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Research Article

Value Chain of Coffee Farming Business Development

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ABSTRACT

The problem faced by Indonesian countries in the export sector for agricultural commodities is the decline in the production of Arabica coffee and Robusta coffee. One of the problems with the decline in coffee production is the income of farmers and this is the cause and the processing of the coffee industry in the region does not contribute to improving the selling price of farmers' green coffee beans. Coffee producers in Indonesia (96.19%) have a farmer background. It is hoped that applying the analysis of the GVC (Global Value Chain) so that it can provide an overview of changes in the structure of the order starting from farmers to consumers. It is hoped that this paper will provide a solution on how to improve farmers' income and also improve the value chain of coffee farming. In improving the welfare of coffee farming in Indonesia, it is necessary to improve prices that can be determined by the government so that a win-win solution process In improving the welfare of coffee farming in Indonesia, it is necessary to improve prices. It can be determined by the government in order to have not only positive impact on farmer's income, but also provide benefits for the company. Efficiency in the value chain has significant benefits on coffee production as well as quality, thereby benefiting state and local governments. With the welfare of the farming community, it can change the minds of the younger generation to become and farmers don't look down on them to reduce the bad impact of the farmer crisis which is very important today.

Keyword: Toraja Arabica Coffee, Value Chain, farmer's income

INTRODUCTION

Indonesia is the fourth largest coffee producing country in the world, which produced 7% of coffee production in the world in 2017/2018, ICO (2019). There was a 3.6% annual increase in production between 1990 and 2018 although the average fluctuated, ICO (2019). The reason behind this increase was also an increase in ownership of the land area by 2.35%. From 1980 to 2017, with land used for agriculture, Statistic Indonesia (2018). Total coffee production for the following years is expected to decrease from 100,000 bags to 10.6 million, with the largest loss

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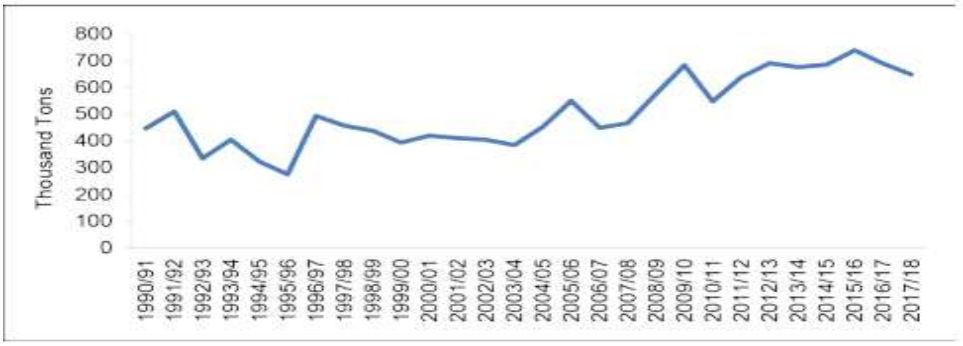
occurring in the output of Robusta coffee. Robusta coffee production itself is also expected to reach almost 9.4 million bags devoted to most growing conditions which have a beneficial impact on areas that have plantation areas in the lowlands in the parts of the region located in the province of South Sumatra and also in the province of Java, which was the production of this type of coffee is about 75% planted. In general, the planted area and coffee production in Indonesia during the last 10 years between 2002 and 2011 did not increase but showed a declining trend of 4.6%, while the demand for coffee is currently starting to increase and is currently at 2.5% to 3.5%, GAEKI (2015). One of the impacts of the decline in coffee production resulting from heavy rains in North Toraja, where around North Toraja as one of the producers of Arabica coffee, there will be a risk of reducing crop yields, with the estimated production falling to almost 1.3 million sacks. Final production stock is also expected to be reduced by half to only 900,000 bags, to maintain strong demand for coffee in the export market. In recent years, local governments have made efforts to distribute coffee seeds to farmers, especially in mountainous areas, which aims to ensure horticultural products with coffee and also to provide seeds that support land conservation. The explanation in this paper can provide an overview of the chain. the value that emerges in the Arabica coffee agricultural sector, both in terms of livelihoods in coffee farming communities on the island of Sulawesi. By explaining the implementation of the coffee relationship as an intervention from coffee-producing areas, and the impact of the involvement of local actors who play a role in the value chain. There is a need for improvements that can be used in various global value chain interventions.



Data From: ICO 2019.

In the last 20 years, Brazil, Vietnam, and Colombia have become countries that make coffee the main commodity and exporter in the global market. Brazil and Colombia have their history where they have been producing coffee for more than 2 centuries, and with that experience, Brazil became the dominant country for coffee commodities in the global market, Ponte (2005), the country Vietnam has a significant increase significantly positioned itself as a leading exporter, by creating a strategy that has high yields, intensive, Robusta coffee production, has an important impact on the global market. The combined production power of Brazil has contributed to the decline in global coffee prices and also the dominance of purchasing export products in developed countries.

The government projects that by the end of 2020 the contribution of small businesses to Indonesia's export volume can increase by 18% from the previous year in 2019 of 14% Including the contribution of small businesses to the national Gross Domestic Product increased by 61%, the entrepreneurial ratio rose to 3.55%. The target in 2024 is that the export target of small businesses must be more than 30.20%, which contributes to the Gross Domestic Product of 6%, while the

entrepreneurship ratio is expected to reach 4%, Kusdiyanti (2020). Currently, there are around 60 million small business entrepreneurs, or about 99% of the total national entrepreneurs, but have not contributed significantly to national economic growth, Irawan (2019). compared to large businesses which are only 1% but have a contribution to Gross Domestic Product of 40% and exports of 80%. As for the workforce, small businesses managed to absorb 121 million workers. This figure is around 96% of the absorption of Indonesian workers in 2018 which amounted to Rp. 170 million, Bank Of Indonesia (2019).

Global Value Chain

Studies conducted by world financial institutions such as the World Bank show that in general, the contribution of small businesses in Indonesia to the export sector that implements the global value chain (GVC) is still low. This low participation is due to limited resources such as finance, management and technology, as well as access to market information, Anam (2019) . Small businesses engaged in the plantation sector can play a major role in the creation of Gross Domestic Product through export commodities with the GVC concept. One of the plantation commodities that has been one of the primadonnas of Indonesian exports for hundreds of years is coffee products. Indonesia's total coffee production in 2015 was 636.4 thousand tons, increasing to 722.4 thousand tons in 2018, BPS (2020). most of the coffee production is the result of Green small businesses (small businesses engaged in the agricultural and plantation sectors). Large private companies and State-Owned Enterprises only produce about 4-5% of the total coffee production throughout Indonesia, so that an important role in Indonesia's coffee exports is excellent.

In the last 15 years, although the amount of coffee production has increased, the Indonesian coffee export market has shown a declining trend of interest, from 5.1% in 2005 to 3.8% in 2015, Rosiana (2017). The decline in coffee exports was accompanied by a shift in Indonesia's coffee export destinations. In 2005, the United States, Japan, and Germany were the main destinations for Indonesia's coffee exports, but now it has fallen to around one-third of Indonesia's total coffee exports, Jamil (2019). Part of the reason is the decline in competitiveness due to the adoption of stricter food safety regulations in the United States, EU, and Japan, as well as the adoption of a green economy and the principles of sustainability of the SDGs. In Germany, for example, these SDG-related regulations have contributed to a 30million kilogram decline in imports since 2009. This trend has shifted Indonesia's coffee export destinations to meet stronger demand from ASEAN markets, such as Malaysia and Thailand, as well as other major regional countries. economy. such as Italy, Russia and Egypt, OECD (2018). However, the latest trend shows that exports to Italy have shown a significant increase, this is because Italian coffee makers and coffee sellers (Cafes) use Indonesian coffee blends that contain the least amount of pesticide products produced by coffee from other countries, TSA (2017). Entrepreneurship of coffee farmers as small businesses has a direct role in sustainable economic growth, in line with the theory developed by Kirzner, Hausmann and Rodrik, explaining that entrepreneurship is a very important actor in supporting the advancement of the discovery process needed to generate market growth and stability, Patrick (2017). One example that can be seen is one of the entrepreneurs for small businesses who are the mainstay of their respective countries, examples of small businesses are in garment production in Bangladesh, ornamental flowers located in Colombia, and also in one of the startup business developments in Bangladesh. information technology (IT) in India. From the

previous explanation, it can support that entrepreneurship can generate growth by creating growth and also new economic opportunities, and also encourage competition and also encourage increased productivity in an economy within a country, Irawan (2020). Although import requests have begun to be directed to developed countries, developing countries have started to demand green coffee imports to fulfil their domestic demand quotas. For countries that increased green coffee imports between 2011 and 2016, namely Malaysia, Turkey, China and Thailand, USDA (2017), for these countries which control less than 10% of the global market, in general, import demand is dominated by Robusta beans, ED&F (2014). Demand for arabica coffee beans itself is predicted to experience growth and is expected and will continue to increase along with increasing income and knowledge of coffee, especially demand in China. Take Starbucks, for example, which is aggressively expanding its business in China and is targeting to open 500 additional stores annually in the future, UNComtrade (2017). The phenomenon of the production network or value chain (GVC) is based on the theory of fragmentation, known as division. production across markets, regions and countries. Fragmentation theory focuses on various locations of the production process and the location of assembling as its core, Kano,T (2020).

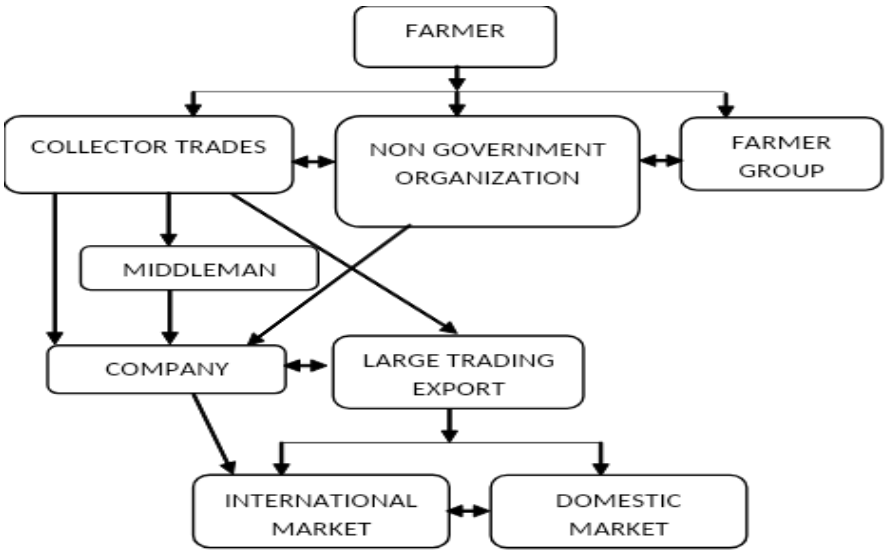


FIGURE 1. VALUE CHAIN OF COFFEE IN NORTH TORAJA

Of the several actors involved in the coffee supply chain, especially in North Toraja, namely cooperatives. From data from the Central Statistics Agency (2014), only 0.78% of coffee farmers in Indonesia sell their crops to cooperatives and other farmers sell their crops to large companies and traders (88%). In terms of quantity, around 2.6% of the production of cherry seeds or peeled cherries from farmers is sold to cooperatives and the remaining 88% of farmers sell to companies or traders. Although the influence and role of cooperatives are not too influential, some advantages can be seen from the involvement of these cooperatives, Hendar (2010), namely: 1. Cooperatives are part of non-governmental organizations that have members, which means that cooperatives have a role in gathering people who have roles and activities in the same part of the economy, and have a good goal of jointly forming a company that can be owned collectively for its members. 2. Cooperatives have a good goal together with members having the same rights regardless of size or status. In addition, cooperatives are jointly controlled democratically by each

of its members, and members have the same voting rights. 3. Cooperatives are also a part of uniting people who have the same economic business activities. Therefore, businesses must support the economic activities of their members. Cooperatives must provide products or services that are most needed by their members, including cooperative owners and consumers.

For the value chain, especially in North Toraja itself, when farmers start from cultivation to enter the harvest stage, some of the local farmers in North Toraja have started selling their harvests either through collector trades, non-government organizations, and vice versa for those who want to buy coffee can directly meet with farmer groups. Collector trades usually buy crops from farmers at a fairly low price which causes farmers to start leaving coffee plantations because farmers do not get decent sales results. For collectors, they sell directly to coffee-producing companies, for non-government organizations, some sell their green beans directly to companies. For companies, after getting what they want, they then carry out processing aimed at exporting coffee commodities in North Toraja either through exporters or specifically for the domestic market. For supply chain implementation, there are several institutions/actors involved before the product reaches the consumer. Starting from the flow where farmers sell their coffee production to traders, farmer groups, or in several cooperative places. Farmers are relatively selling in a state that has been dried for 1-2 days and still has horn skin. Then proceed. Traders sell their coffee to middlemen, who are usually located in urban or district capitals, or sell their products directly to intermediary's and/or/exporters. The traders usually sell in the form of green beans. These companies and exporters can usually be seen in the provincial city Centre. Those who have been in the coffee plantation sector for a long time will usually join the Association of Indonesian Coffee Exporters (AICE or AEKI), a member of the International Coffee Organization (ICO). Exporting entrepreneurs in their business practice sell green beans which are more processed than the green beans they receive from traders. Companies in the export sector do not necessarily trade coffee to international markets because they have to pass very strict quality standards, especially if the quality does not meet the minimum standards for export requirements. On the other hand, the produce from several companies is also sold to local coffee processing companies to produce distinctive and special finely ground coffee (village coffee) by creating a locally produced brand. The purpose of this research paper is to analyze the Arabica coffee value chain in Toraja with the aim of increasing productivity as well as quality, and also increasing farmers' income.

RESEARCH METHODS

This study aims to determine the value chain strategic program in North Toraja. The research location is North Toraja Regency, South Sulawesi Province, Indonesia which is one of the largest coffee-producing areas in South Sulawesi. The data obtained in the field were analyzed by applying structured descriptive modelling techniques, using Interpretative Structural Modeling (ISM) data processing. This research was conducted through an expert system approach using a survey method, Murod (2018). Research using the ISM analysis model does not require a large sample size, Eriyatno (1999). The number of experts/practitioners who can be used as the recommended sample is quite a lot with priorities having a level of understanding, mastery, and/or being directly involved in coffee farming. To support the achievement of research objectives, the number of samples is 3 institutional actors, namely the North Toraja regional agriculture office, cooperatives, and also companies consisting of Arabica coffee experts/practitioners. Therefore, the respondents in this study consisted of 18 people who were selected purposively from several stakeholders from government agencies, the private sector, and members of farmer groups. The process of collecting data in this study using questionnaires and also conducting interviews. The

data processing of this research was carried out using Interpretative Structural Modeling (ISM) analysis, through the following stages: (1) Developing a Structural Self-Interaction Matrix (SSIM), which was obtained from respondents from the previous sub-elements, as a result of consideration of contextual relationships, with using symbols V, A, X and O. The symbol V is given, if the first sub-element 1 is more important than the second sub-element. Symbol A, if the second sub-element is more important than the first sub-element). The symbol X, if the first and second sub-elements are equally important, and the symbol O is given if the first and second sub-elements are equally important). (2) Formulating contextual relationships and compiled using a structural interaction matrix (SSIM). SSIM preparation uses symbols V, A, X, and O with the numbers 1 and 0. (3) Develop a model for each element. (4) Compile the resulting Power-Dependent Driver (DP-P) matrix.

RESULTS and DISCUSSION

TABLE 1.
DATA PROCESSING TABLE USING ISM

Position	Cast Element	Bobot	
		DP	*D*
Inpendent	1. Farmer empowerment 2. Coffee cultivation training 3. Use of High quality seeds and organic fertilizer	0.90 0.80 0.70	0.30 0.30 0.50
Linkage	1. Cooperation between the Department of Agriculture, Cooperatives and Companies 2. Providing sales facilities to farmers 3. Scheduled Harvest Process	0.90 0.60 0.50	0.70 0.80 0.80
Dependent	1. Farmers distribute coffee products to producers. 2. Coffee processing 3. Product marketing and sales	0.50 0.40 0.30	0.80 0.80 0.80
Autonomous	-	-	-

Coordination Function of Element in the Independent Sector

For the results of the sub-element on farmer empowerment, it shows DP > 0.50 with a value of 0.90 which indicates the magnitude of the influence on the value chain. Empowerment of farmers can be categorized as an activity in providing education to and directing farmers as part of the community and forming farmers in overcoming poverty problems by motivating farmers the importance of knowledge and also ways to deal with problems both economically and problems in their needs. The success of farmer empowerment can be seen from the economic capacity of farmers, the ability to access welfare services in the community. With the training of farmers, It is hoped that with a strategy of empowerment for coffee farmers, it is hoped that farmers can form

entrepreneurial characters, improve the economy, and also generate interest for young farmers. The entrepreneurial character development program is carried out by the agricultural service. Cooperatives and companies involved carry out several activities: (1) providing opportunities for coffee entrepreneurship; (2) train farmers in managing their land; (3) Improving access to capital according to seasons and needs; (4) provide training on the use of digital-based systems in both management and marketing; (5) coffee product processing, (6) and the need for group coordination in coffee development. The coffee cultivation training sub-element has a DP> 0.50, namely the acquisition of a value of 0.80 which indicates the magnitude of the influence on the value chain. The cultivation training in question is, by training coffee farmers starting with training for land preparation which aims to show how coffee farmers can provide an understanding of the land management process without having to damage the environment. Not only that, by providing training for farmers, such as selecting quality seeds, they can create quality coffee and have high productivity, which is expected to be great. Coffee cultivation training also includes pruning, pest control and also controlling the use of chemicals in coffee plantations. The training also trains farmers on how to carry out the harvesting process and directs farmers when the time is right to harvest without damaging the crops.

For the sub-element of Use of Quality Seed and Organic Fertilizer, it has a DP > 0.50, i.e. the acquisition value of 0.70 which still shows the magnitude of its influence. One of the efforts to increase the capacity of coffee farming is to provide natural ingredients and also the best treatment for plants, using the application of modernization technology in coffee farming, which is expected to affect the production of coffee. If we look at the results of production achievements in this country, the achievement of coffee productivity in Indonesia has only reached 700 kg/ha/year. The use of superior varieties in Arabica coffee plant seeds can have a very large development impact on the factors of coffee production itself. The provision of materials for farming with good quality can have an impact that can reduce the risk of pests and diseases that have an impact on the yield, quantity and quality of coffee production later. The application of organic fertilizers can improve the quality of Arabica coffee beans. The maintenance of coffee plants through fertilization is also a factor in increasing productivity. Provision of additional nutrients in the soil for plants is needed, both from organic and inorganic materials.

Coordination Function of Element in the Linkage Sector

For the sub-element Cooperation between the agricultural service, cooperatives and also companies having a DP> 0.50 with a value of 0.90, it still shows the magnitude of the influence they have. The function of the Cooperation element between the agricultural service and cooperatives as well as companies is in the forms of cooperation between small and medium enterprises or large enterprises. This collaboration is a form of innovation that is a form of renewal of the pattern of partnership so far. This is not a new thing in partnership in the world of farmers but will continue to undergo a process of renewal from time to time until now.

For the sub-element of providing sales facilities to farmers DP> 0.50 with the acquisition value of 0.60. To support the improvement of farmers' economic level, the North Toraja Regency service and trade assist farmers in selling their productivity by connecting between farmers or also to cooperatives and companies. Besides farmers also have other initiatives by selling their products, making improvements and indirectly becoming their partners.

For the sub-element of the scheduled harvest process, DP> 0.50, namely the acquisition of a value of 0.50. This sub-element even though it has a DP below 50, makes this sub-element as support for sub-elements that have strength in other fields. The time of harvest is very influential

on the quality of the coffee produced. Therefore coffee must be harvested at the right level of maturity. The level of increase can be indicated by bright red fruit. One of the causes of low productivity and quality of coffee is the limited application of technology. The main problem that farmers complain about is the cost of production, especially facilities and labour, which are increasingly expensive so that farmers increase spending by carrying out minimal maintenance. Here what needs to be considered is the collaboration that starts from the agricultural office in providing counselling on the harvesting process and also, the cooperation between the parties and the company in determining the cooperative standards needed according to what is needed so that it can be adjusted to the quality of the napa panels needed.

Coordination Function of Elements in Dependent Sector

For sub-element, farmers distribute coffee yields DP<0.50 with the acquisition value of 0.50. The longer the marketing channel, the higher the price at the consumer level, so that the benefits of high prices are not enjoyed by farmers, but by intermediary traders. Therefore, it is feared that the difference in high marketing can cause losses for farmers who are positioned as producers. If seen, one way to market coffee efficiently is to reduce margins in the marketing department. Lack of market information leads to a lack of knowledge of farmers regarding price conditions in the market specifically for coffee. Therefore, this can result in the bargaining position of farmers in determining the selling price of the coffee they produce themselves to be weak, thus making farmers the recipient of the price, not as a price opener. Therefore there is a need for digitalization intervention in marketing that must be known by farmers so that farmers can be fair and more transparent for the actors involved and local governments, with the application of digital technology, producers can more easily interact with the farmers they want and know more. the specifications of the products produced are easier without having to see the farmers directly. Digitization also provides benefits not only for farmers but also for cooperatives or coffee entrepreneurs, by providing a sense of security and fairness to producers and can also give trust to the community in transactions.

For the coffee processing sub-element, DP< 0.50 is obtained with a value of 0.40. This sub-element even though it has a DP below 50, makes this sub-element support for sub-elements that have strength in other fields. Picking and harvesting red coffee cherries is the initial stage in receiving raw materials. The process of picking and harvesting coffee cherries is carried out in June-early September and is only carried out once a year because these months are the main harvest period in North Toraja. In the process of harvesting fruit, some harvest themselves to save expenses or employ wholesale workers who are specifically for the harvesting process to speed up the harvesting process. The standard for producing quality coffee is that what will be harvested must be coffee cherries that are 14 days old from the appearance of flowers and are cherry in colour, fresh, ripe, the coffee maturity level is uniform, and free from contamination that is at the recommended age and standards required.

For sub-marketing and product sales, DP< 0.50 is the acquisition value of 0.30. This sub-element even though it has a DP below 50, makes this sub-element support for sub-elements that have strength in other fields. Companies in North Toraja that have collaborated with farmers have made purchases and sales using a digital system, as in the actors taken in this study the company has done marketing by selling digitally and also offline or it can be said to do distribution to shops or cafes that cooperate with the company. The marketing system at this company includes marketing through social media such as social media, and also e-commerce.

Notes:

1. Farmer Empowerment
2. Coffee cultivation training
3. Use of High-Quality seeds and organic fertilizer
4. Scheduled Harvest Process
5. Cooperation between the Department of Agriculture, Cooperatives and Companies
6. Providing sales facilities to farmers
7. Farmers distribute coffee products to producers
8. Coffee Processing
9. Product Marketing and Sales

Actors at level (1) are actors who are designated as a priority part or as a key actor in the value chain in North Toraja, starting from farmer empowerment combined with collaboration between the Toraja Regency Agriculture Office, cooperatives and companies, with the existence of cooperation between the three actors involved makes coffee empowerment able to create success in empowering farmers which affects the ability of income in the economic sector, giving to farmers. Actors who are at level (2), are actors who make important supporters. The cultivation training in question is, by training farmers starting with training for land preparation which aims to how coffee farmers can understand the process of processing land properly without having to damage the environment. for Actor at level (3), become one of the actors who are important supporters of this research. one of the efforts to increase coffee productivity is to improve the quality of the product, by applying technology. Farmers who are part of the value chain in coffee farming also have a role in making a decision and also in the implementation of cultivation activities and coffee farming. Actors who are at level (4), are actors who make important supporters. The Department of Farmers and Trade of North Toraja Regency assists in providing facilities in selling their productivity by connecting farmers or also to cooperatives and companies. Actors at level (5) are actors who support the aspects of actors in the research sub-elements. The time of harvest is very influential on the quality of the coffee produced. Therefore coffee must be harvested at the right level of maturity. Actors who are at level (6) are actors who support the aspects of actors in the research sub-element. If you follow the standards that have been instructed by both the company and those that have been carried out when presenting training carried out by various actors involved in this value chain, both from the agricultural office, cooperatives and companies affiliated with farmers. Actors who are at level (7), are actors who support the aspect actors in the research sub-elements. Companies in North Toraja that have committed to farmers who have made purchases and sales using a digital system have done marketing by marketing

digitally and also offline or it can be said to do distribution to shops or cafes that communicate with the company. The marketing system at this company includes marketing through social media such as Instagram social media, and also e-commerce.

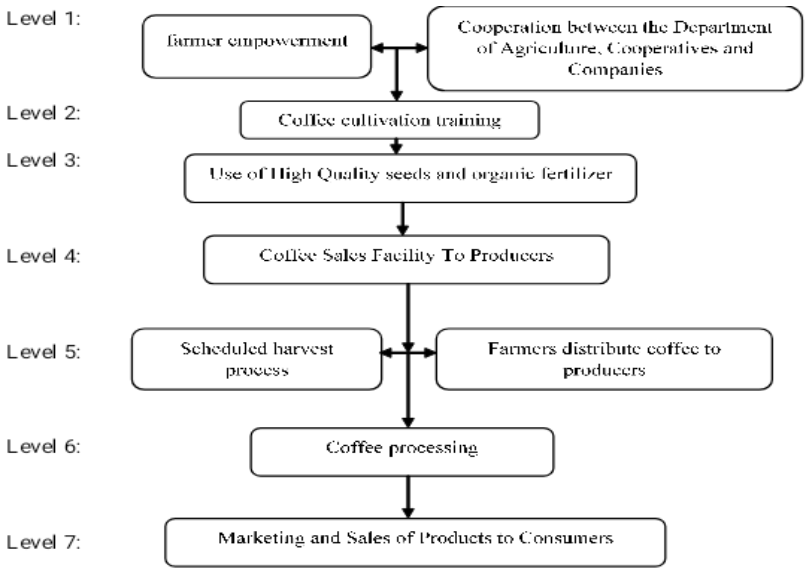


FIGURE 2. STRUCTURE FOR INCREASING PRODUCTION OF THE COFFEE VALUE CHAIN IN NORTH TORAJA.

CONCLUSION

In improving the welfare of coffee farming in Indonesia, it is necessary to improve prices. It can be determined by the government in order to have not only positive impact on farmers income, but also provide benefits for the company. Efficiency and value chain improvements can provide benefits that have an impact on coffee production and better quality so that it can compete with products from other countries, this can also benefit state and local governments. With the welfare of the farming community, farmers can change the mindset of the younger generation and farmers do not look down on them to reduce the bad impact of the farmer's crisis which is very important at this time. Need there is a digitalization intervention in marketing that must be known by farmers so that the position of farmers can be more fair and transparent for both the actors involved and the local government, with the application of digital technology producers can more easily interact with the desired farmers and know more clearly the specifications of the products produced by farmers more easily without having to see the product in person. Digitization also provides benefits not only for farmers but also for cooperatives or coffee entrepreneurs, by providing a sense of security and fairness to producers and can also give trust to the public in transactions.

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