

# Tanah Karo Arabica Coffee Development Strategy

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## ABSTRACT

Coffee is a plantation that has the potential to be developed based on the level of consumption and world demand that shows a positive trend. One of the potential areas for coffee development is Karo Regency, North Sumatra. Karo Regency develops Coffee after the eruption of Mount Sinabung which affected the farmer's economy. Coffee cultivation is one alternative to recover the economy of Karo farmers. Therefore, this study aimed to strategy priorities for coffee agribusiness development of Tanah Karo Arabica coffee.

The analysis method that used are IFE/ EFE, IE to determine the existing position of Tanah Karo Arabica coffee agribusiness. Based on the analysis results, Tanah Karo Arabica coffee agribusiness is in quadrant II with moderate internal factors and strong external factors, so that the grand strategy for Tanah Karo Arabica coffee agribusiness is growth and build The result of AHP strategies are quality improvement of harvested and processed product of coffee, increasing production capacity of harvested and processed products, and establishing marketing and promotion agency of Tanah Karo Arabica coffee.

**Keywords:** development, Tanah Karo Arabica coffee, strategies

## INTRODUCTION

Coffee is one of high potential development commodity of plantation. World coffee consumption through 2017 to 2018 was 9.6 million tons. Indonesia is the second country after Brazil as the highest coffee exporting country with export growth rate 1.8% every year. (ICO 2019). In 2018, based on ICO (2018), coffee production in

Indonesia decreasing each year since 2015. Decrease production volume caused by the bad weather, stock unavailable, and high demand of domestic consumption that become an opportunity of improvement and development of coffee agribusiness. Indonesia has several production centre based on the highest production that are South Sumatra, Lampung, Aceh, East Jawa, and North Sumatra. North Sumatra is center of production of several single origin coffee such as Deli, Mandheling, and Sidikalang. The newest location for coffee agribusiness development is Karo Regency. Based on the analysis of FAO and BAPENNAS in order to economy recovery post volcano eruption that cause crop failure almost for whole horticulture and crops, coffee is the commodity that could survive on the impact of eruption (BAPENNAS 2016). Coffee was able to be the new livelihood source for farmers in Karo regency. After the analysis, coffee growing rapidly in Karo Regency.

After the development post eruption, cultivation area in Karo Regency increasing during 2015 to 2017 but the productivity decreased every year. This phenomenon could become a risk for coffee agribusiness in Karo regency. This indicates that farmers cultivation technique was far from the standard as cause of lack of knowledge and technology. Not only in cultivation, processing subsystem in coffee agribusiness also using traditional technique. End product from coffee farmers are husk that sell to middleman. The further processing done by few small to medium scale of

processing business. Farmers sold husk at range IDR 35 000/kg, while according to ICO if husk processed to greenbean worth to IDR 60 000/kg. Moreover, the quality of the coffee was not optimal based on the cupping point rate. Tanah Karo Arabica has disadvantage for flavor taints such as mold and fruit decomposition. Compared to the other coffee, Tanah Karo Arabica has not been promoted extensively and limited done in Karo Regency. Overall, agribusiness coffee of Tanah Karo Arabica has development potency. Based on this background, this research expected to formulate the alternative strategies to improve and develop agribusiness coffee in Karo Regency. The objectives to be achieved in this study to formulate the alternative strategies to improve and develop Tanah Karo Arabica coffee agribusiness in Karo regency.

## **LITERATURE REVIEW**

Indonesian coffee in global market has competitive advantages but in domestic level several disadvantage such as dominated by small farmers, not intensive management, and low production, processed product quality as cause of low adoption, domestic demand oriented while the consumption was low affected the whole aspect in coffee agribusiness. (Narulita et al. 2014, Wahyudi and Jati 2012). Coffee from Indonesia was known has unique taste and flavor. Coffee introduced while Arabian trader came to Indonesia and cultivation commercialized after Netherlands came. Coffee in several area in Indonesia developed in many way. Gayo, Lampung, and Java Preanger is some of coffee that belong to coffee specialty. There were a few differentiation in agribusiness coffee based on area of cultivation.

According to Wheelen and Hunger (2012) management strategy is instrument that used by organization to achieving goals and maintains existence and sustainable competitive advantages. Internal factors consist of strength and weakness while external factors consist of opportunity and

threat. Previous study analyzed that strength of agribusiness coffee including land area, farmers' age, and education, access to infrastructure, geography condition and transportation. Weakness of coffee agribusiness analyzed as low productivity, traditional technology, capital access, and coffee disease. Opportunities in coffee agribusiness as external factors consist of national economic system, market demand, policy, research and development institution and threat consist of coffee product from another area and country, quality standard, and another product of agribusiness (Hariance et al.2016, Zakaria et al. 2017, Sembiring and Sitanggang 2013). Previous study identify the alternative strategies to develop coffee agribusiness are extensification, product differentiation, optimization of government role, fair trade, labelling, incentive for technology adoption training, land extension, and agrotourism. (Petit 2007, Arifin 2013, Sarirahayu and Aprianingsih 2018, Reiders and Ingenbleek 2012, Manurung et al. 2016, Lyon 2013). According to Wheelen and Hunger (2012), development strategies formulation will trough several process. David (2013) explains 3 stages of strategy formulation:

### **The input stage**

In this stage, information about internal and external factors needed to be known. This stage identified and evaluated existing position of organization or company. In this case, internal and external factors of coffee agribusiness identified using each subsystem approach such as upstream, on farm, downstream, and supporting subsystem.

### **The Matching Stage**

These stages aimed to formulate the alternative strategy based on combination of each factor in internal and external factors.

### **The Decision stage**

The last stage will obtained the priority strategy based on alternative strategies formulation. The decision stage used Analytical Hierarchy Process (AHP). Saaty (1993) formulate AHP as decision making technique for complex issues based on men

logical thinking. The stages in AHP including:

### **Hierarchy decomposition**

The issues decomposed to several parts hierarchically. In this study, the hierarchy arranged by goal, factors, actors, and alternatives.

### **Pairwise Comparison**

Comparison was done by compare each of element in each level of hierarchy. Comparison used range in 1-9 to get a picture of the relative influence of a part of the hierarchy on the purpose of the problem. The comparison is done by pairing one element with another element that might produce differences in qualitative terms: equal, weak, strong, very strong, and absolute. Comparisons are made between elements at the same level that will affect the level above it which would generate the priority. In the same element that is compared is given a value of 1 and the elements that have been compared so if it is compared upside down will produce an inverse value as well. These values are then solved by solving mathematical equations.

### **Consistency Ratio**

Each element is then logically grouped and ranked consistently according to specified criteria. Consistency becomes very important to determine the validation of expert opinion.. The consistency ratio value must be less than 10%.

$$Xg = \sqrt[n]{\sum Xi}$$

Xg = geometric mean

n = number of respondents

Xi = comparison by the i respondent

## **METHOD**

The objects of this study are primary and secondary data. Primary data obtained from expert in-depth interview and stakeholders in Tanah Karo Arabica coffee agribusiness. The secondary data obtained from literature review based on government data, research publication, internal, journal, and books. Data processing method used in this study are qualitative methods such as internal factors evaluation (IFE), external factors evaluation (EFE), SWOT matrix,

and Analytical Hierarchy Process (AHP). This analysis used application tools such as Ms. Excel and Expert Choice.

IFE and EFE method used to explain internal and external factors of agribusiness coffee in each subsystem. Identification then formulate to strength, weakness, opportunity, and threat. The result of IFE and EFE obtained the existing position of Tanah Karo Arabica coffee agribusiness that formulated using IE matrix. IE matrix consisting six quadrant which have generated six various of grand strategy.

The steps of IFE and EFE matrix are:

1. Sorting the factors in accordance with strength, weakness, opportunity, and threat based on the condition of Tanah Karo Arabica Coffee agribusiness.
2. Weighting in range of 0.0 up to 1.0. Total of the weight is 1.
3. Rating 1 and 2 for weakness factors, 3 and 4 for strength, 1 up to 4 for opportunity and threat factors.
4. The multiply result of weight and rating is weighted score
5. The sum up of weighted score turns out as total weighted score.

The next step is arranging the SWOT matrix to formulate the alternative strategies. SWOT built by combine strengths and opportunities, strengths and threats, weaknesses and opportunities, weaknesses and threats. The result of the combinations then used as element of analytical hierarchy process. AHP in this study consisting four level, the first level is goals to achieved, the second level is factors that determine the agribusiness development, the third level is actors or stakeholders that influence, and the last level is the alternatives strategies that obtained from SWOT analysis. AHP determined the priority strategies that need to be done refer to the whole hierarchy in Tanah Karo Arabica coffee agribusiness.

## **RESULT**

Karo Regency is one of agriculture center in North Sumatera. Agriculture in Karo Regency consisting several sub-sectors

such as crops, horticulture, plantation, fishery, and livestock. Karo Regency is a highland that suitable to Arabica coffee growing. Karo Regency Farmers started cultivate Arabica coffee post eruption of Sinabung Mt that caused severe crops failure. Government, BNPB and FAO researched in order to recover the household economy that coffee is resistant from the impact of eruption. BNPB and FAO then enforced training and assistance to farmers to plant coffee as the new main commodity. After that until 2019 coffee development grow fast and production increased significantly. In other hand, coffee development also caused by downward trend of orange cultivation that once was the main focus commodity in Karo Regency as known as 'Jeruk Medan'. Conversion from orange to coffee obtained by flies disease that handled costly and impact the farmers income. Coffee cultivation cost was much lower than orange. Complexity and higher time spent of orange cultivation also impact the conversion to coffee (Ginting et al. 2018). In 2018, coffee farmers in Karo Regency were 13 135 household with 9 178 Ha area. By 2020, Tanah Karo Arabica Coffee already had the Geographical Indication (IG). Geographical Indication was the guarantee that only coffee from Karo Regency that could using Tanah Karo Arabica Coffee brand. This became the protection guarantee from another area coffee product and value added for Tanah Karo Arabica coffee in order to escalate the global or domestic market trust.

Internal and external factors of Tanah Karo Arabica Coffee agribusiness indentified in each subsystem. The result showed that internal factors included in strengths were: potential area of cultivation, ideal geography condition, input accessibility (seeds, fertilizer, agriculture tools), accessibility of capital, infrastructure and transportation accessibility, and unique taste of coffee whilst internal factors that included in weaknesses were unskilled human resources, no institutions in each of the subsystem, high wages, short adoption

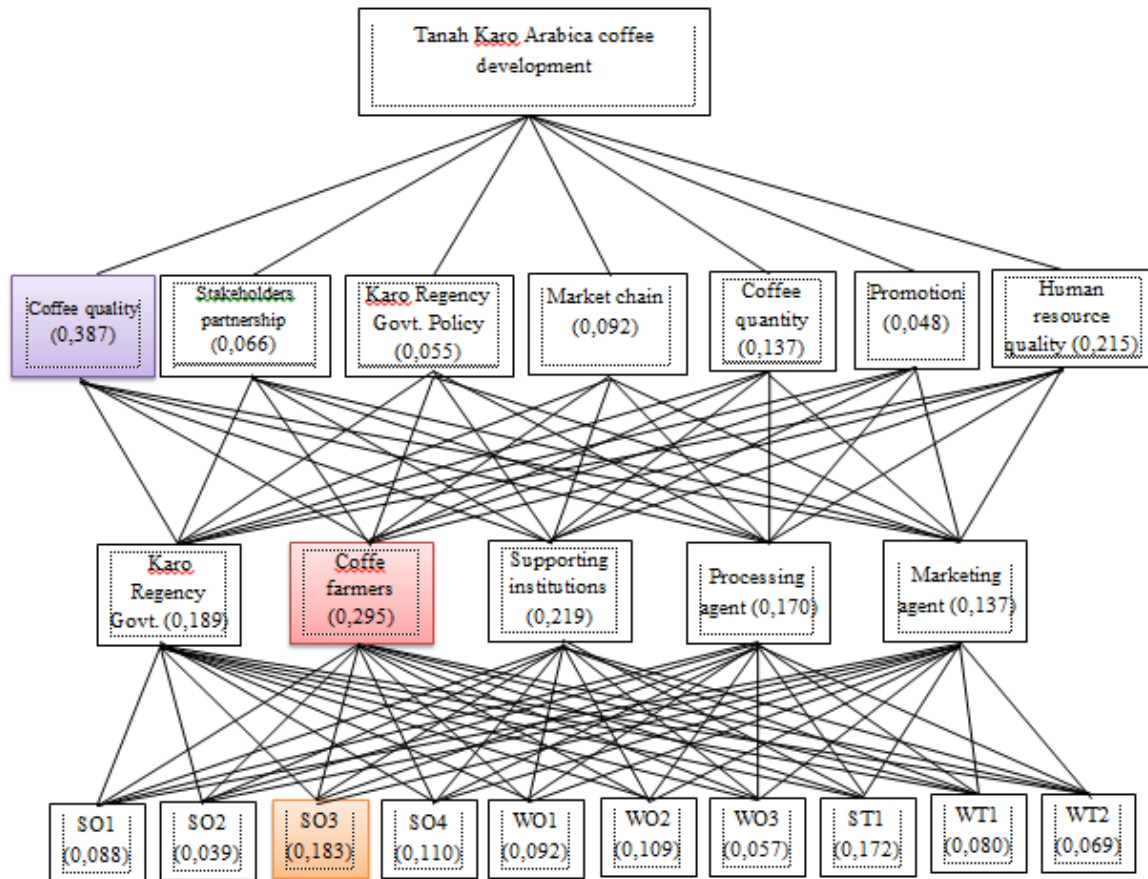
of science and technology application, short of alignments of Karo Regency Government, short of training and counseling, high usage of pesticide, oligopsoni market system. Total weighted score of internal factors based on IFE was 2.41 which categorized as moderate.

External factors included in opportunities were positive trend of domestic and international coffee market, development of culinary and tourism in Karo regency, Center Government policy specifically for micro and intermediate business scale, issue of coffee impact on health, export standardisation policy from another country, marketplace development, and Pesta Tahunan culture of Karo Regency. Threats in Tanah Karo Arabica Coffee agribusiness were another area coffee products, forgery and blending, currency, and coffee tax policy. Based on EFE matrix, the total weighted score was 3.02 that categorized as strong. The combination of total weighted score of IFE and EFE generate the existing position of Tanah Karo Arabica coffee agribusiness that classified in second quadrant. In second quadrant, the grand strategy for developing a business was growth and build. This mean that Tanah Karo Arabica coffee agribusiness had not reach the optimal utilization of strengths and minimize the weaknesses whilst has responded the opportunities and managed the threat maximally. Growth and build strategy consisting of market penetration develop market share, and product development. In operational side, forward and backward integration and horizontal integration were needed to be done.

The next stage was using SWOT matrix to formulate the alternative strategies of combination of internal and external factors. Combination of strengths and opportunity (SO) conducted five alternatives strategies namely build partnerships between farmers and processors/marketers, develop agrotourism, improve the quality of harvests and processed products, develop marketing and promotion agency for

processed Karo Coffee products. Combination of strengths and threats (ST) generated increase the capacity of harvest production and processed Karo coffee strategy. Alternative strategy by combined weaknesses and opportunities (WO) namely training following SOP for coffee farmers, establishing production cooperative for farmers, bridging the consolidation of the

provincial and central government with farmers and processors. And the last combination of weakness and threats were establishing identity labeling policies on Karo coffee harvest and processed product, and establishing storage facilities for harvested coffee.



Picture 1. Hierarchy Process of Tanah Karo Arabica Coffee Agribusiness  
Source: processed by researcher (2020)

The analysis continued by arrange the hierarchy in Tanah Karo Arabica coffee agribusiness. Hierarchy contain four level based on in-depth interview with expert and stakeholder. The first level was goal of the main purpose that needed to achieve, in this study the goal was develop Tanah Karo Arabica coffee agribusiness. The second level was factors that influence the goal. The factors namely coffee quality, partnership between stakeholders, Karo Regency government policy, coffee quantity, market chains, promotion, and

human resource quality. Based on weight score the priority of factors that influence to achieve the goal sequentially were coffee quality, human resource quality, coffee quantity, market chain, stakeholders partnership, Karo regency government policy, and promotion. The third level of hierarchy was actors that effect to achieve the goal were Karo Regency government, coffee farmers, supporting institutions, processing agent, and marketing agent. Sequentially the factors priorities were coffee farmers, supporting institutions, Karo

regency government, processing agent, and marketing agent. The fourth level of hierarchy was alternative strategies that conducted by SWOT matrix. The priority strategies sequentially were improve the quality of harvests and processed products, increase the capacity of harvest production and processed Karo coffee strategy, develop marketing and promotion agency for processed Karo Coffee products, establishing production cooperative for farmers, training following SOP for coffee farmers, build partnerships between farmers and processors/marketers, establishing identity labeling policies on Karo coffee harvest and processed product, establishing storage facilities for harvested coffee, bridging the consolidation of the provincial and central government with farmers and processors, develop agrotourism.

## **DISCUSSION**

In the first level of hierarchy 3 of the priority factors that determined the main goal including coffee quality, human resource quality and coffee quantity. The quality of coffee produced would affect the competitiveness of products with other similar products. The quality of coffee produced depended on the cultivation and processing that is carried out. The quality of coffee produced coupled with the unique taste of Tanah Karo Arabica coffee would add value to the quality and price of coffee. The quality factor of human resources was the second priority in the development of Tanah Karo Arabica coffee agribusiness. The quality of human resources could be known from the skills and knowledge by the actors in Tanah Karo Arabica coffee agribusiness, the mindset of business objectives is also part of the quality of human resources. The third priority is the quantity of coffee produced. Large quantities of coffee would match the market needs so that marketing becomes more efficient without any shortages of stock.

The most influential actor in the development of coffee agribusiness was farmers. Farmers had priority influence

because farmers were the producers of the very first products in coffee agribusiness. The farmer determined the quality and quantity of coffee produced by their knowledge and skills. The actor who had the second biggest influence was the supporting institution. Supporting institutions could become facilitators for the introduction of technology, improvement of skills and knowledge to farmers and processors. Supporting institutions could also develop business scale with access to capital. Supporting institutions also became facilitators to build wider networks outside the scale of Tanah Karo Arabica coffee agribusiness. The third priority is the government. The government had the authority to determine policies, intervene, and become a forum for every actor in coffee agribusiness. The government also had a role in creating an investment climate regarding the ease of procedure in coffee agribusiness (Tanan 2012).

The priority strategies of that concluded in this study were to improve the quality of harvests and processed products of Tanah Karo Arabica coffee, increase the capacity of harvest production and processed of Tanah Karo Arabica coffee strategy, develop marketing and promotion agency for processed Tanah Karo Arabica coffee products. The ideal geographical situation must be utilized along with the accessibility of inputs and capital to improve the quality of the harvest and processing of Tanah Karo Arabica coffee. Increasing the quality of the harvest needed to be done so that farmers' products and processing product would match with the standards of the market, especially the export market. Some countries applied several standards for cultivation so that products were able to enter their countries. Improving the quality of coffee would provide advantages to be able to compete with coffee products from various regions to match with the demand for domestic and international coffee. Quality improvement could also be used to take advantage of marketing and promotion opportunities

through emerging markets. This strategy can be carried out in an integrated from upstream to downstream (Arios 2019, Hariance et al. 2016). Improving the quality of harvests and processed products could be done by collecting data on the harvested and processed products produced by farmers and processing to determine quality based on standards. By knowing the quality position, improvements able to formulate for each indicator that builds the quality of products both coffee harvested and processed. Quality improvement could be done by evaluating the cultivation process, post-harvest, and processing. The evaluation will be used as a reference to improve and enhance the skills and knowledge of the actors involved. Skill utilization and knowledge accompanied by the introduction of technology could be done by maximizing counseling and training. Intention of farmers to improve the quality of crop yields can be done with the application of Good Agricultural Practices of coffee (a good quality of varieties, pruning of containers, planting and trimming of protective trees, making rorak, loosening soil, organic fertilizing). Awareness for the application of GAP is enhanced by Government intervention in pricing based on quality and cultivation techniques. Farmers and processors must be introduced to several certification systems that include cultivation and processing standards which affect the price to be received. The price difference will encourage farmers to produce premium quality coffee so that the mindset of coffee cultivation can change to become business oriented. Seed quality will also affect the quality of coffee produced, so research needed to be done to produce superior varieties of seeds that are appropriate for cultivation according to geographical conditions of Karo regency. In addition, certification of seeds for institutions or seed entrepreneurs could also be carried out so that the seeds produced are qualified. Partnership between farmers, supporting institutions, especially counseling NGOs, processing agents, and the government must

be established so that this strategy could be implemented to achieve the main goal (Wahyudi et al. 2020).

The strategy of increase capacity of harvest production and processed Tanah Karo Arabica coffee aimed to utilize the land that potential to plant with coffee by farmers with an ideal geographical situation, ease of accessing inputs such as seeds, fertilizers, and agricultural equipment, and ease of accessing capital to increase coffee husk production and other processed coffee products. Increasing quantity was also an effort to overcome the threat of competition from products produced in other regions and minimize blending or counterfeiting by individuals due to a shortage of coffee supply. By increasing production capacity, it is expected to increase tax revenues in accordance with tax policies imposed by the government and provide economic benefits to coffee farmers and entrepreneurs. This strategy will also influence coffee prices to remain stable (Arios 2019). According to Mugendi et al. (2015) the increase of harvested coffee quantity was influenced by the adoption of coffee certification standards produced by farmers. This certification can affect changes in cultivation patterns that have been carried out by farmers. Changes in cultivation patterns will affect the long-term sustainability of coffee agribusiness (Anh et al. 2019, Ibnu et al. 2019, Nguyen and Sarker 2018). Utilization of natural potential such as organic fertilizer derived from livestock manure can increase the net weight of coffee beans. Increasing the quantity can be done by integration between farms and coffee plantations (Suyasa and Parwati 2015). Improving the quality will increase the selling price so that it becomes one of the stimulation for farmers to increase their production and start utilizing their another land by cultivating coffee. Increasing the quantity of coffee can also be done by local government regulations on easier access to capital for farmers, processed entrepreneurs, and marketing actors, infrastructure improvement, creating

a good investment climate, and ease of business establishment licensing for processed entrepreneurs and marketing actors.

The aimed of develop marketing and promotion agency for processed Tanah Karo Arabica Coffee products strategy is to introduce Tanah Karo Arabica Coffee which has a unique taste in order to expand market share. This introduction is an effort to promote and sell products produced in Tanah Karo Arabica Coffee. The establishment of marketing and promotion agency implied to take advantage of opportunities for high demand for coffee, the development of the culinary and tourism industry, and the development of the marketplace as one of the media that can cover unlimited distance and time. Establishment of marketing and promotion agency to introduce quality owned by Tanah Karo Arabica Coffee with a broader scope by using technology. This strategy can be done as to connect the actors who have products to sell and promote with customer. This strategy is also an innovation for actors to be able to follow market and technology developments (Fatmawati et al. 2018). This strategy can also be done by developing a retail business that focuses on coffee that will affect predetermined standards and certifications, shorten the marketing chain, and have an impact on sustainable businesses (Elder et al. 2014). Karo Regency Government must play a role to cooperate with coffee exporters as buyers of processed karo coffee products.

## **CONCLUSION**

The three main priority strategies sequentially were improve the quality of harvests and processed products, increase the capacity of harvest production and processed Karo coffee strategy, develop marketing and promotion agency for processed Karo Coffee products. The limitation of this research is that it only reaches the formulation of priority strategies for developing Tanah Karo Arabica Coffee, without implementing the strategies and

evaluating the strategies that have been carried out. Therefore, further research can continue until the evaluation process.

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