and preserving the environment. On the other hand, the ideal best value for risk seizing (RS) was determined by taking the minimum score. The lower the risk is, the more excellent the opportunity to avoid the risk that may cause damage to the business will be. The ideal best value for eco-friendly packaging (EFP) was determined by taking the maximum score because better packaging will contribute to a more preserved environment. The ideal best value for unsettled finance (UF) was determined by taking the minimum score since minor unsettled finance will positively affect SMEs' financial cycle. The ideal best value for innovative thinking (IT) was decided by taking the maximum score because better innovation will contribute to the better development of SMEs. Further, the ideal worst value for each alternative was determined using the opposite strategy for deciding the ideal best value.

The outcomes of performance score calculation have shown that to achieve sustainable entrepreneurship in Sampang. An e-supply chain strategy is required to be applied to establish and maintain communication with distributors and suppliers using the technology of the internet (Ross, 2002). Limited face-to-face communication due to pandemics can be solved with online meetings using the internet to accelerate the transaction process efficiently (Ben-Daya, Hassini, & Bahroun, 2019). Establishment of community and long-term agreements with suppliers and distributors by making use of applications to maintain effective and integrated communication (Koberg & Longoni, 2019; L. Wu, Yue, Jin, & Yen, 2016), and thus, this will save time for selling and buying transaction and distribution of salt.

The second priority is e-commerce strategy. As discussed earlier, if imported salt abundantly enters the Indonesian market, the demand for local Sampang salt will significantly decrease. The price of high-quality local salt is also low. To anticipate these problems, the strategies of online marketing or e-commerce and brand image building for consuming local products can be made by boosting e-commerce (Hidayanto, Ovirza, Anggia, Budi, & Phusavat, 2017; Qin, Chang, Li, & Li, 2014). Indonesian people are encouraged to consume local products, particularly in this pandemic era where more people become internet users. This is used to promote online marketing and brand image building for consuming local products. Intensive mentoring and training must be provided to local salt farmers and sellers because local salt marketing has been previously done conventionally without using the internet.

The third recommended strategy is eco-manufacturing which can be applied with several standard operating procedures (SOPs) since the absence of SOPs of salt production will lead to environmental damage (de Jesus Pacheco et al., 2017; May, Stahl, & Taisch, 2016). Product packaging needs to be improved into environmentally-friendly packagings, such as by using bioplastic or paper, completing the package with information about ingredients, and

| Ideal Value | GC | WC | RS | AFP | UF | IT | CD |
|-------------|----|----|----|-----|----|----|----|
| Ideal best (V+) | .177 | .121 | .018 | .069 | .028 | .063 | .042 |
| Ideal worst (V-) | .296 | .073 | .090 | .042 | .070 | .038 | .008 |

Table 8. The results of ideal best (V') and ideal worst value (V') calculation

| Strategy          | Si+ | Si- | Pi  | Rank |
|-------------------|-----|-----|-----|------|
| e-Commerce        | .061| .147| .708| 2    |
| Eco-manufacturing | .083| .091| .523| 3    |
| Tourist destination| .157| .025| .139| 4    |
| e-Supply chain    | .056| .151| .729| 1    |

Table 9. The results of the performance score calculation

The weighted matrix in Table 7, the ideal best and ideal worst values in Table 8, the euclidean distance of ideal best and worst values, and the performance score in Table 9.
educating people to consume local salt. People’s salt has been merely packaged with ordinary, less elegant, and uninteresting plastic that does not attract prospective buyers. Therefore, the local salt is not sold at a high price for people consider it merely a local product that is only marketed in a traditional market and does not reach buyers from the middle and upper classes. In this case, the role of technology is vital to support salt production and packaging so that the product can enter supermarkets and reach the markets for middle and upper-class society.

The establishment of a tourist destination is the next strategy proposed. This strategy can be implemented with the supports of government policy or initiator of community to establish a new type of business in the area of salt education (T.-C. E. Wu et al., 2015). Educative tourism of strawberry in Pacet, Mojokerto, and chocolate in Pacet, Mojokerto, and Blitar are examples.

IV. CONCLUSION

This study produced some alternatives that can be applied to develop sustainable entrepreneurship of SMEs in the salt business in Sampang, Madura. Listed based on the weights, the alternatives include government policy (0.418), waste controlling (0.159), risk seizing (0.106), eco-friendly packaging (0.098), unsettled finance (0.094), innovative thinking (0.089), and communal development (0.036). Based on the results of the performance score calculation, the proposed strategies to implement comprise e-supply chain (0.729), e-commerce (0.708), eco-manufacturing (0.523), and tourist destination (0.1390). The formulated strategies can be applied with the supports of the government and stakeholder community in the system of the salt industry, starting from suppliers, producers, to distributors, so that all strategies formulated with the TOPSIS method can be implemented in stages.

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