

## Pricing strategy at the local salt industry institutional structure of East Java, Indonesia

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### Abstract

This study aims to create a strategy to increase local salt prices in the East Java Region. The analytical method used in this study is the Analytical Hierarchy Process (AHP) method to create a strategy to increase local salt prices in East Java. The analysis reveals that the problems in the field can be classified into three groups of problems, namely salt quality problems, marketing problems, and problems in financing. Based on these problems, the main policy alternatives we make are product standardization, market regulation, and financial regulation.

**Keywords:** AHP, Salt farming, Salt market

**JEL Classification:** C49, Q1, Q12

### INTRODUCTION

Salt is one of the main ingredients of human needs for various purposes, both for consumption and industry. The need for high-quality salt continues to increase during the growth of the industry. Sodium Chloride (NaCl) is traditionally used as a food additive in food processing because it plays an important role in texture and storage (Muhandhis et al., 2019; Rochwulaningsih et al., 2019). Therefore, the function of salt cannot be replaced by another ingredient. Salt is positioned as a strategic commodity that needs to be cultivated and developed appropriately, especially in areas with extensive coastlines, including Indonesia.

Indonesia is one of the countries with the longest coastline in the world. Nevertheless, these advantages cannot fulfill the national salt needs, so Indonesia needs to import salt. The abundant amount of salt imports has caused the price of salt to fall on the market. One root of the problem is the lack of absorption of salt for the industry. Moreover, several other problems are national salt processing technology: 1) still fairly traditional, 2) the transfer of land functions from salt ponds to settlements, 3) salt production volume still depends on solar heat, and 4) national salt quality is still low (Rochwulaningsih, 2017; Santosa, 2015; Sudaryana & Pramesti, 2018).

The problem of Indonesian salt also originates from the marketing chain, which

involves many parties such as distributors, wholesalers, retailers, and salt selling agents. Agents involved in salt distribution determine the desired profit margin. The phenomenon of high-profit margins determined by distributors and other salt agents requires consumers to incur greater costs to buy salt, giving rise to negative consumer perceptions of the state in managing the performance of national salt fulfillment (Muhandhis et al., 2019; Sudaryana & Pramesti, 2018).

In general, salt production in Indonesia is carried out by coastal communities using traditional technology. Nevertheless, the existing governance in coastal communities related to the activity of the salt processing industry is still weak and vulnerable in terms of socio-economy (Rochwulaningsih, 2017). Despite the existing problems, the government has established regulations to protect and empower salt farmers and fishers, especially coastal communities, namely Law No.7 of 2016. Besides, in 2011 the Indonesian government implemented the Salt Empowerment Business Program and introduced various industrial technologies. Regulations and programs established by the Indonesian government aim to protect the traditional aspects of salt production to ensure salt quality (Badan Pengkajian dan Pengembangan Perdagangan, 2016). Therefore, it needs to be identified and analyzed to formulate existing problems to find the right strategy to strengthen the salt industry institutions in East Java to achieve economic sustainability.

Based on SWOT analysis, previous literature studies mention that the highest priority weight is on adequate production land (strength), inadequate distribution capital (weakness), demand for premium quality salt (opportunity), and short dry season in the production process (threat) (Wati et al., 2018). Research results by Wati et al. (2018), the right strategy is to increase raw material salt production, develop processed salt itself, and expand the marketing area. It also needs the implementation of appropriate government policies and effective and efficient production management. It's consistent with the research results from Sudaryana & Pramesti (2018), which shows a significant relationship between the salt production governance strategy and the implementation of policies towards improving people's welfare. It is one of them related to salt prices that farmers expect, where when the price of salt on the market is stable and following price standards, farmers' concerns about loss of production can be suppressed. Prices that are applied on the market are also based on the quality of the salt produced.

Based on the research results by Jumaeri et al. (2018); Santosa (2015) related to salt production, improving the quality of salt can be done by modifying the traditional salt production process by placing HDPE geomembrane. The result of this modification is claimed to increase the number of salt products and NaCl levels that meet or even exceed the Indonesian National Standard (SNI), which is above 94.75%. Muhandhis et al. (2019) suggested a strategy to increase the salt supply chain by using land intensification scenarios with thread-filtering technology, geomembrane, and tunnel systems claimed to increase farmer profits in the shortest dry season. At the same time, Rochwulaningsih (2017) emphasizes developing an entrepreneurial mindset that can support group/cooperative businesses with coaching, advocacy, technological facilities, and business capital in salt production.

This research is based on institutional theory and agency theory. Institutional theory is related to governance, strategy, institutional system of the production process from upstream to downstream, including cooperation and agreements made by farmers, traders/collectors, and stakeholders. At the same time, the theory agency is more about explaining the relationship between capital owners and organizational managers. Thus,

this study aims to identify the problem of salt prices in East Java by organizing it into a hierarchy to get the right strategic planning for increasing the national salt price.

## **LITERATURE REVIEW**

The institutional theory provides a signal from the view of an open system that the environment influences an organization. The environment in an organization is part of social construction that plays a role in building character and rules (Clegg, 1981). In this context, institutional, commonly called "institutions," are rules that regulate the social conditions of individuals and organizations. Institutions consist of regulative, normative, and cultural cognitive elements and related resources carrying out activities in managing the stability and meaning of an organization to achieve its goals (Mahalingam & Levitt, 2007). The regulatory element in this institutional concept uses explicit rules and supervision activities; this normative element is seen from the prescriptive dimension, while the cultural-cognitive element depends on individual and organizational cognition. Conceptually, institutions describe how institutional strength leads to conformity behavior in social settings (Biesenthal et al., 2018). Apart from the organization, institutional theory can also influence human resources. The integration of institutional concepts in managing human resources and indirectly can impact an organization of human resources, which is applied infield practice (Lewis et al., 2019). The institutional theory that integrates cognitive, normative, and regulative elements is one of the ideas from the emergence of Neo-Institutional theory.

Institutional as a rule of the organization in carrying out its functions and tasks to achieve its objectives. These game rules are aimed at all relevant stakeholders, both internal and external, who have links with organizational activities. The purpose of the game rules was formed so that all related parties could carry out their duties and functions by their portions. They would not trigger the emergence of various problems that would lead to organizational instability (Slimane et al., 2019). Overall, institutionalism is more focused on the relations between the organization and the stakeholders involved therein who interact in the institutional environment. Interaction in this institutional environment includes management, marketing, production, and services and goods. So, it will integrate internal and external components in the organization that still has a connection. The institutional concept that was built also emphasized the combination of rules and socio-cultural conditions in an organization. This institutionalization is also adapted to the traditions inherent in the condition of an organization, accompanied by rules that have a positive contribution that can have a significant impact on organizational performance (Slimane et al., 2019). Organizational behavior also plays a routine role to be instituted, which will be carried out by all relevant organizational stakeholders.

The emergence of agency theory results from differences in views between agency shareholders and managers that trigger a conflict of interest. This theory describes the relationship between stakeholders (owners of capital) in an organization as the agency's principal and the organization's manager, which often creates conflict with asymmetric information. The emergence of this asymmetric information manifests the differences in interests between capital owners and managers. Models in agency costs and ownership structure play a central role in corporate governance (Jensen & Meckling, 1976). The agents' behavior needs to be a concern to detect the problem that triggers a conflict of interest. According to (Jensen & Meckling, 1976), this agency theory can appear in the smallest scope of an organization because each stakeholder has

an interest based on the principle of maximizing utility. This principle maximizes greater profits in the short term to trigger problems (Laiho, 2011).

Classical agency theory assumes that humans as self-interested individuals with inherent opportunistic traits eventually trigger interest (Yusuf et al., 2018). These differences in interests are usually reflected by fraudulent and non-transparent behavior and a lack of managerial responsibility to the organization, resulting in conflicts with the capital owners. Assumptions of interest have a profound influence on the development of policies and practices. At the same time, overall corporate governance regulations focus on the right remuneration package and monitoring managers to control opportunistic behavior (Feldman, 2020). However, personal interests in organizational management studies can positively impact by not expecting a reward in personal material benefits. Because their orientation is not only in personal interest but rather leads to the performance and existence of the organization. Issues of interest in agency theory impact organizational performance as reflected by the instability of performance and injustice in the organization. Because each stakeholder will try to maximize their profits and create an imbalance, for example, with the interest of maximizing these benefits, asymmetrical information will emerge, the instability of the organization's conditions, and stakeholder relationships and in the long run, will affect the sustainability of the organization's existence.

**METHODS**

**Data**

The data used in this study is primary data, which was obtained through interviews and filling out questionnaires directly to respondents/informants. The research location and respondents/informants used in this study were selected through the purposive sampling technique. The purposive sampling technique is based on selecting samples that match the salt supply chain process criteria, namely actors who are considered to have complete information. The location of this research is East Java Province, one of the areas that have the highest salt production in Indonesia. Respondents used in this study were farmers, traders or collectors, and stakeholders involved in salt production and salt trade in East Java Province. The respondents are ten respondents who are considered to have complete information about the salt supply chain in East Java Province.

**Table 1.** Sample research respondents

<b>Respondents</b>	<b>Frequency</b>
Farmer	5
Traders / collectors	3
Stakeholder	2
<b>Total</b>	<b>10</b>

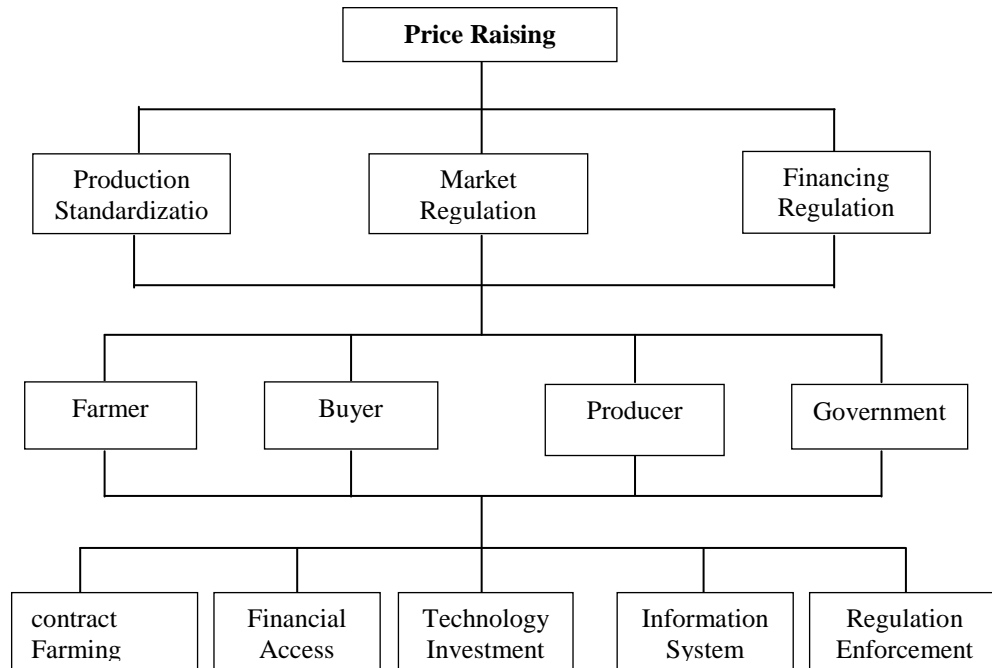
**Technical analysis**

Technique The analysis used in this study is the AHP (*Analytical Hierarchy Process*). AHP (*Analytical Hierarchy Process*) is a supporting technique in reaching decisions developed by Thomas L. Saaty. The AHP technique will decipher complex multi-factor or multi-criteria problems (Dizioli et al., 2016; White, 1987). Thus, a complex problem can be broken down into groups that are then organized into a hierarchical form so that the problem will appear more structured and systematic (Li et

al., 2018; Yavuz & Baycan, 2013).

The steps are taken to analyze the AHP (method *analytical Hierarchy Process*) divided into eight steps (Saaty, 2002).

1. Breakdown complex problems into several small selection elements which then arrange elements into hierarchical forms. The problems to be solved are broken down into elements, namely criteria and alternatives, then arranged into a hierarchical structure. This stage allows a complex decision to be structured into a hierarchy of the overall objectives to various criteria/sub-criteria and the lowest level. The structure of this research hierarchy is as follows.



**Figure 1.** AHP hierarchical structure

2. Make a series of pairwise comparisons between elements according to the ratio scale. If the hierarchy has been arranged, the next step is to describe the priorities of each element at each level.
3. Use the eigenvalue method to estimate the weight relative of each element. Pairwise comparisons produce a relative ranking matrix for each level of the hierarchy. The number of matrices depends on the number of elements in each level. The composition of the matrix depends on the number of elements at the lowest level that connect them.

## RESULTS AND DISCUSSION

The problems faced by salt farmers in East Java are the same as the problems faced by farmers in general, namely the demand and the instability of crop prices on the market. Salt is one of the commodities that have very high demand. Salt is used as a food ingredient in the community and raw materials from various industries, small and large industries. Therefore, the level of salt demand can be very high. Farmers can determine the price of salt for their crops and cover the shortage of the needs of the industry. Still, the conditions in the field show the opposite.

The existence of institutional theory (Institutional Theory) in the results of this study is emphasized in the pattern of relationships that create rules for all players in the salt industry in East Java from upstream, downstream to policymakers. The rules of the game that are applied to all organizations are the chain of rules in the salt industry, which has strong components in the form of actors and agreed rules. In running the marketing chain, several actors consist of farmers, collectors, industry, policymakers (government) to salt products in the hands of consumers. In each actor, he has a stake in creating rules of the game, which all stakeholders agreed upon. However, in practice in the field, the game rules are only dominated by a few actors, resulting in asymmetric information in determining the price system, the nominal selling price of salt, and the supply and demand needed by consumers.

This research tries to provide a strategy for improving the salt industry's institutional pattern in East Java. The analysis results are shown in 4 hierarchies of priority strategies, and then these priorities are applied to all actors. In the analysis results, a strategy will appear, which is indicated by the dominance of which actors play a dominant role in implementing the strategy. These results can be mapped a priority policy that should be done to minimize institutional governance problems in the salt industry in East Java.

Meanwhile, the agency theory is implemented in a relationship between all the actors contributing to the salt industry marketing pattern rules. There are two important terms in agency theory, namely agency, and principal. Each of them has their interests, triggering institutional conflicts that occur in the organization. The conflict causes unclear rules of the game, asymmetric information from the supply and demand side of the market, and price information. This condition will predominantly disadvantage actors such as farmers who have various limitations on access and capital. So far, the obstacles faced by salt farmers are also the result of a conflict of interest between the actors by prioritizing individual benefits.

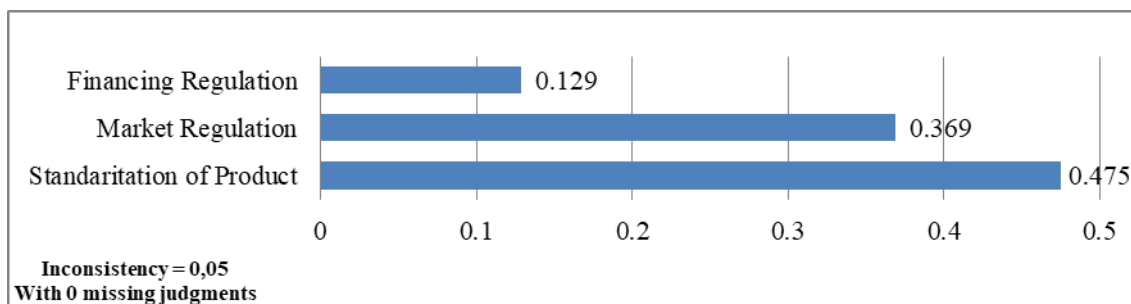
Field observations show that farmers have difficulty selling their variety to the industry and can only sell their salt to cooperatives and middlemen. Farmers do not have the power to determine the selling price of their salt and play a role as a price taker. This condition is motivated by the difficulty of farmers directly selling their salts to the industry and the bonds between farmers and middlemen preventing them from selling their crops to others. This bonding occurs because of the lack of capital owned by the farmer so that the farmer makes a loan to the middleman with the payment of his harvest, but this is sometimes binding even though the loan has been paid off. Farmer is also forced to accept a lower price than the market price and accept the price determined by the middleman of the capital owner. This condition illustrates that the lack of financial access that farmers own also has a role in determining the price of harvest salt.

The government's salt import quota also determines the problem of salt prices on the market. The amount of substitution salt from abroad used by the industry will reduce the demand for local salt that the industry can use. On the other hand, foreign salt prices also tend to be cheaper than local salt prices, providing unrest for local salt farmers. Public unrest is also strengthened by games carried out by certain elements by hoarding imported salt and releasing it on the market during the salt harvest season. It makes the competition between local salt and imported salt even greater in the market.

As the user of salt as one of the raw materials for production, the industry prefers imported salt, which has good quality and higher NaCl content. One reason for the lack of local salt demand in the industrial sector is more due to the lack of NaCl content produced by local farmers, especially salt farmers in East Java, other than that the reasons for the level of cleanliness in the warehousing system and relatively higher

water content than imported salt. On the other hand, the salt cultivation method carried out by salt farmers in East Java mostly still uses traditional methods by utilizing solar and soil heat. Some farmers have used geomembrane media so that the yields obtained are cleaner. However, there are also obstacles in the warehousing system being implemented. The standardization of salt production produced by salt farmers in East Java also becomes an important point in determining the selling price of salt. The lack of standardization of salt yields makes local salt less competitive with imported salt products, so a strategy is needed to increase local salt prices in East Java.

This study uses the Analytical Hierarchy Process (AHP) to formulate a strategy to increase local salt prices in East Java using the analysis tool *Analytical Hierarchy Process* (AHP). Strategies used to increase local salt prices in East Java through standardization of salt production, market regulations, and financing regulations. The selection of the three regulations is based on identifying problems in the field carried out.



**Figure 2.** Strategic priorities in increasing local salt prices in East Java.

Figure 2 explains the strategic priorities to increase local salt prices in East Java with analysis tools Analytical Hierarchy Process (AHP). The strategy that has the priority that needs to be done is the standardization of salt production with 0.475. The market regulation strategy with a value of 0.396 becomes the second priority undertaken. On the other hand, the financing regulation strategy becomes the last priority strategy carried out with a value of 0.129.

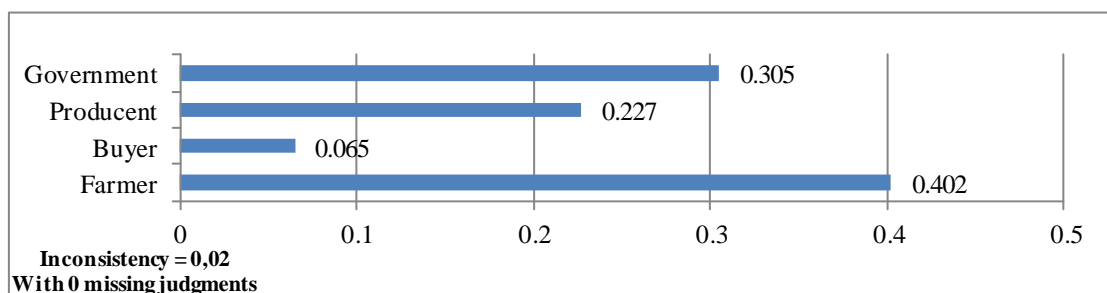
The strategy to increase local salt prices in East Java requires efforts in product standardization. Some local salt products in East Java still have standards that do not meet industry criteria, one of which is still high water content, resulting in poor salt quality. So that if applied to industrial raw materials, the quality of industrial products is also not optimal. However, in recent years through efforts to improve the quality of local salt by the central and regional governments, the quality of local salt in East Java has begun to show significant improvement. This result is supported by several laboratory tests conducted by the East Java Maritime and Fisheries Service. The results showed that the salt originating from the countries of origin of imports, namely Australia and India, was caused, the NaCL levels of Australian salt were 92.99%, and India was 91.04%. At the same time, the results of NaCL levels from the local salt of the people of Sumenep East Java showed a figure of 94.10%. In vaginal discharge, Australian salt reaches 53.73%, India reaches 35.43%, while local salt reaches 57.31%. Australian salt is 0.01% in water content, Indian 0.07%, and local salt is Sumenep East Java, which reaches 0.01% (Rozack, 2018). These results confirm that the current quality of local salt with various efforts made by the government in terms of production technology can improve the quality and competitiveness of local salt in East Java. The quality of salt is determined by the content of water, NaCl, and vaginal discharge. It is also seen from the content of sodium and sodium, which has benefits for the body for

daily activities (Drake et al., 2011). The high demand for salt in people's daily consumption and the needs of the food industries require the government to meet the specified supply to reduce salt imports and improve local salt producers' welfare.

Furthermore, alternative policies that can be prioritized are related to market regulation, which becomes the path for marketing salt products. Various salt-related policies have been issued to encourage contribution to improving the quality and competitiveness of local salt. The position of local salt, which has been in decline for almost two decades, has impacted reducing the welfare of local farmers. In line with these conditions, the government as a policymaker takes various strategic steps through the Minister of Trade Regulation as outlined in Permendag No. 58 / M-Dag / Per / 9/2012 related to the import salt trade system. The Regulation of the Minister of Trade regulates import restrictions that are only allowed for consumption and industrial salt. This regulation provides leeway and the opportunity to supply local salt to ordinary households to cover daily needs (Rochwulaningsih, 2013). Then, this regulation is strengthened by the government's existence of new regulation, namely through Government Regulation No. 9 of 2018 concerning Procedures for Import Control for Fisheries Commodities and Contingents as Raw Materials and Industrial Auxiliary Materials. Based on the Government Regulation, the import of fishery and salt commodities must follow the relevant ministers' recommendations. The action was taken to minimize actions that could harm and protect local salt farmers (Pangestu, 2018).

On the other hand, capital is also important for developing products and improving the quality of local salt in East Java. Capital constraints are faced by some salt farmers on a small scale. The role of banks is very important to encourage the movement of capital to local salt farmers to achieve the expected production capital. Banks can play a role through loan capital in business loans specific to salt farmers with lighter and less burdensome collateral. Also, the payment system can be adapted to the system and cycle of salt farmers from start to harvest.

Every main strategy has its agent priority. In this study, three main strategies are used to increase the price of local salt in East Java. First is the Standardization of Salt Production, then Market Regulation and Financial Regulation. Figure 3 explains the priority of agents in the standardization of salt. The standardization strategy for salt agent production, which has an important role, is farmers with a value of 0.402. The agent with the second priority is the government with a value of 0.305. Producers and buyers are the third and fourth agent priority with values of 0.227 and 0.065.

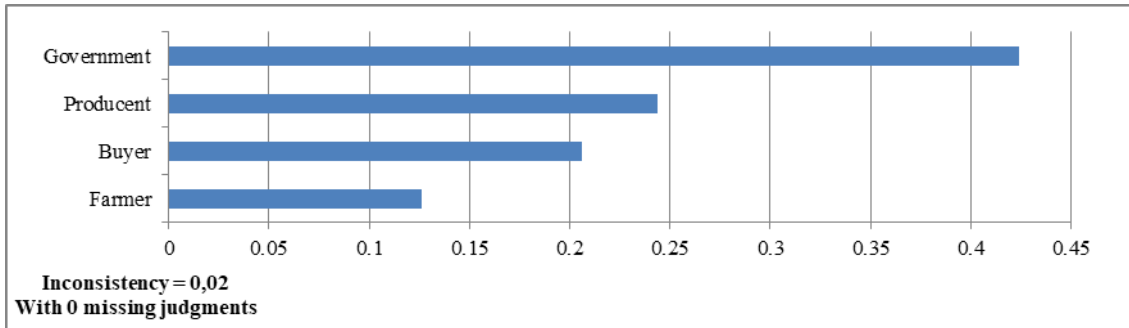


**Figure 3.** Priority of agents in the standardization of salt production

One of the problems salt farmers face in East Java is the lack of standardization of salt products produced to be less desirable by industry or producers. So to overcome this problem, it is necessary to have guidelines and socialization to farmers about how to produce good salt so that salt produced by salt farmers in East Java is more standardized



and can be accepted and following the criteria used by the industry. To realize this, the agents who have the main role in achieving the main strategy are farmers, the main actors in the salt production process. Farmers are expected to follow the guidelines for good salt production to have good quality. The agent that becomes the main actor after farmers is the government expected to create these guidelines.

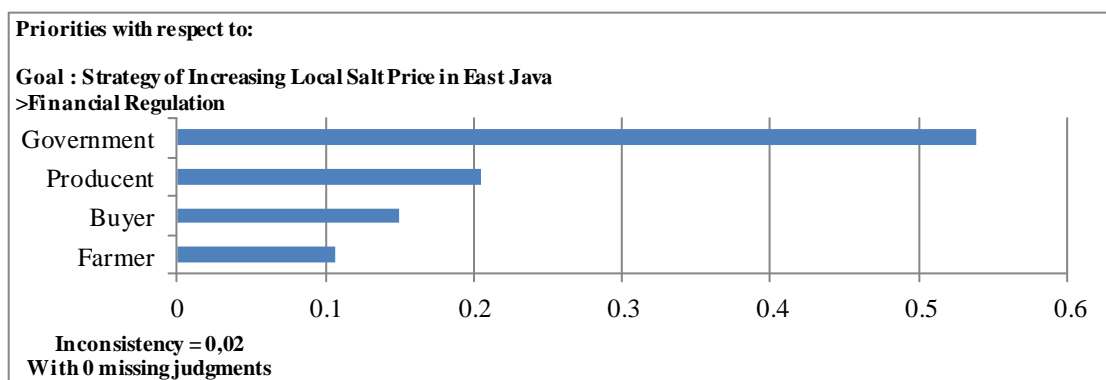


**Figure 4.** Priority of agents in market regulation

Agent market regulation strategy has the most important role in the government, with a value of 0.424. Furthermore, agents with an important role in the second market regulation are producers with a value of 0.244. Then the buyer and the farmer become agents with the third and fourth priorities with a value of 0.206 and 0.126.

One issue that arises and causes the low and unstable price of local salt is the large import quota allowed by the government (Muhandhis et al., 2019), which is utilized by certain agents so that there is a price game in the market. To minimize it, there is a need for a market regulation that regulates the percentage of salt used by the industry then limits the import quota of salt, which is increasingly narrowed, as well as farmers' protection in the form of determining the lower limit of local salt prices. To realize this, the agent who has the biggest role is the government.

The government has an important role in regulating the percentage of local salt use for industry parties, limiting the quota of salt imports, and determining the lower limit of local salt prices. With this regulation, it is expected that the level of demand and absorption of local salt will be greater and the price of salt on the market more stable. Then, the next most important agent is the producer. Producers have a significant role in the formation and implementation of market regulations. It is because producers are agents who can absorb local salt production in large quantities. Besides, producers are also actors and users of imported salt, so producer participation in realizing the market regulation is quite important.

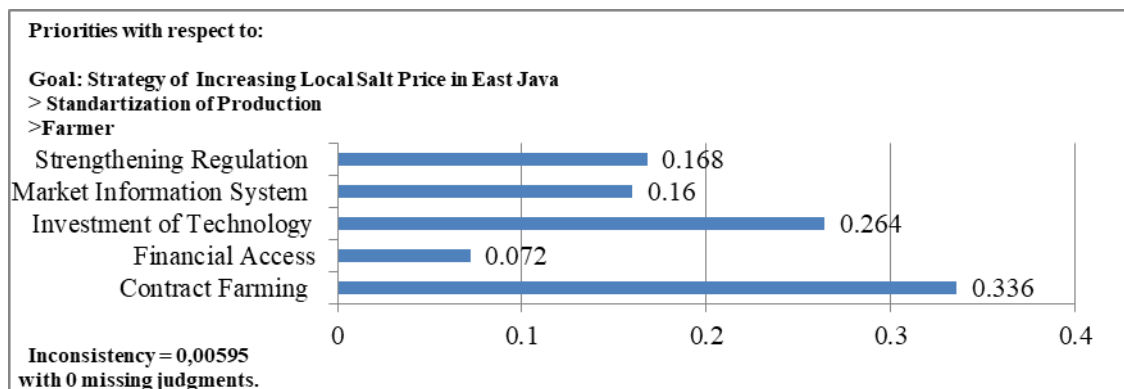


**Figure 5.** Agent priorities in financing regulations

An agent with an important role in strengthening financing regulations is the government, with a value of 0.539. The producer agent that has a value of 0.205 becomes the second priority. On the other hand, buyers and farmers are the third and fourth priorities with 0.150 and 0.106.

The emergence of the main strategy of financing regulation is motivated by the existence of a binding bond between farmers and middlemen caused by the lack of access of farmers to obtain capital loans. So to reduce this, it is necessary to have financing regulations involving certain agents. The analysis shows that the agents considered to have the most important role in creating financing regulations are the government and the producers. The role of the government in creating financing regulations for salt farmers in East Java will provide opportunities for farmers to access capital loans in financial institutions. It can make it easier for farmers to develop their salt cultivation and improve the quality of the salt they produce without having a relationship binding and detrimental to farmers. In addition to the government's role, creating financing regulations also needs support from producers who can absorb offers in salt harvest from farmers in East Java. Without absorption of large amounts of demand, the application of financial regulations will be difficult because of the ability of farmers to guarantee.

In addition to the main strategy that policymakers will carry out in general based on the analysis results, stakeholders also have the authority to choose and optimize their production. Based on the analysis results, farmers have several alternatives to increase the standardization of local salt production.



**Figure 6.** Farmer's strategic priority in salt production standardization

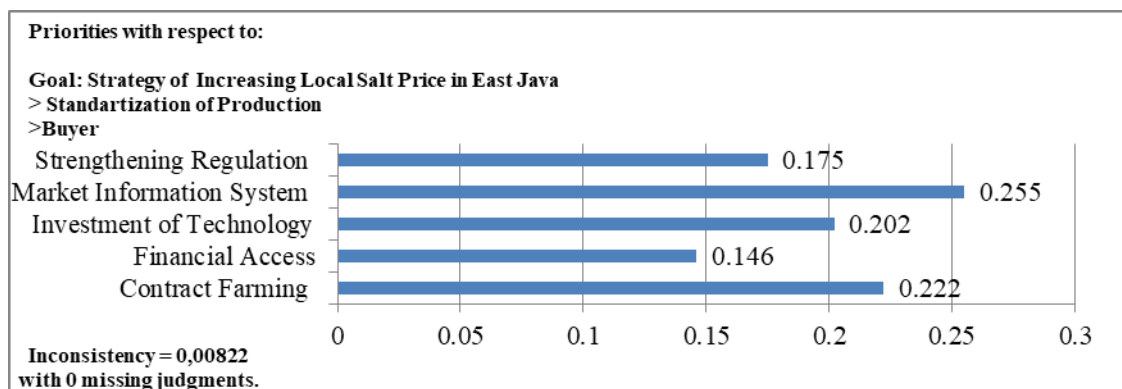
Priority strategies carried out by farmers to achieve an increase in local salt prices in East Java through standardization of production can be seen in Figure 6. The priority that farmers need to do by farmers in improving salt production standardization is contract farming. Strategy is contract farming a top priority because it has an index hierarchy of 0.336. The second priority that needs to be done is to increase technology investment with a value of 0.264. In the strategy of strengthening government regulation, it becomes the third priority with a value of 0.168. On the other hand, the market information system strategy with a value of 0.160 makes the strategy with the fourth priority. The index hierarchy value of 0.072 on the financial access strategy makes the strategy with the last priority.

To improve salt standards that need to be done by farmers, which is doing partnership or contract farming with companies so farmers will know the standards and

quality of salt as demanded by the industry or company. Contract farming as a form of institutional rules for local salt management in East Java will cover various aspects. Contract farming can be a reference, control, and control of salt farmers in conducting their production. Contract farming is bridging between farmers and companies or industries in increasing production results and maintaining production sustainability. With contract farming, farmers will know the standardization of production needed by the market, which meets the standards. They can break the marketing chain that started selling salt through middlemen, with the existence of contract farming that can be done directly with the company. It will reduce transaction costs and cut the marketing flow quite long so far.

In addition to the importance of contract farming, there needs to be a large investment, especially by the government, to maintain the sustainability of local salt production. This sustainability can be achieved when the quality and quantity of salt can follow the market's standards. It also becomes a benchmark for local salt competitiveness to increase competitiveness, impacting import performance that can be suppressed. Investment in technology has become very important, and this is because local farmers still use traditional methods, so that this will become an obstacle to increasing the quantity and quality of salt by market demand. The importance of technological investment, especially in salt production, will contribute to farmers obtaining high-quality salt. This technology is very important to be applied, especially in salt production and testing the quality of salt to obtain maximum results. High-quality production results will increase the price of salt to obtain higher income, which can increase welfare. Also, strengthening regulations, especially market regulation, is urgently needed because symmetrical price information is needed. There is no game in the institutional salt flow, especially in East Java. Transparency is needed especially concerning supply, demand, and prices in the market.

Another strategic priority that the buyer can carry out as one of the stakeholders that are quite instrumental in the local salt marketing chain is also very important to consider.



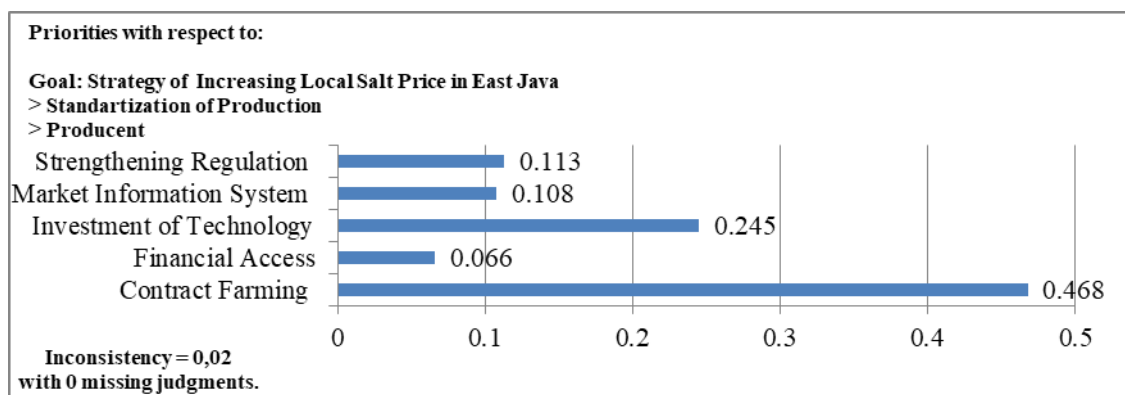
**Figure 7.** Buyer strategy priorities in salt production standardization

Figure 7 explains that the market information system strategy is the priority that needs to be done. It can be seen from the index value *hierarchy* of 0.255. Meanwhile, the contract farming strategy became the second strategy with a value of 0.222. Strategic technology investment has a value of 0.202, making the strategy a third priority. The strategy of strengthening government regulations and easy access to

finance with a value of 0.175 and 0.22 make the fourth and fifth priorities.

Based on the analysis results, the buyer has the first strategic priority regarding market information systems. Buyers as distributors and buyers need openness and full information about the market to determine the amount of price applied when buying salt from farmers. Besides, buyers also need contract farming, which will guide buyers regarding the openness of demand and supply of goods. Information disclosure is very important to know market conditions as well as the quality required. So the buyer can distribute the information to farmers so that it can be an effort to encourage the quality of local salt products.

Other stakeholders who have a very important role, namely producers, are especially related to the quality and standards of production. The analysis shows that contract farming is an alternative to a very powerful and dominant strategy that must be carried out.

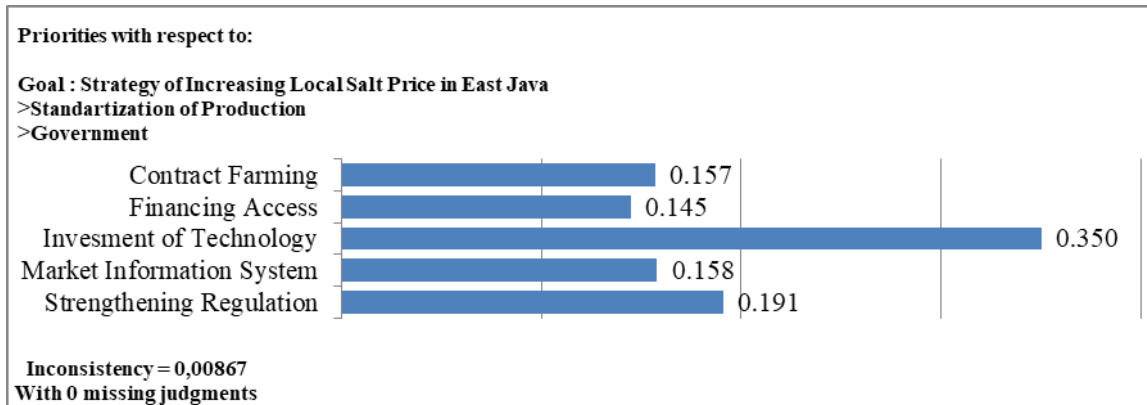


**Figure 8.** The priority of producer strategies in salt production standardization

Figure 8 explains the priority strategies that need to be carried out by producers in increasing salt production standardization. The priority strategy that needs to be done to improve the standardization of salt production for producers is contract farming. The strategy is to contact farming a top priority because the index value is hierarchy 0.468. The second priority made by producers is technology investment with a value of 0.245. Meanwhile, strategies to strengthen government regulations, market information systems, and financial access are the third, fourth, and fifth priorities with a value of 0.113, 0.108, and 0.066.

Contract farming is an action that is important to be implemented because it can be a solution to some complex problems that occur. Through contract farming, internal and external relations between all stakeholders can become more intense. The information obtained can also be easily achieved both from production, management, marketing, and the fulfillment of quality standards of production results. Another strategy that can be done through technology investment. Producers as partners of salt farmers have the right to make technology investment efforts to increase the quality of salt production according to the reference standard. This investment can be made according to a legal agreement made between the farmers and producers.

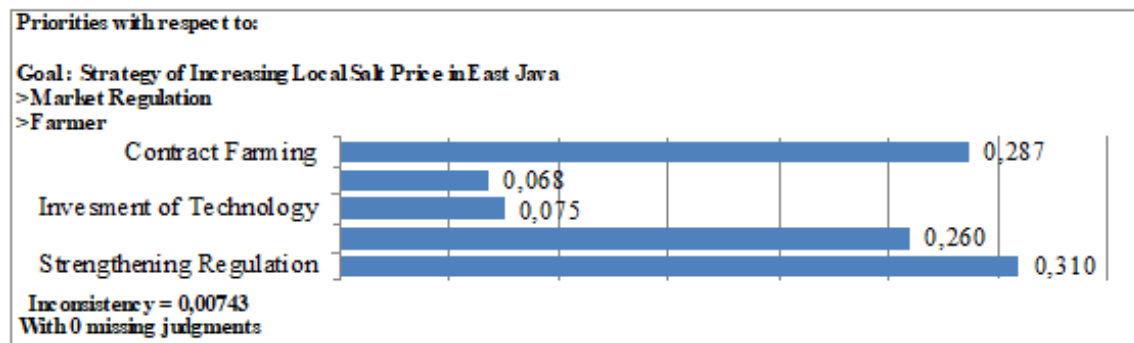
While from the government's side, as a policymaker that regulates the flow and management system and marketing of regional wealth, the government has the right to make strategies in improving salt quality standards from salt production.



**Figure 9.** Priority government strategies in salt production standardization strategy

Priorities undertaken by the government in increasing salt production standards are technology investments with a value of 0.350. The strategy to strengthen regulation becomes the second priority strategy with a value of 0.191. In the market information system becomes the third priority with a value of 0.158. On the other hand, the contract farming strategy becomes the fourth strategy with a value of 0.157, almost the same as the market information system strategy. The strategy with the last priority is financial access with a value of 0.145.

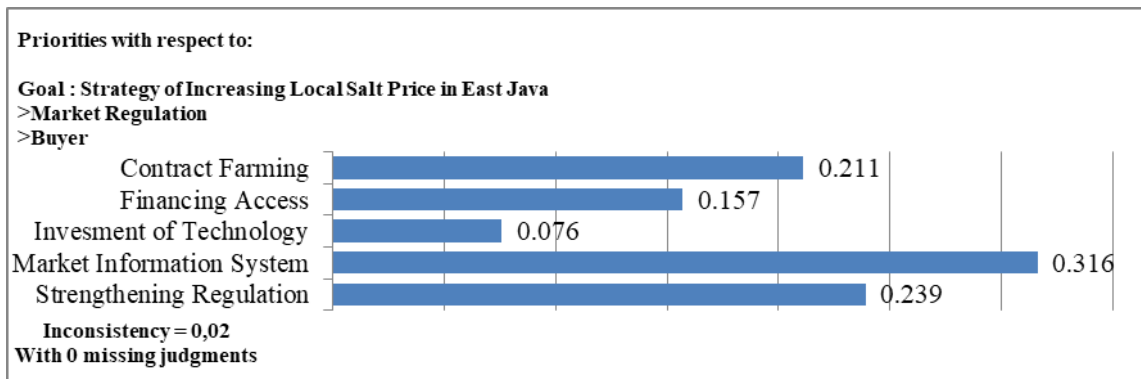
Based on the analysis results, technology investment is a powerful alternative for the government to meet the local salt quality standards. In recent years, the government has been trying to invest in technology to improve the quality and quantity of local salt production. Between investments that have been made also show success even though massively have not achieved maximum success. This result is supported by the performance of the local salt quality in East Java that can reach the desired standard based on the results of laboratory tests in the East Java Fisheries and Fisheries Service. In addition to technology investment, strengthening policies is a strategy that is quite a priority because the government has full power in managing policies appropriately and well following the existing field conditions.



**Figure 10.** Priority farmers' strategies in market regulation

Improving market regulations that need to be a priority strategy by farmers is strengthening government regulations. It can be seen from the index value hierarchy of 0.310. The second priority strategy in improving market regulation by farmers is contract farming with a value of 0.287. The index hierarchy value of 0.26 on the market information system strategy makes the strategy the third priority. Meanwhile, technology investment strategies and financial access have 0.75 and 0.68, making strategies with fourth and fifth priorities.

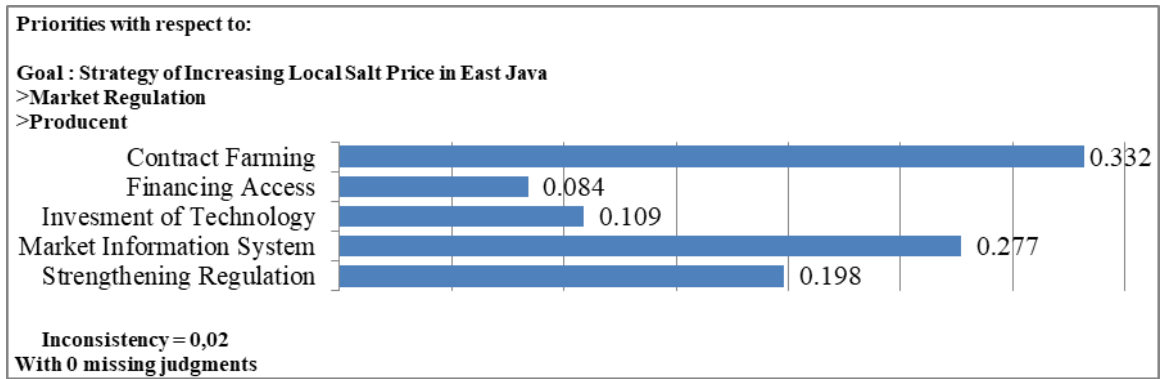
Farmers' strategic priorities are related to the first market regulation, which is strengthening government regulations, and the second priority is contract farming strategy. Strengthening government regulations related to market mechanisms is urgently needed by farmers because it is expected to protect the price of salt in the market so that farmers receive revenue commensurate with the management effort that they are working on. The strategy can be in the form of a minimum salt price in the market. Effective implications are linked to the protection of consumers and producers so that all parties involved receive mutual benefits. Also, contract farming is a second top priority for farmers in market regulation because one of the important drivers in increasing farmer production is contract farming (Niu et al., 2016). One of the existence of contract farming is that increasing farmer productivity reduces supply chain risk, streamlines marketing activities, facilitates farmers' access to a larger market, and increases total profits for companies and farmers (Wang et al., 2014). Therefore, contract farming can reduce crop uncertainty, facilitate the adoption of new production technologies, and increase output with lower production costs.



**Figure 11.** Priority of buyer strategy in market regulation

The buyer determines strategy priority that needs to be done in improving market regulation is a market information system. This condition can be seen from the index value hierarchy of 0.316. The second priority for buyers to improve market regulation is to strengthen government regulations with a value of 0.239. Meanwhile, strategy contract farming became the third priority with a value of 0.211. The fourth and fifth priority strategies are financial access and technology investment with values of 0.157 and 0.076.

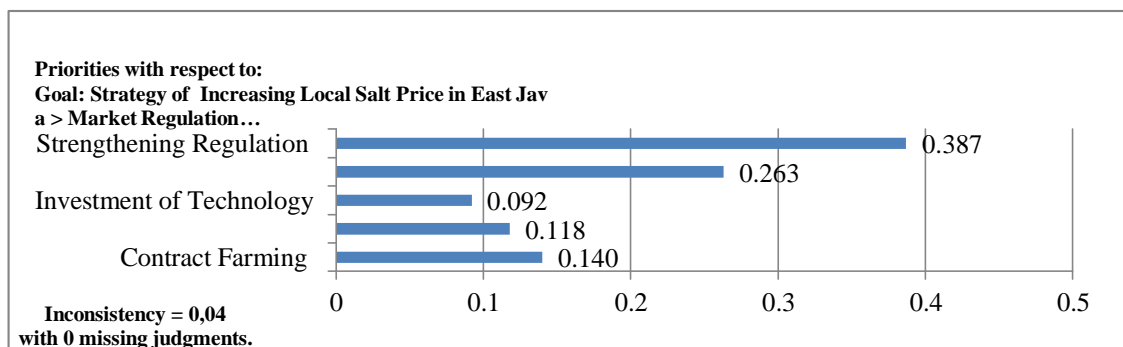
The buyer's priority is market regulation, the market information system strategy, and government regulation. The existence of a market information system forms a more complex, effective, and efficient supply chain to complete transactions and transfer information related to the ability to provide production needs (Gereffi et al., 2005). A market information system unites various data items into a coherent whole for decision-making needs, such as improving the planning, implementation, and control of product marketing (Food and Agriculture Organization of the United Nations, n.d.). Therefore, with the development of market information systems, buyers can easily obtain complete information about the products they want to buy based on the desired quality and quantity. Besides strengthening government regulations that are also strict in maintaining the market mechanism running, all parties involved in economic activities obtain benefits and benefits.



**Figure 12.** Priority of producer strategies in market regulation

The strategic priority producers need to improve market regulation is an increase in contract farming with a value of 0.332. In the market information system, strategy is the second priority, with a value of 0.277. The index hierarchy value of 0.198 owned by the strengthening of market regulation makes strategy a third priority. Meanwhile, technology investment strategies and financial access become the fourth and fifth strata with 0.109 and 0.084.

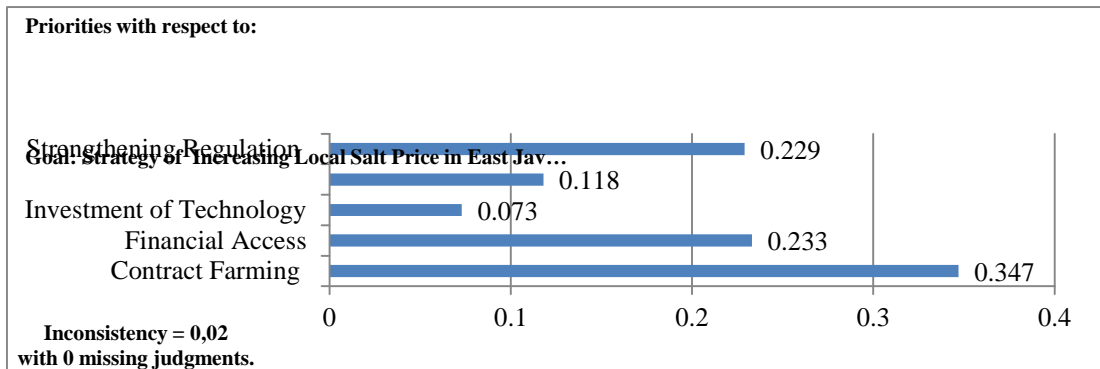
Producer strategy priorities related to market regulation based on AHP analysis are contract farming and the two market information systems. There is a binding agreement between the farmer and the production company or other parties involved in processing in contract farming. This agreement does not rule out the possibility of conflict to get a significant positive influence from contract farming. It requires appropriate institutional arrangements that can reach all parties, especially farmers (both farmers who are relatively poor and rich in their areas) (Ton et al., 2017; Wuepper & Sauer, 2016). Therefore, a party involved in contract farming needs to make an agreement that can benefit all parties. Next, the second strategic priority is a market information system that is very important for the production process because it involves information on the supply of raw materials (inputs) production.



**Figure 13.** Priority government strategies in market regulation

The government in improving market regulation has a strategic priority that needs to be done is to strengthen government regulation. The strategy of strengthening government regulation is a priority based on the results of the AHP analysis with a value of 0.387. The second strategy priority with a value of 0.263 is the market information system. The contract farming strategy becomes the third strategy with a value of 0.140. Meanwhile, financial access and technology investment strategies are the fourth and fifth strategic priorities with 0.118 and 0.092.

The priority of the market regulation strategy by the government is the strengthening of government regulations, and the second is the strengthening of market information systems. Strengthening government regulations is a top priority because this aspect is the basis or basis used as a reference for conducting economic activities without violations that can harm either party. In addition to regulations made appropriately and relevant by developing conditions, the government can also facilitate developing market information systems. Based on the explanation from FAO, the market information system has four components: an internal reporting system, a marketing research system, a marketing intelligence system, and a marketing model.

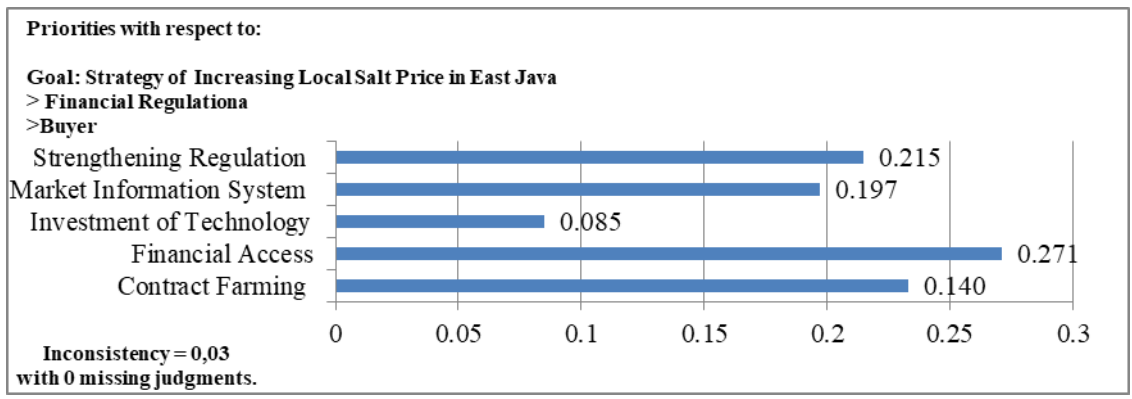


**Figure 14.** Priority farmers' strategies in financing regulation

Prioritas strategy carried out by farmers in financing is to increase contract farming. A value of 0.347 makes contract farming a top strategic priority. The second priority strategy is financial access with a value of 0.233. On the other hand, strengthening government regulation is the third strategy with a value of 0.229. Values reaching 0.118 and 0.073 make the fourth and fifth priority of the market information system strategy and technology investment.

The first strategic priority by farmers is related to financing regulations based on the results of the AHP analysis, namely contract farming, and the second priority is financial access. Contract farming creates a surplus, increases farmers' access to production, credit, and technology inputs, and increases output and productivity (Maertens and Vande Velde, 2017). Contract farming can reduce production risks between farmers and buyers. Contract farming will succeed in a supportive environment, which means that political, legal, and financial factors must support the private sector and contract farming (Kristianto, 2013). Next, the second priority is the financial access strategy for farmers, making it easy for them to obtain capital for the production process. With adequate financial access, it will support the performance and productivity of salt farmers because they have sufficient capital to process and supply production inputs.

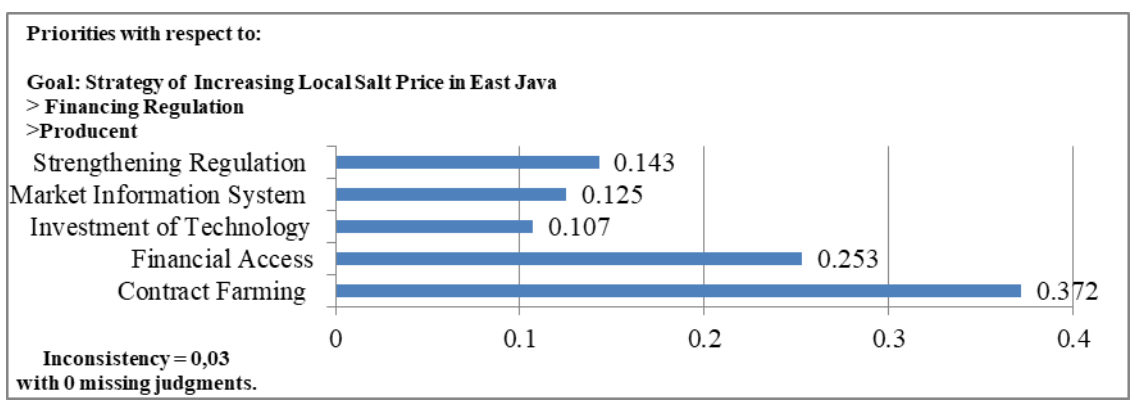




**Figure 15.** Priority buyer strategies in financing regulations

Figure 15 explains the priority of buyer strategies in financing regulation. The priority strategy according to the buyer in financing regulations is financial access with a value of 0.271. The second strategic priority in financing regulation for Bayer is contract farming with a value of 0.233. Strengthening government regulations became the third regulation with a value of 0.215. Market information systems and technology investments are the fourth and fifth strategic priorities with 0.197 and 0.085.

The buyer's strategic priority is related to the first financing regulation: financial access and second contract farming. Providing financial access makes it easier for buyers to obtain capital to purchase products so that the economic process can run smoothly. Furthermore, related to the strategy of contract farming for buyers for financing regulations, the buyer has the function of buying and marketing salt and bears the burden of production risk. The buyer shares the burden of production risk by investing in or investing in salt cultivation. There will be a good relationship between the farmer and the buyer because the buyer can foster and meet the needs of farmers. Contract farming that farmers need from buyers, such as the choice of planting location, preparation of nursery land and development of salt cultivation, technical assistance in cultivation, and production management to increase the production of salt farmers, is the profit gained by farmers. At the same time, the profit obtained by the buyer is that the buyer obtains a continuous supply with quality and quality by the agreement.

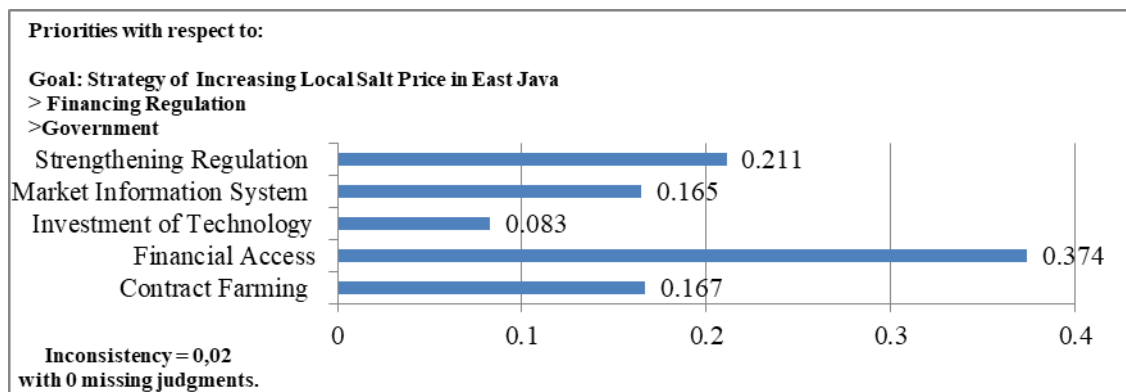


**Figure 16.** Priority of producer strategies in financing regulations

A priority strategy was undertaken by producers in strengthening financing regulations in contract farming with a value of 0.372. Financial access is the second strategy with a value of 0.253. Strengthening government regulations became the third regulation with a value of 0.143. Market information systems and technology

investment are the fourth and fifth priorities with values of 0.125 and 0.107.

The analysis results using the AHP method show that the priority of the producer strategy is related to financing regulations, namely establishing cooperation with salt farmers in East Java in the form of partnership relations. With a partnership relationship, producers can also provide capital for partner salt farmers with agreements that both parties have agreed. Then the second priority of producers is financial access. The partnership between producers and farmers shows that producers demand farmers to standardize the quality of salt used in their production activities. To achieve this, farmers need capital greater than previously. Therefore, financial access becomes a very important part for farmers (International Finance Corporation, 2014). Producers can act as a liaison between farmers and financial institutions to be able to obtain capital loans. Therefore, further schemes are needed regarding capital lending procedures involving three business actors. First, the scheme that can be used is that the producer only acts as a liaison without further involvement in the guarantee process carried out by farmers, including the level of the guarantor. Then the second scheme is with the intervention of producers in the capital loan process, the producer also has a role as a guarantor to financial institutions.



**Figure 17.** The government's strategic priorities in financing regulations.

The government in strengthening financing regulations has a strategic priority: easy access to finance with a value of 0.347. The second priority in strengthening financing regulations from the government is strengthening regulations. On the other hand, contract farming is the third priority, with a value of 0.167. Market information systems and technology investments become the fourth and fifth strategies with values of 0.165 and 0.374.

An alternative government priority in terms of financing regulations is to increase the ease for salt farmers in East Java to access finance, considering financial access is one of the important factors in agricultural activities (Corporación Financiera Internacional, 2011; Tulman, 2014). The government has an important role in connecting financial institutions and salt farmers in East Java to access and obtain capital loans from financial institutions. The ease of access to finance for salt farmers in East Java can be realized by government intervention in the formation of access by entering into agreements with financial institutions to provide access to capital loans for salt farmers in East Java. Access to finance is one factor that also determines the price of salt received by farmers. Therefore, with financial access being bridged by the government, farmers can have little power to determine the price of their harvest salt. It can also be supported by strengthening government regulations related to limiting the

number of salt imports and determining the lower limit of salt prices that farmers can accept. With this clarity, the financial institutions can trust and calculate the ability of farmers to repay capital loans.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

The problem with the price of salt is caused by the institutional problems of the actors who are not transparent, giving rise to information asymmetry, which causes the condition of the salt price to weaken. The salt price problems can be grouped into salt quality, salt demand level, and capital problems. A hierarchy was formed with three main policy strategies to increase local salt prices in East Java: product standardization, market regulation, and financial regulation. Based on the three main objective strategies, we included agents or actors involved in the three aspects. These aspects are farmers, buyers, producers, and the government. The final arrangement of the hierarchy is five alternatives that can be done, first farming contract, access to finance, technology investment, information systems, and strengthening regulations.

### Recommendations

The policy strategy for increasing local salt prices in East Java is the standardization of production, market regulation, and financial regulation. The agents or actors who have the most important roles in standardizing production are farmers and the government. The most important actors in market regulation are the government and then the producers. Governments and producers have the largest role in financial regulation. Furthermore, to standardize products, the strategy that becomes the main priority for farmers and producers is contract farming and technology investment. From the buyer side, the priority strategy is market information system and contract farming, while from the government side is a technology investment and regulatory strengthening.

In the context of the market regulation strategy, the policy priorities undertaken by farmers are strengthening regulations and contract to farm. In contrast, the policy priorities for buyers are the market information system and strengthening regulations. The alternative producers of policies that are priorities, namely contact farming and market information systems. The alternative government policies become priorities in market regulation, namely strengthening regulations and market information systems. Furthermore, alternatives that become policy priorities for farmers and producers in financial regulation strategies are contract farming and financial access. For buyers, the main priority of alternative policies is financial access and contract farming. From the government side, the alternative policy priorities are access to finance and strengthening regulations.

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