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Jl. Raya Telang PO BOX 2 Kamal Bangkalan, Madura-Jawa Timur

E-mail: Agrointek@trunojoyo.ac.id



IDENTIFICATION OF SALT DEVELOPMENT PROBLEM : A PRELIMINARY ON UNDERSTANDING LOCAL SALT PROBLEM IN INDONESIA

Iffan Maflahah^{1,2}, Budisantoso Wirjodirdjo^{2*}, Putu Dana Karningsih²

¹Agro-Industrial Technology, University of Trunojoyo Madura, Bangkalan, Indonesia

²Industrial Engineering, Sepuluh Nopember Institute of Technology, Surabaya, Indonesia

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ABSTRACT

Salt is a strategic commodity that needs to be maintained. The salt problem has not resolved, so it is necessary to find the right solution for salt development. The study was carried out in Sampang Regency as a salt-producing area which was proposed for salt approval and formulated a policy for salt development. The research method used is the DPSIR method (Driving Power /; Pressure; State; Impact; Response). The main problems with developing salt are the impartiality of local salt prices, the supply chain system, changes in pond function, climate uncertainty, and inadequate infrastructure. Efforts must be made to develop salt are the modernization of the production process, controlled of salt price regulations, market search, improvement of human resources and structuring of supporting facilities for salt production should be carried out.

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* Corresponding Author

Email: budisantoso.wirjodirdjo@gmail.com

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INTRODUCTION

Salt is a strategic marine commodity for the economy of the nation. Salt becomes the good way to encourage employment opportunities, economic development and poverty reduction not only as food for people and as a raw material for the industry. Individuals mostly manage the salt business, and it is known as the local salt business (Efendi et al. 2013). The existence of salt as a strategic commodity of industrial raw materials and food needed by almost everyone is undeniable. However, the strategic position of the local salt is not directly proportional to the living conditions of salt farmers, and it can be considered to be the opposite (Azizi, Manadiyanto, and Koeshendrajana 2017; Srinivasan et al. 2019). The life of salt farmers in various regions in Indonesia, in general, is far from an adequate living. They live in poverty and underdevelopment.

To date, the condition of the local salt can be considered apprehensive. It is unlike other sectors such as manufacturing, steel, or textile industries which often obtain government attention and they have several facilities. The salt industry for decades has received very little attention. Salt commodities have never categorized as strategic goods, but must be adjusted to the needs of industrial raw materials. Almost 70% of salt production in Indonesia mostly done by farmers (KKP 2014). However, salt production was still unable to meet domestic needs.

Some researches reveal that the problem of salt in Indonesia was a production problem (Efendi et al., 2013; KKP, 2014; Rahman, Raharja, & Kadarisman, 2014; Hernanto & Kwartatmono, 2001) and the supply chain system (Rinardi & Rochwulaningsih,

2017; Puska DN, 2012; Jamil, Tinaprilla, & Suharno, 2017; Widiyastutik, Hapsari, & Kuntadi, 2016; Baekhaki, Kinseng, & Soetarto, 2018). These conditions cause a decrease in the motivation of farmers in their business. If this not treated well, the local salt and the farmers will be increasingly marginal. Production techniques problems are due to the dependence on the dry season, the equipment used was still traditional, and the limited area of land managed by farmers while the salt trade system involves complex trade system elements (Adiraga and Setiawan 2014; Aminuloh, Supenti, and Kamsiah 2019; Herho, Firdaus, and Siregar 2017). Differ the salt production system in some countries that use modern techniques without depending on the season. While the salt trade system includes complex trade management elements, namely farmers, intermediaries, small traders, large traders, processing factories, and importers, this makes it challenging to regulate good trading patterns.

Some of the efforts that have been made by the government to increase salt production are through community empowerment programs, salt production training, provision of equipment assistance, government regulations on salt prices on the market, salt import provisions. However, this still cannot solve the national salt in Indonesia.

Reflecting on the condition, the effort of the local salt development is a need. In addition, this research discusses the problem of local salt production and sets out strategies for local salt progress over the next ten years as a base for the development of a long-term strategic plan. Identification of local salt problems is carried out in Sampang District as a centre for salt production of people in Indonesia (Efendi et al. 2013). Madura

Island produces more than 60% of salt production in East Java, whereas 60% of national salt production supplied from salt production in East Java. According to this fact, the research conducted in one of the largest salt-producing sub-districts in Madura Island, Pangarengan Sub-District, Sampang District. Pangarengan Sub-District has a salt production area of 1.905,6 ha (KKP 2016).

It is expected that the development effort for the local salt is a solution to answer the root of causes. It is not only in efforts to achieve self-sufficiency in production but related to other objectives such as; opening employment opportunities and reducing unemployment, alleviating poverty in coastal areas, increasing the income and living standards of salt farmers, encouraging regional economies and increasing foreign exchange.

METHODOLOGY

This research conducted in one of the largest salt producing sub-district in Madura Island located in Pangarengan sub-District, Sampang Regency. Pangarengan Sub-District has a salt production area of 1.905,6 ha (KKP 2016). The process of collecting data was carried out through several techniques, such as; in-depth interviews, group interviews (GI), and observation (observation), the study of archives and documents as well as literature. This analysis was limited to the construction of an index system stage to identify the problem of salt development. The number of respondents used was 22, such as farmers (10), business people/salttraders (5), salt investors (2), representatives of key stakeholders (5). The determination of respondents in this research was conducted using simple random sampling (Ryan 2013).

It is a method in conducting system analysis to observe environmental

problems and the local perspective on these problems (Bell 2012). This model was used to determine the cause-and-effect relationship between environmental systems and human systems. It also aims to help decision-makers understand the knowledge they need (Smeets and Weterings 1999). The Driver-State-Impact-Response (DPSIR) model was its evolution of the Driving Force-State-Response (DSR) and the Pressure-State-Response (PSR) analysis models. This model offers an overview of the program as a whole and promotes the process of action and policy making. The DPSIR method has been used not only to examine environmental issues but also to evaluate the growth of small and household industries (Wijaya and Mutia 2016).

The development formulation of local salt used the DPSIR method. Driving force (D) was the transition in the social, economic and structural structure that is taking place, and its interaction creates direct and indirect strain. Pressure (P) has become a result of human actions that have the ability to cause changes in the climate and environmental services (impact). State (S) was its number of device conditions in a given field. Impacts (I) would be a change in the number of device conditions in a specific region that has been adverse to social and economic conditions. Response (R) has been a policy implemented by an organization or community (stakeholder) that explicitly or indirectly underlies the collective understanding of the impact to be preserved, removed, decreased, or adapted as a result. The steps in the DPSIR analysis consist of identifying DPSIR components are as follows; compile the DPSIR linkage matrix; formulation of plans and policies.

RESULT AND DISCUSSION

Potential Development of the Local Salt in Sampang District

The ponds of the local salt in Sampang district spread in the southern coastal regions including the cities' subdistricts of Camplong, Jrengik, Pangarengan, Sampang, Sreseh, and Torjun. While on the northern coastal areas is located in Banyuates Subdistrict covering a small area. The total area of the local salt land in the seven sub-districts is 4.751,1 ha. In addition to the local salt land, there is salt land managed by PT. Garam (Persero) covering an area of 1.149 ha. The land area controlled by the owner of 1.201 people, seven tenants, and 12.738 workers (outside the harvest climate) (Efendy, Heryanto, and Sidik 2016). The local salt production capacity in Sampang Regency is 60 - 70 tons/ha/year/climate (5 months). The salt land area of Pangarengan Sub-district is 1.905,6 ha and scattered in Apaan, Pacangga'an, Gulbung, Pangarengan, Panyarangan, Ragung Village.

Identification of Problems with the Development of the Local Salt

Salt farmers have been one of the coastal groups which was associated with misery and impotence. Traditional technology, small businesses, restricted resources and challenging access to knowledge and markets make the goods

they produce less competitive (Naomi et al. 2016). Low farm incomes of salt farmers make it difficult to introduce technologies and increase their business profitability. This condition caused salt farmers to be in a vicious cycle of impotence. The results of the identification of salt development problems in Pengarengan Sub-district shown in Table 1.

Table 1 shows that climate constraint is the main problem in each village. For decades, production technology has tended to be stagnant and has no significant development. Aside from being caused by poor research on salvation innovation, decades of lack of intensive training led to this condition. This condition exacerbated by the limitations of production facilities by farmers. One of the impacts of underdeveloped technological innovations is low productivity and quality as well as high dependence on climate conditions.

Because of the constraint in climate anomalies and low land use and land productivity, domestic salt production cannot meet the national needs of the household and industrial salt consumption. The existence of an erratic climate has caused national salt production to experience a tremendous decline and create salt scarcity. It has happened in 2010, where salt ponds in various centres failed to harvest due to weather disturbances

Table 1. Identification of The Salt Development Problems

Village	Problem					
	Climate	Low Prices	Marketing	Infrastructu re	Land Status	Capital
1. Apaan	√	√	√	√		√
2. Gulbung	√		√	√	√	√
3. Pacangga'an	√	√				√
4. Pangarengan	√	√	√	√		√
5. Panyarangan	√		√	√		√
6. Ragung	√	√		√		√

The next problem is the condition of the infrastructure. The poor state of support in the central salt region raises high costs, especially in handling and transportation costs. The weaknesses of the support include (a) secondary channels (secondary channels) that cause pond water availability in the reservoir at all times. This condition implies a longer processing time and fewer harvest frequencies. (b) Limited access to roads from farms to collection points so that the distribution process and production costs increase. (c) Dry storage conditions both in terms of capacity and quality difficult a warehouse receipt system. The shape of the salt storage warehouse is generally still in the form of huts in rickety, precarious conditions and the bamboo walls are in a damaged state. In rainy conditions, the salt is difficult to store because it is leaking. This condition is one reason why salt farmers are quick in selling their harvested salt regardless of the development of reasonable/economical prices.

The next problem is the price of salt. The limited capital also makes the salt farmers challenging to invest in technology to improve the productivity and quality of the local salt. This condition causes the local salt business carries out traditional management and technology patterns without regard to the principles of proper management and tends to have high-cost economic nature. The local salt business is considered to have a small-scale business. However, with high production costs and deficient levels of productivity and quality of salt, the selling price of the local salt is low.

The direction for the development of the Local Salt

Driving Force (D)

The results of the identification of problems with the development of the local

salt (Table 2), further confirmed to farmers to determine the driving force of the issue of the local salt. Driving Force (D) for the development of salt are Seasonal dependence (D1), Bargaining position (D2), Small capital (D3), and Minimal facilitation (D4).

Table 2. Driving Force (D) of Development of Salt

No	Driving Forces (D)	
1.	Season dependence	(D 1)
2.	Bargaining position	(D 2)
3.	Small capital	(D 3)
4.	Minimal facilitation	(D 4)

Salt is an essential commodity since the prehistoric era and is considered to have brought massive strength and wealth to the people who control production and trade (Flad et al. 2005; Shotter 2005). One of the impacts of underdeveloped technological innovations is low productivity and quality, as well as high dependence on climate conditions.

Some of the effects of poor salt production due to natural conditions are (1) seawater has been the only source of raw material, (2) short dry season, and (3) high humidity, resulting in low productivity of salt production. Another explanation has been that the characteristics of the human salt industry have (1) a limited and dispersed scale of production per farmer and (2) a low production process technology. As a result, salt processing by people has been carried out in a conventional way that is low in technology. In this way, the environment has a drastic effect on the quality and quantity of salt produced (Efendi et al., 2013; Rahman, Raharja, and Kadarisman, 2014; Hernanto and Kwartatmono, 2001; Suhana, 2016; Susanto et al., 2015).

Pressures (P)

Pressures (P) obtained from the examination of salt farmers on the effects obtained in Driving Force. The results of

the identification of Pressure (P) shown in Table 3.

Table 3. Pressures (P) of the Development of Salt

No	Pressures (P)	
1.	Low production stability	(P 1)
2.	Low prices	(P 2)
3.	Small business scale	(P 3)
4.	Minimal infrastructure facilities	(P 4)
5.	Marketing	(P 5)

There are obstacles in accessing capital, especially for farmers and farm owners. The farmers of the local salt are generally difficult to access banking and non-bank institutions, causing them to trapped in the bondage pattern. It is because, in the early period of salt production, the farmers of the local salt need money to fulfill their needs. Capital limitations also make it difficult for them to invest in technology to improve the productivity and quality of the local salt. This condition has resulted in the pattern of management and technology of the local salt business being carried out traditionally without regard to the principles of proper management and tend to have a high-cost economic nature. The salt business is considered a small scale business but requires high production costs. That is not comparable with the level of productivity and quality produced does not meet market standards, so the selling price of salt is low.

State (S)

The following are the results of the identification of changes in shapes (State / S) resulting from the amount of pressure (P) in the development of the local salt. The state of the development of salt shown in Table 4.

Capital is a classic problem for small businesses, including salt farmers. Limited business capital for salt farmers ultimately affects the quality and quantity of production. The general salt production

process is carried out with a profit-sharing system between landowners and the farmers of the community salt, which usually consists of two to four people. Only a small proportion of salt farmers independently produce on their land. Also, they typically work with their family (household farm), which consists of two to three people. In a normative profit-sharing system, the landowners get a more significant share (percentage) of production. Mainly if the production facilities (water pumps, windmills, and other supporting equipment) belong to the landowners, then the rate of profit sharing becomes even higher for the landowner. This condition exacerbated by the existence of the right to salt production for the landowners, which makes the bargaining position of the local salt farmers weak.

Table 4. State (S) of the Development of Salt

No	State (S)	
1.	The salt business is a labor-intensive business	(S1)
2.	Not technically economically feasible	(S2)
3.	The appreciation of salt prices is not feasible	(S3)
4.	The quality of human resources of the farmers is low	(S4)

Impact (I)

The impact (I) caused by changes in State (S) shown in Table 5.

The salt trading system is a long and complicated process for the farmers of the local salt to reach the end-users. The salt trade system is inseparable from the three main things that often become a problem for salt farmers, including price, quality, and product distribution (Workneh et al. 2019). Farmer's salt does not meet factory criteria, so the salt does not get a reasonable price (Sudaryana and Pramesti 2018; Rinardi and Rochwulaningsih, 2017; Jamil and Tinaprilla, 2015;

Widiyastutik, Hapsari and Kuntadi, 2016; Baekhaki, Kinseng, and Soetarto, 2018). It has become a critical point for farmers in selling their products. In its realization, pricing is not based on the number of requests and the number of products on the market but is determined by different middlemen at prices determined and regulated by the central government's decision. Prices agreed upon by related stakeholders, at least by salt farmers and manufacturers/producers of processed salt that are very detrimental to farmers. So far, the quality determination has been carried out unilaterally by the manufacturer based on the results of product visualization (Susanto et al. 2015). Salt farmers do not know for sure the class technical specifications/quality grade and prices that apply. The factory cannot provide a reasonable price for farmers because the quality of the salt is low. Moreover, with the existence of a long salt trade chain, which involves several salt trade business actors, the price of the salt at the salt farmer level is low.

Table 5. Impact (I) of the Development of Salt

No	Impacts (I)
1.	The poor salt trading system (I1)
2.	Quality of salt production (I2)
3.	Salt distribution (I3)
4.	Mastery of information (I4)

For small business actors such as salt farmers, information is a dynamic need. However, in reality, not all individuals have the ability to access the information needed. Communication media or sources of information that are increasing in number do not always provide the information needed by the salt farmers. Meanwhile, counseling for salt farm businesses is also in a powerless condition. It is the reason why the access of salt farmers to information on business, market, and technology financing is relatively weak. In fact, with the introduction of the current free trade, salt

farmers like other smallholders also face other complex problems. These problems include increasing sea levels, ocean waves, abrasion, decreasing land productivity, climate change, increasing production costs, increasing labor costs, changing marketing, environmental pollution (Elena et al. 2018). This condition will have an impact on farmers both in the short and long term.

Response (R)

The response (R) in salt development shown in Table 6.

The implementation of the salt development strategy must precede by efforts to create a conducive social climate. The aim is to empower the empowering and protect the weak parties so that active parties do not exploit them and prevent unhealthy and unbalanced competition. Also, a treatment balancing from upstream to downstream must be created, such as the realization of appreciation of good quality with price feasibility so that it is mutually beneficial. The strategy for developing salt includes plans in the fields of production and technology, pricing strategies and market networks, strategies for improving human resources and management, and strategies for structuring facilities and infrastructure.

Table 6. Response (R) of the Development of Salt

No	Response (R)
1.	Production and technology (R1)
2.	Prices and market networks (R2)
3.	HR Improvement (R3)
4.	Structuring facilities and infrastructure (R4)

The implementation of the strategy aims to build an effective and efficient salt production business. Besides, to increase production output that can compete using appropriate technology and environmentally friendly. The policy will be able to create a sustainable distribution

channel to improve the welfare of salt farmers. The strategy in the field of production starts from the arrangement of land (assets), followed by revitalizing the management pattern with appropriate technology in the productive land intensification program, and if it is deemed feasible, it can be followed by an extensification program to expand productive land and increase production (Efendi et al. 2013; Setyaningrum et al. 2015).

Strengthening salt institutions must be done to create pricing strategies and improve market networks. It is useful for increasing the bargaining position of farmers and creating a balance of market behavior towards the quality of production with prices. Market expansion must involve small industries so as not to depend on intermediaries or processing plants. Besides that, the increase of market share through inter-island sales must be sought to the maximum extent so that distribution is more even and not concentrated in certain areas and market segments. All forms of media with the sophistication of available technology can be used to build access to market nets, at least as a medium of rapid communication in capturing and presenting actual information.

Strategies for improving human resources and management of salt management can be carried out through intensive socialization, counseling, training, comparative studies, and other related activities (Erlina and Kurniawan 2015; Holis et al. 2019; Hernanto and Kwartatmono 2001)). The strategy aims to enable salt farmers to be able to think effectively and efficiently and accurately calculate the profit and loss of their business activities. The concept of business activities in a simple way must be ready to be implemented carefully. Furthermore, technology must also be applied

appropriately, so that the management of business activities can support implementation in an integrated manner.

CONCLUSION

Based on the results of the research conducted, it can conclude is problems in salt development include short dry climate, low prices, robust marketing, land status, and infrastructure. Directions for the development of the local salt include improvements in production and technology, rates and market networks, increased human resources, and structuring of support.

The limitations of this study do not discuss the cost requirements and risk for developing community salt.

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