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The Perception of Local Residents on Agro-tourism Development as a Livelihood Diversification for Coffee Farmers: A Case Study in Tikala Municipality, North Toraja, Indonesia



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Livelihood Diversification for Coffee
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Municipality, North Toraja, Indonesia**

by:

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List of Abbreviations

BPS	Central Statistics Agency
DFID	Department for International Development
DAO	District Agriculture Office
DTO	District Tourism Office
GRDP	Gross Regional Domestic Product
Ha	Hectare
Kemendesa	The Ministry of Villages, Development of Disadvantaged Regions, and Transmigration
KII	Key Informant Interview
MDPL	Meters above sea level
MoD	Master of Development
OKP	Orange Knowledge Programme
SLF	Sustainable Livelihood Framework
UNESCO	United Nations of Educational, Scientific, and Cultural Organization
USAID	United States Agency for International Development,
VHL	Van Hall Larenstein University

Abstract

Torajans have been relying on subsistence agriculture as a main source of livelihood both in crops for consumption and cash crops. In the past few years, the contribution of agriculture to livelihood in North Toraja has been showing negative trend. Some of the factors which caused the negative trend in agriculture production are climate changes, migration which resulting in labour shortage in North Toraja and the dependency of local community on remittance. On the other hand, District Agriculture Office (DAO) North Toraja (2019) stated the coffee production has increasing from 2018 to 2019. Even though it is increasing, but it is a mistake to think that it is enough to support farmers' income, because coffee was not the most important income sources for the household, it is just a secondary income after livestock, other cash crops and various off-farm income. Moreover, coffee production in North Toraja is not yet optimal with the existing land. This caused by the little attention to this crop by household who have coffee plantation. Based on these issues, in 2014, DAO established the first pilot project in agro-tourism in Tikala Municipality as one of livelihood diversification in order to improve coffee farmer's income hence strengthen the food security. Since the establishment in 2014, this project is underperforming and still not achieve its goals to increase coffee farmers' income. Based on the preliminary data from DAO, the idea of agro-tourism development was initiated by DAO and involved some related stakeholders, including the Pa'pakuan group's members, but at the planning process not all members participated in the joint meeting. The fact that planning process has just done in one-time meeting means that there was no time for all group members to remark their perception on agro-tourism development which is one of fundamental information factors to determining the successfulness of agro-tourism development. The objective of this study is to provide knowledge and information for DAO about the local residents' perceptions on agro-tourism development as a livelihood diversification as well as provide recommendation on how to run agro-tourism from local residents' perception in order to increase the income and well-being of coffee farmers. Mix method design (both qualitative and quantitative) was used in this study and data collection using online methods due to the Covid-19 pandemic. This study found that there are some issues faced by farmers in growing coffee, such as increasing rainfall, pests, limited fertiliser, dependency on middleman and Covid-19 which decreasing coffee price resulting in low interest of farmers in investing their time and money. Therefore, farmers have several livelihood strategies in order to meet their daily needs, such as livestock, growing paddy and vegetables, construction labour, and among others. In terms of agro-tourism, all farmers agreed with it because they think it will give them some benefits, including increase income, job and business opportunity, infrastructure development, better image of village, ensure farm legacy, preserve local culture, get additional education, and among others. Despite all the benefits of agro-tourism, it has also negative impacts for residents, such as possibility of increasing living cost, create unequal benefit, increase waste and traffic. In terms of desired roles, all residents will choose to stay as a farmer, but at the same time they also have intention to established their own business for female residents as for males they want to work as an operator in agro-tourism to increase their income. Finally, this study also found some challenges that have been face by agro-tourism in Tikala Municipality, including limited financial and lack of coffee production for agro-tourism activities. Moreover, the coordination and commitment from government to continue the development of agro-tourism are still lack which is resulting the agro-tourism is still not yet registered as one of tourism attraction in North Toraja. Furthermore, lack of marketing and promotional activities is one of barriers in agro-tourism. Finally, COVID-19 also play a big role in delaying some processes and activities that should be done by all stakeholder related to agro-tourism development. This study recommends all related stakeholders to work together in improving the performance of agro-tourism by increasing coffee production, equally distribute economic benefits, waste management, increasing marketing strategy, among other.

Key words: Agro-tourism, Local Residents' Perception, Livelihood Diversification, Coffee Farmer

Chapter 1 Introduction

1.1. Background of Study

Torajans have been relying on subsistence agriculture as a main source of livelihood both in crops for consumption and cash crops. According to Central Statistics Agency of North Toraja District/BPS (2018) some of the main food crops for consumption are rice, corn, cassava, sweet potato, vegetables and fruit. Whereas cash crops, include coffee, cocoa, clove, vanilla and pepper. Moreover, Torajans also rear livestock mostly pigs, chicken and buffaloes, because it is important for funeral ceremony (Hartatri et al, 2010).

Toraja is well-known for its strong cultural identity based on traditional rituals, including funeral ceremony. The funeral ceremonies require a lot of money, because sometimes it takes weeks. Some general costs in this ceremony, including slaughtering hundred cattle (buffaloes and pigs), large amount of construction material, seating, infrastructure, the provision of food, drink, and cigarettes for the guests, custom cloths for the family and “committees” of the ceremony, video and photo production, transport and wages for the labour (Neilson and Shonk, 2014). Even though, this cultural ceremony has been criticized by the Toraja community and external parties, it tends to be increasingly extravagant from time to time, because it is considered as important for cultural identity of Toraja and to maintain family social status in the community (Neilson and Shonk, 2014; Jong, 2013).

Growing livestock is one of the strategies for Torajans that enables them to hold the ceremony without spending a lot of money, because the price of livestock is too high, especially buffaloes (Neilson and Shonk, 2014). It is stated that remittance is also one of the livelihood strategies which is been used by Torajans to be able to carry out the funeral ceremony. Most of the young generation choose to find work in other cities in Indonesia in order to get better income to meet the daily needs of their family back home and to be able to carry out funeral ceremony which need substantial cost.

The migration is semi-permanent, because most of the community will come home when they are getting old. Sometimes, Torajan go home to celebrate Christmas on December or when there is a family's funeral ceremony. Both men and women have the same opportunity to leave North Toraja to get better job. Based on Jong (2013) around 81% household in Kondo' village North Toraja has at least one member who are working in other cities or countries. Around 34% moved to Malaysia, Singapore and Japan. Based on the other Torajans, Tondon Municipality (including Kondo' Village) is well-known as a source of the women working in prostitution industry in Malaysia and the men are often involved in illegal jobs in the same area. Many girls leave their home towns since they are 12 or 13 years old which leave their parents, especially their mothers to deal with the household works (Jong, 2013). Same source added Torajan girls impressed with the money obtained by other community member from the job which drive them to join the migration voluntary.

The consequence of migration affects the flow of remittance which became the biggest source of income in North Toraja and community too depend on it. Torajan believe that remittance can give significant contribution to meet both household needs and support the funeral ritual (Neilson and Shonk, 2014). Facts from BPS (2018) indicated that the agriculture production in North Toraja is insufficient to provide food for the local residents, meaning that local residents need additional money to be able to buy food from the market which usually comes from remittance. The supply of food to markets in North Toraja comes from neighbouring districts, including rice, vegetables and fruits. BPS (2018) stated that the high demand of rice from Torajans results in increasing price of rice over time. For instance, the price of rice in 2017 was around \$0.71/kg (\$1= Rp14,000) and there was a leap to \$0.85/kg 2018, which means there is an increase in living cost of household as well in North Toraja.

Furthermore, some Torajans are working as government officials and some off-farm job, including trading, manufacturing, small-scale industry and job related to tourism. Since 1970's tourism in North Toraja has been growing in line with the demand from international tourists for culture tourism (Ames, 2014). The unique funeral ceremony successfully attracted international tourist form various countries, including Australia, European countries and North America. Based on Hasyim et al. (2017),

in 2016 the majority of international tourists in North Toraja came from France, Swiss, Italy, Belgium, Netherland and Spain. The local and national government have been working in collaboration to promote North Toraja tourism to the world by carrying out Lovely December¹ event every year (Junaid, 2015). Having around 15 tourism attraction centres help to provide job opportunity for local residents like drivers, tour guide, chef, among others (*North Toraja District Government, 2016*). Some Torajans also invest in restaurants, hotels, souvenir shops and travel agents. Moreover, farmers also got benefits from the sales of agricultural production to the restaurants and hotels.

Despite the contribution of agriculture to livelihood for North Toraja, there has been a sudden negative trend for the past few years. Based on BPS (2015, 2020), the contribution of agriculture sector to Gross Regional Domestic Product (GRDP) in North Toraja has decreased from 20.10% in 2014 to 15.16% in 2019 which caused the position of agriculture sector as a main economic support in North Toraja replaced by the trade and construction sectors. In 2019, trade sector contributed around 20% to GRDP of North Toraja which is higher 4.84% compared to the contribution of agriculture sector. The slow growth of agriculture sector for the past few years not only affected North Toraja economy, but also the income of local farmers, including coffee farmers. Some of the factors which caused the negative trend in agriculture production are the reducing of harvested area because of climate changes, migration which resulting in labour shortage in North Toraja and the dependency of local community on remittance (BPS, 2016; Neilson and Shonk, 2014).

As mentioned before, there is a trend of migration in order to get better income in some cities. This trends negatively affected agriculture production due to the labour shortage (Neilson and Shonk, 2014). Jong (2013) argued that immigration has transformed North Toraja demography, with household dominated by the older people and children. This condition leads to the less production in agriculture, because the remaining residents in North Toraja need to split their time both in doing productive livelihood activities and reproductive (domestic) activities (Jong, 2013). Furthermore, in 2012 the wages for agriculture workers in North Toraja were reported around US\$6.5/day which was higher compared to neighbouring districts wages with the same job (Neilson and Shonk, 2014). As a result, using the labour for agriculture activities is not an option for local residents. In addition, the dependency on remittance affected some Torajans who decided to leave their farm and choose to buy all foods from markets in North Toraja (Neilson and Shonk, 2014).

Besides, the reducing of rainfall in North Toraja because of climate changes has decreased the harvested area of agriculture which is resulting in low production, because agriculture in North Toraja still depends on rainfed and lack of irrigation scheme (BPS, 2015). For instance, the harvested area of rice in 2017 was around 44,041 ha decrease to 40,004 ha in 2018. The harvested area of other crops for consumption is decreasing as well, such as corn in 2017 was around 888 ha in 2017 decrease to 757 ha in 2018 as well as cassava in 2017 was around 189 ha decrease to 154 ha in 2018 (BPS, 2018). This condition affected the food availability in North Toraja which leads to the dependency on food supply from others districts.

The declining of agriculture production not only happened in crops for consumption, but also cash crops. In Tikala Municipality a suburb of North Toraja, all the vegetables and fruits as well as other agriculture products dramatically decreased, for instance 1,556 tons of chili in 2017 decrease to 737 tons in 2018 as well as mango from 280 tons in 2017 to 140 tons in 2018 (BPS, 2018). The declining yields of cash crop at municipality level reduce the income of farmers which threatens the access to food for consumption in the households, since income has influence on purchasing power. The decline in food accessibility affected negatively the nutritional status of children, since child stunting increased and placed North Toraja as the ninth district with the highest prevalence malnutrition in South Sulawesi Province. Moreover, the decreasing of agriculture production affects the slow progress of

¹ Lovely December is an annual event which held by local government which presents various art and cultural attractions of Toraja to the visitors or tourists

poverty reduction in North Toraja which makes North Toraja as a top three poorest districts in South Sulawesi Province (North Toraja District Government, 2016).

On the other hand, DAO North Toraja (2019) stated the coffee production in 2018 was around 4,649ton increase to 4,873 ton in 2019. Even though it is increasing, but it is a mistake to think that it is enough to support farmers' income, because coffee was not the most important income sources for the household, it is just a secondary income after livestock, other cash crops and various off-farm income (Neilson and Shonk, 2014). Moreover, based on the DAO (2019) stated that coffee production in North Toraja is not yet optimal with the existing land around 9,096 ha. Generally, 1ha coffee area should produce around 1,000 kg, but in North Toraja 1 ha coffee only able to produce around 680kg per year. This caused by the little attention to this crop by household who have coffee plantation, in which estimated around 13,289 in North Toraja (DAO, 2019).

Based on these issues, in 2014, DAO developed and established the first pilot project in agro-tourism as one of livelihood diversification in order to improve coffee farmer's income hence strengthen the food security. Moreover, this project was also developed to attract youth in North Toraja to work and involve in agriculture activities instead of moving to other cities to find a job which has high risks.

The pilot project of agro-tourism in North Toraja was conducted in To're Village Tikala District with the main commodity being Arabica Coffee. Coffee is being selected as a main commodity because it shows that there is still opportunity to increase the coffee production in North Toraja, especially with the increasing price of coffee for the past few years which can directly affect farmers' income. According to DAO (2019), the price of Arabica coffee powder has reached \$19.38/kg and \$4.58/kg for Robusta coffee. Besides, learning from history, in 1999 Toraja economy was not hit hard in crisis as hard as other areas in Indonesia, because the residents were actively involved in cash crops cultivation, including coffee.

1.2. The Profile of Agro-tourism Project in North Toraja

The first agro-tourism project in North Toraja was established in 2014 located in Benteng Ka'do To'ria Village, Tikala Municipality. This village was chosen as an area for the pilot project of agro-tourism because it has big potential in Arabica coffee plantation. Besides, District Tourism Office (DTO) [KKI, 2020] stated that Benteng Ka'do Toria has a beautiful attraction with the natural scenery of rice field and Sesean Mountain which is the highest mountain in North Toraja. This village also has infrastructures which can support the agro-tourism activities, including electricity and communication network. Furthermore, coffee plantation already has management team who is responsible to run tourism activities which is Pa'pakuan group.

Picture 1 Paddy Field Scenery around Agro-tourism Area



Source: Fieldwork, 2020

The land area of coffee plantations which is used in agro-tourism project is around 4 ha. This coffee plantation belongs to farmer cooperative called Pa'pakuan which already got fund of around \$35.714 from The Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (Kemendesa) to develop Arabica Coffee Agro-tourism (Hasyim et, al., 2016). Technically the coffee plot belongs to household, but in order to get free assistances from DAO, such as fertilizer and seeds, coffee farmers decided to establish the cooperative in 2012. So, every household still working on their own plot and sometimes they sell their coffee production collectively.

This project aims to increase the income of coffee farmers, so that they can stay as coffee farmers, because nowadays farmers start to lose their interest in growing coffee due to the low price. By adding tourism activities in coffee farms, DAO hope to keep farmers interest to boost coffee production which can increase their income as well. The agro-tourism also aims to educate visitor about coffee plantation and production as well as provide experience to spend their time and drink coffee in coffee farm.

The business plan of this agro-tourism not only focus in increasing coffee production, but also provide some tourist activities, including education about coffee plantation for the tourist, showing coffee processing, and selling coffee product directly to consumer. Besides, local residents will get additional income from the entrance fee, coffee sales and operator jobs of agro-tourism, such as guide, parking attendants, cleaner, waiters and chef.

Currently, agro-tourism program is still focusing on intensification in order to improve coffee production. Fact that farmers interest in growing coffee is decreasing makes DAO more focused in increasing production before starting to add tourism activities, because the amount of coffee that Pa'pakuan group has is not sufficient for running agro-tourism. In order to increase the production, DAO has provided some assistance through six trainings and socialisation on how to grow coffee, providing free fertiliser and seed, lawn mower (2015), and lawn sprayer (2019).

DAO also built some facilities by using funds from Kemendesa, including coffee processing and sales, several gazebos to seat and drink coffee, 2 toilets, gate, ticket sales point and gave farmers a set of coffee making and utensils. Based on the observation from video [video-taking,2020] some facilitates that have been built by DAO in agro-tourism are starting to break down due to the poor maintenance.

Picture 2 Toilet Built by DAO in Agro-tourism



Source: Fieldwork, 2020

1.3. Research Problem

Since the establishment in 2014, agro-tourism does not yet function as a tourism attraction and still not achieve its goals to increase coffee farmers' income. Based on the preliminary data from DAO, the idea of agro-tourism development was initiated by DAO and involved some related stakeholders, including Pa'pakuan members, but at the planning process not all members participated in the joint meeting, some members were busy with their farm and others are new members who joined the group after agro-tourism established, because some old members decided to leave the group. The fact that planning process has just done in one-time meeting means that there was no time for all group members to remark their perception on agro-tourism development which is one of fundamental information factors to determining the successfulness of agro-tourism development.

Eshliki and Kaboudi (2017) stated that the development and sustainability of tourism rely on local resident perceptions and attitudes, because the better understanding about both attitude and perception would be a valuable knowledge for decision makers in developing tourism. Moreover, support from local resident on tourism development will be influenced by their perception of the impacts (advantages and disadvantages) of the tourism on their lives (Zhang et al., 2016). Finally, Gursoy & Rutherford (2004) suggested that before starting investment in tourism development there is need to consider the perceptions and attitudes of local residents at first place.

In addition, there is still no study that have been carried out in this project either by the internal of DAO or external parties to see the challenge that has been facing by agro-tourism, in particular the study about the local residents' perception on the agro-tourism development. Therefore, there exist a lack of knowledge and information of District Agriculture Office of North Toraja about residents' perception on agro-tourism development which is one of the essential information to be able to improve the performance of agro-tourism project in the future.

For this reason, this study is important to be carried out in order to provide knowledge and information for DAO of North Toraja as a commissioner about the perceptions of local residents on agro-tourism development as a livelihood diversification for coffee farmers in North Toraja which can help DAO to decide on actions to run agro-tourism project in an better way in order to achieve the desired goals of agro-tourism development which will improve the income and well-being of coffee farmers.

Problem owner: District Agriculture Office of North Toraja

1.4. Research Objective

This study aims to provide knowledge and information for District Agriculture Office of North Toraja about the local residents' perceptions on agro-tourism development as a livelihood diversification as well as provide recommendation on how to run agro-tourism from local residents' perception in order to increase the income and well-being of coffee farmers.

1.5. Research Questions

The main research question of this study is **“What is the perception of local residents on agro-tourism development as a livelihood diversification in Tikala Municipality, North Toraja District?”**

Sub-questions:

1. What are the current conditions of livelihood of coffee farmers in Tikala Municipality?
2. What are the benefits of agro-tourism development perceived by local residents?
3. What are the negative aspects of agro-tourism development perceived by local residents?
4. What are the roles that local residents want to play in agro-tourism?
5. What are the challenges of agro-tourism development perceived by local residents?

Chapter 2 Literature Review

Introduction

This chapter provides an insight into the determinant factors influence the performance of agro-tourism from previous researches. It also contains some explanation about related concept to the topic of the research and operationalisation as well.

2.1. Livelihood Diversification

Livelihood is one of the concepts that have being used in contemporary writings on poverty and rural development. Conway (1992;7) in Ellis (2000;7) stated that “where in livelihood ‘comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living’.” Moreover Ellis (2000;7) added that “the important feature of this livelihood definition is to direct attention to the links between assets and the option people possess in practice to pursue alternative activities that can generate the income level required for survival.” In addition, Serrat (2008) stated that a livelihood consists capabilities, assets, and activities required for a means of living.

The concept of diversity refers to many different income sources, so it is also requiring various social relations to support them. Besides, diversification refers to the forming of the diversity as an ongoing social and economic process, reflecting factors of both pressure and opportunity that cause family to adopt increasingly intricate and diverse livelihood strategy (Ellis, 2000).

Saha and Bahal (2010) stated that livelihood diversification is a strategy which people do to meet their needs and improve their well-being. Furthermore, livelihood diversification is seeing as a continuous adaptive process which is done by household to add new activities and keep maintaining the existing one or dropping it, thereby maintaining diverse and changing livelihood portfolios. In addition, Ellis (2000;15) stated that “rural livelihood diversification is defined as the process by which rural households constructs an increasingly diverse portfolio of activities and assets in order to improve their standard of living.”

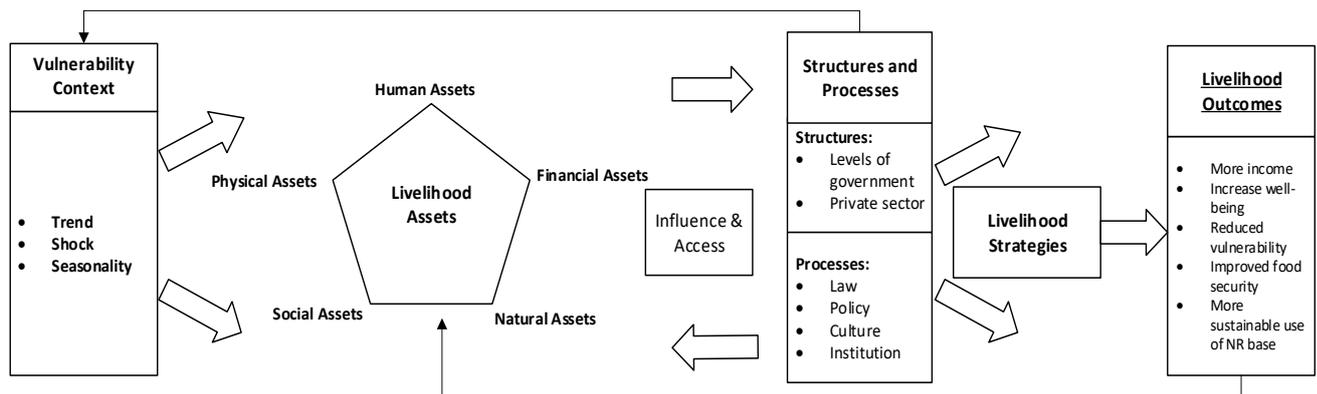
Based on the literature above, in this research livelihood diversification defined as an adaptive strategy in which household diverse their activities and assets in order to meet their needs and reduce livelihood vulnerability.

2.2. Sustainable Livelihood Framework (SLF)

SLF has been proven as a tool which are useful to improve the understanding of complex livelihood of a community, partly the poorest (Tao and Wall, 2011; DFID, 2000). SLF help to identify the potential strategy which can make livelihood more sustainable (Lee, 2007). Chambers and Conway (1992) stated “a livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base.” Serrat (2008) added that livelihood becomes sustainable when household can cope and/or recover from the vulnerability and maintain or enhance its capabilities, assets and activities both now and in the future, without destroy the natural resources.

SLF is a people-centered framework which emphasize people involvement in the process of development (Tao and Wall, 2011). Ideally people have the freedom to decide their livelihood strategy which make them feel comfortable to do it. Therefore, this research tries to define if local residents perceive agro-tourism as a livelihood strategy for them by using SLF. This framework also helped to show the current situation of livelihood of coffee farmer in North Toraja. Moreover, SLF also helped to understand if agro-tourism is the right choices as livelihood strategy by identifying vulnerable context and assets that coffee farmers have and lack of. This will provide knowledge for policy maker which is in this study is DAO the appropriate entry point to improve residents’ livelihood. This research used the whole framework to describe current situation of coffee farmers’ livelihood but will emphasize vulnerability context, assets and livelihood strategies part.

Figure 1 Sustainable Livelihood Framework



Source: DFID, 2000

This framework contained five key elements (DFID, 2000), such as:

- Vulnerability context** “frames the external environment in which people exist. “The livelihood and assets of people can be affected or influenced by critical trends, shocks and seasonality in which they have limited or no control.
- Livelihood assets** include five assets, such as natural, social, human, financial and physical which can be maximize to achieve livelihood outcomes.
- Transforming structures and process** includes both hardware (organisation) and software (policies, culture, regulation and institution) which shape and influence the livelihood.
- Livelihood strategies** are the combination of various activities which used by people to achieve their livelihood outcomes.
- Livelihood outcomes** are the final goals or achievement of livelihood strategies. It is important to note that the livelihood outcomes should be determine by the people not by the outsiders, so it can help us to understand their perspective and priorities goals in their lives.

2.3. Agro-tourism as a Livelihood Diversification

Barbieri (2013) stated that agro-tourism has claimed as one of on-farm enterprise diversification to increase farm income and decrease economic problem of farmer. In addition, Montefrio and Sin (2019) stated that in developing country, agro-tourism is one of rural development tools which is increasingly advocated, because it is promising to improve the small farmer’s well-being in sustainable way.

Since 1970, modernization has influenced some families who have farms grabbed the opportunity to join in the rural tourism by adding some values to their farms which can provide them additional income. Offering some activities and experiences on their farm as well as selling their products are some strategies which attract tourists to visit their farm (Schmitt, 2010). Moreover, Srisomyong (2018) added that most people considering agro-tourism as an opportunity for farmer to get better price for their farms’ products by bringing the market to their farm rather than sell it to middleman. In addition, the existence of agro-tourism has not only benefited the owner of the farm but also provided diverse employments or entrepreneurship opportunities for villagers surrounding the agro-tourism.

Based on the existing literature, there is no single and universal definition of agro-tourism concept. Karampele et al. (2016) stated that agro-tourism is not just about farmers provide accommodation and modest tourism services to the tourist who want to come to enjoy, learn and experience farm production, but more than that it is about combination between tourism destination, enterprise and farm activities. Moreover, Brandth and Haugen (2011) stated agro-tourism is contributing in developing skill and improving competency of farmers in order to improve their well-being.

Furthermore, Schilling, Sullivan & Komar, (2012) stated “agro-tourism is a form of alternative agriculture enterprise development designed to expand farm income, generally through fuller employment of existing farm resources.” Besides, agro-tourism is a diversification strategy which allow farmers to get additional income from their existing production activities. Moreover, agro-tourism is a tourism activity which involves agriculture resources (land, product, activities) to attract the tourist (Hasyim et, al., 2017).

From several definition above, ***this research defines agro-tourism as a combination between farm activities, tourism and enterprise in order to improve the income and well-being of farmers by developing and improving their skills.***

2.4. Local Resident’s Perception on Agro-tourism Development

Community’s perception on tourism development actually reflects their opinion, desires, expectation and response of the development activities in their area (Latupapua, 2011). Sharma & Dyer (2008) argued that the tourism will be more successful when local residents showing positive perception and attitude toward the tourism activities. Thus, it is important to understanding community’s perception which can help to get support from community in tourism development. Moscardo (2008) added that understanding resident perception about tourism impacts will help to identify the right type of tourism that will be developed in accordance with the local potential.

Gregory (1970) in Conaway (2018) stated that “perception is a constructive process which relies on top-down processing”. Perception can also be defined as a response from being conscious through physical sensation of environment which show people ability to understand (Nwakile et al, 2020). Reitz (1987) in Rachna (2013) added that “perception includes processes by which an individual receives information about his environment (seeing, hearing, feeling, tasting and smelling).” ***From several definitions about perception, this research define perception as an opinion and expectation of local residents about the agro-tourism development as a livelihood diversification.***

Cordero (2008) argues the study of local residents’ perceptions of tourism still has limited methodology and theories that support it, but some experts have been suggesting some theories related to it. One of them is social exchange theory which suggests that people expect to receive benefits or advantages for every engagement or interaction with other people (Gouldner, 1960). Thus, “human relationships are formed by the use of subjective cost-benefit analysis creating mutual obligations, reciprocity, or repayment over time” (Gouldner, 1960). Previous studies about the perception of local residents on tourism focus on how local community calculate cost-benefit of tourism development on local community’s life (Andriotis, 2003). Therefore, this study also focuses on investigating positive and negative perception of local residents about implication of agro-tourism development in their area. With the understanding about residents’ perception on agro-tourism development, this study will conclude the possibility of residents’ action to involve in agro-tourism activities. More precisely, this research focuses to analyse residents’ perception on three sustainability aspects of agro-tourism, including economic, socio-culture and environment.

a. Economic Aspect

Many studies have provided economic benefits of agro-tourism to local residents. Bwana et al. (2015); Schilling, Sullivan & Komar (2012) and (Barbieri, 2013) argued that agro-tourism create the possibility to increase farmers’ income and improved food security, also enhance entrepreneurial knowledge and skills of farmers. Srisomyong (2018) added that not only provides employment opportunities for local residents, agro-tourism also allow villagers to establish small and micro-enterprises, including hotels, restaurants, and craft production.

In addition, the existence of agro-tourism helps both farmers and villagers to improve their livelihood by using their income, assets and public infrastructures to access better livelihood. Lo et al. (2013) stated that tourism has influenced infrastructure development, including road, airports, electricity and water supply which benefit residents in running other economic activities. Moreover, there is an

opportunity to create more value addition to agriculture products which can be sold directly to tourists, thus improving farmers' income (Bwana et al., 2015).

Despite all the benefits in economic aspect, the existing of agro-tourism also bring disadvantages to economic condition of local residents, for instance tourism has led to the increasing of sale prices in community, especially food items (Mensah, 2012). Beside that agro-tourism also causes the inflation of land value and prices (Petrović et al., 2017). Furthermore, Junaid (2015) found that there are unequal economic benefits within the local residents, because mostly people who get benefits from tourism are the one who has capitals to invest. On the other hand, indigenous and poorest residents will leave behind, because they are not able to develop small and micro-enterprises. This condition creates dramatic differences in social status and wealth (Petrović et al., 2017).

b. Socio-culture Aspect

In terms of socio-culture aspect, agro-tourism provides some benefits on residents' life, for example giving them opportunity to enjoy tourism facilities such as park, restaurants, museum, hotels (Petrović et al., 2017). Moreover, agro-tourism allow local residents to preserve their local heritage, art, and promote local food products which may have been endangered (Barbieri, 2013 and Lo et al., 2013). Hardesty (2018) added that through agro-tourism local residents can ensure a farm legacy for their heirs and to keep working land in agriculture to sustain their community's economy. Moreover, the existence of agro-tourism will provide opportunities to get additional education, including tourism management, communication, languages, among others. Agro-tourism also provides experiences for residents to interact and communicate with foreigner. Agro-tourism also help local residents to create favourable image of the countryside (Schilling, Sullivan & Komar, 2012; Petrović et al., 2017).

On the other hand, agro-tourism also creates some disadvantages on socio-culture local residents, including moral degradations which resulting in increasing number of crimes, social conflict, gambling, prostitution as well as drugs (Lo et al., 2013). The deterioration of their moral behaviour and spiritual is a result to meet the demand of visitors' needs in order to get better financial and excessive global commercialization of products (Petrović et al., 2017). Finally, agro-tourism can also cause the "abandonment of indigenous culture and adapting to modern, generally accepted parameters." (Petrović et al., 2017).

c. Environment Aspect

One of the benefits in environmental aspect of agro-tourism is through wildlife habitat improvement and water conservation (Barbieri, 2013). Petrović et al., (2017) added that agro-tourism encourage education on the value of nature-based tourism to the tourists. Moreover, Lossau, (2008) in Said et al., (2012) stated that agro-tourism encourages local residents to appreciate and conserve biodiversity surround them.

At the same time, agro-tourism also brings some negative impacts on local environment, including disrupts the biodiversity, land degradation because of infrastructure development, foster air and water pollution and solid water (Junaid, 2015; Petrović et al., 2017). For instance, in Nepal tourism has causing mineral water plastic bottles littered and deforestation (Nyaupane, 2006). In addition, tourism development in Queensland, Australia also increase the number of vehicles which resulting in traffic congestion and air pollution (Sharma & Dyer, 2008).

2.5. Determinant Factors of Local Residents' Perception on Agro-tourism Development

Previous research has stated that the perception of local residents on tourism development is influenced by the economic benefit from tourism activities, the more economic advantage the more positive perception from the residents. Mensah (2012) stated that personal benefits from tourism, like additional income, job opportunities, and other benefits may affect residents' view about the tourism development. In addition, Ap (1992) stated that those residents who has business or employment linked to the tourism activities, they will generally have positive view about tourism

development. In contrast, people who are not directly involved in the tourism activities, yet experience some disadvantages will tend to have negative perceptions.

Furthermore, some previous research tried to use socio-demographic aspects to analyse the perception of local residents about tourism development. Some of socio-demographic variables which are used, including age, gender, education level, marital status, parental status, length of resident and type of work (Mensah, 2012; Gracie et al., 2016). This research used socio-demographic variables as the factors which determine resident perception on agro-tourism development, because it is more objective, various and having related within the variables which will enrich the research analysis.

Below are some socio-demographic variables which used in this research to analyse the perception of residents on agro-tourism development:

- a. **Age** is considered as one of the factors which can influence people's view on agro-tourism. Previous study found younger people tend to have positive perceptions than older people on the tourism development considering economic aspect will bring more benefit to young generation (Haralambopoulos & Pizam, 1996 in Mensah, 2012; Gracie et al., 2016). In environmental aspect, Gracie et al. (2016) found the fact that young generation has more education about environmental will make them to have more concern about the impact of tourism activities on the environment compared to older residents who are not conscious about the environmental degradation. Moreover, in socio-cultural aspect, older residents have more positive perception by considering some benefits, for instance improving public facilities and preserving cultures. In contrast, young generation think that tourism can decrease the culture activities.
- b. **Gender** should be one of the major concerns in tourism development for the tourism planners and should be addressed at the beginning of tourism development (Mohanty et al., 2018). In socio-cultures aspect, male feel prouder than female where they see many tourists enjoying their culture in their area. But both women and men agree that tourism do not causing the increasing of criminal actions in their area (Gracie et al., 2016). Both sexes are also perceived tourism brings positive impacts on their economic. However, Mensah (2012) stated that gender do not have effect on the local residents' perception about tourism development.
- c. **Educational level** is considered as one of the strong factors which influence the perception local residents about the impact of tourism development on local community life (Aref & Redzuan, 2009). Haralambopoulos and Pizam (1996) in Mensah (2012) stated that "the more highly educated a person is, the more likely they are to have positive perception of impacts of tourism." Aref & Redzuan (2009) added that actually residents' perception and attitudes on tourism development will gradually become positive as their education level increase. There is a tendency that people with low education might think it is difficult for them to get a job which means difficult to get direct benefit from tourism. Finally, Kuvan and Akan (2005) found that less educated residents will have more critical perception and attitudes towards tourism development.
- d. **Marital Status** is one of socio-demographic variables which found having influence on the perception of local residents on agro-tourism. Amuquandoh (2009) found that unmarried residents showed more negative perception towards tourism development than the married residents did. (Gracie et al., 2016) added that married people perceived that tourism activities will offer some benefits for their needs than single residents.
- e. **Parental Status (having children)** was found as one of the determinant factors which influence the perception of residents about tourism development (Aref & Redzuan, 2009). Residents who have children, especially under 18 years are more favourable with the existence of tourism, because they can spend their time in the tourism destinations surrounding them.

- f. **Community attachment (length of residence)** is a strong variable of socio-demographic which considered can influence the opinion as well as attitude of residents toward tourism development. Residents who is living less than five years in that area will feel more favourable toward tourism activities compare to people who have been staying for a long time. It happens because, residents who are staying longer have been witnessing many negative impacts of the tourism in their community (Aref & Redzuan, 2009).
- g. **Type of work** is considered as a predictor of the opinion and attitude of residents toward tourism activities. Thus, who have work related to tourism sectors will have positive perception toward tourism development than people who are working indirectly connected to tourism. Aref & Redzuan, (2009) stated that people with low education and has job which is indirectly related to tourism will have bad perception and attitudes toward the tourism development. Mensah (2012) added that people who have stable job (white-collar workers) are more favourable with the existence of tourism compare to people who come from low economic class.

2.7. Local Residents' Role in Agro-tourism

In order to perform in agro-tourism, there are several roles should be played by local residents, such as farmers, operators and entrepreneurs, because it is needed to support agro-tourism activities, include on-farm and off-farm activities (Chase, et al. 2018, Ollenburg & Buckley, 2007). Below is the explanation for each role which should be played by residents in agro-tourism:

- **Farmers**

The main activities of agro-tourism take place on farm and related to agriculture production and/or selling the farm's products and this role is belong to the farmers (Chase, et al. 2018). The farmers will obtain the benefit from agro-tourism through the sales of farm's products.

- **Operators**

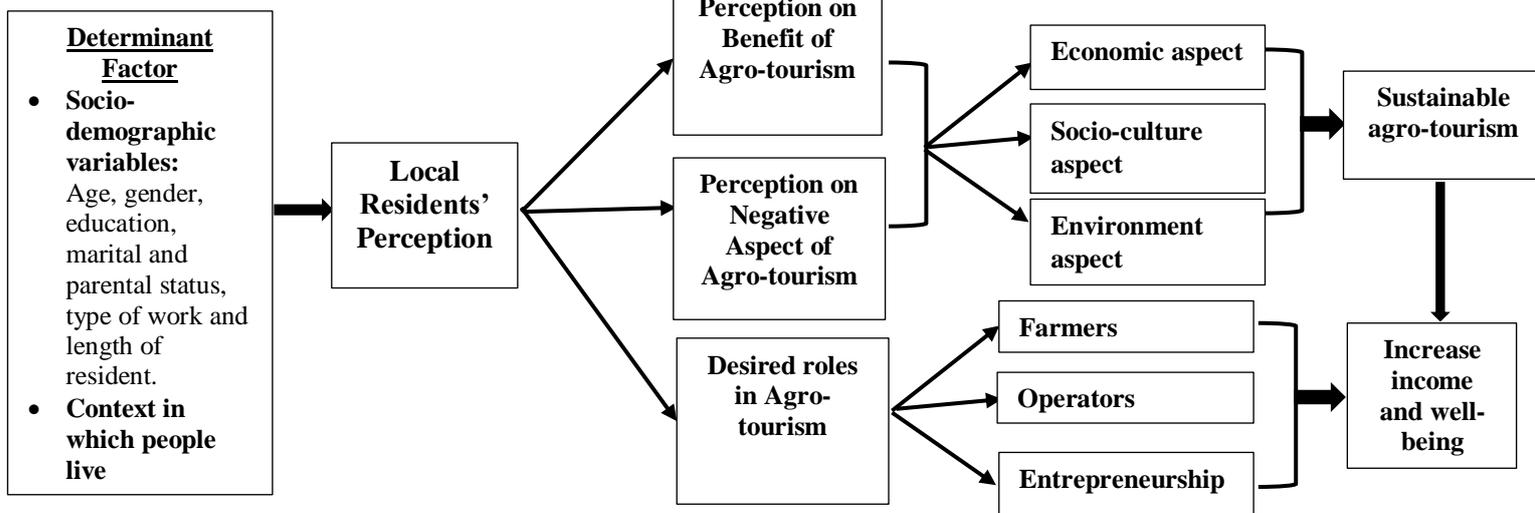
Agro-tourism provides an opportunity for local residents to be an operator which can support the business farm continuity (Ollenburg and Buckley, 2007). Tew, C. and Barbiere, C. (2011) found that farm operators actively promote their agro-tourism activities both in traditional and innovative ways, such as blog, paid advertisement, among others. The operator of agro-tourism will get benefit through the wages that they obtained based on their jobs.

- **Entrepreneurs**

Enterprise is defined as an economic activity which is not certainly just for the formal organisation (Davidsson and Wiklund, 2001). Defra (2009:14) stated that entrepreneurship become the most important aspects in agro-tourism for the commercial advantage. Some enterprise can be developed in agro-tourism, includes restaurants, hotel or guesthouses, shops, among others.

2.8. Operationalization of Local Residents' Perspective

Figure 2 Operationalization of Local Residents' Perspective



Source: Developed by Author, 2020

This operationalization helps to explain key concept which is local residents' perception and its dimensions into measurable indicators which can be useful to answer both main and sub-questions. For instance, to be able to see local residents' perception about agro-tourism, this study asked residents about the benefit of agro-tourism from economic, socio-culture and environment aspect on local residents' life. All the dimensions and indicators in this operationalization have been explained above.

Chapter 3 Methodology

Introduction

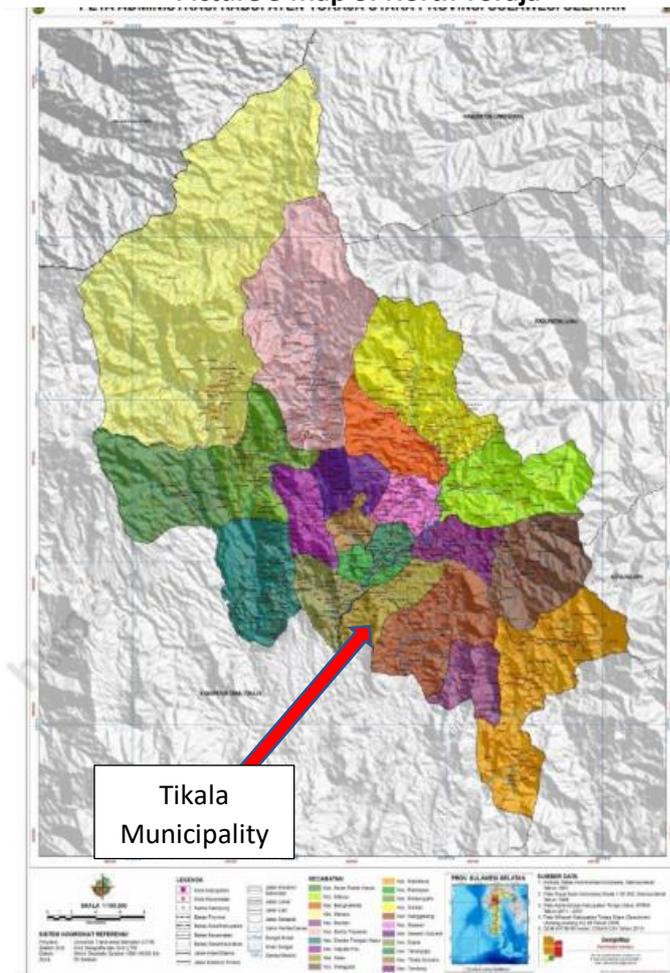
This chapter provides information about study area, research design, methods of data collections, sampling strategy and analysis data. In addition, detailed planning and time framework as well as ethical consideration are discussed.

3.1. Study Area

This study took place in Benteng Ka'do To'ria Village, Tikala Municipality, North Toraja. The reason behind the area selection, is because this is the first and for now is the only project of agro-tourism in North Toraja and never been studied before by any party. North Toraja is the expansion from Tana Toraja Region with the area around 1,151 km² which divide into 21 municipalities, including Tikala. Tikala Municipal has area around 23.44 km² with 12,073 population. This municipality is one of the highest areas in North Toraja around 1,094 mdpl which make it potential to grow coffee (BPS, 2020). Tikala Municipality has seven villages, including Benteng Ka'do To'ria Village which is the location of agro-tourism project. This village is the smallest village in Tikala Municipality with the area around 2.30 km² and 763 population. This village is the second highest villages in Tikala Municipality around 1,435 mdpl (BPS, 2019).

Below is the map of North Toraja and Tikala Municipality is located at the south part of North Toraja (colour: light green).

Picture 3 Map of North Toraja



Source: Central Statistical Agency of North Toraja, 2020

3.2. Research Design

This study combined qualitative and quantitative methods to gather the information about the perception of local residents on agro-tourism development as a livelihood diversification in Tikala Municipality. The research used combination methods in order to provide both number or percentage of residents' perception on agro-tourism and explanation about the reason behind those perceptions. The percentage helped researcher to easily do the comparison of local residents' perception based on the socio-demographic variable as well as comparing the benefits and negative aspects of agro-tourism from residents' perspectives. Moreover, the research approach used was a case study in order to gain profound insights about the residents' perceptions on agro-tourism in Tikala Municipality.

The research was carried out under COVID-19 lockdown, so the researcher stayed in Netherlands and data collection was done from distance with assistance from co-researcher. COVID-19 is a global health issues which is spread quickly which needs special measures, including quarantine, social distancing and some policies about travel restrictions. Consequently, this research prevent researcher to go to the field and conduct face-to-face field work.

In this research, one of the roles of co-researcher was carrying out survey, including provided assistance to respondents who do not have cell phone and familiar with survey form. Co-researcher also helped researcher to connect with respondents of in-depth interview through WhatsApp call. The co-researcher is one of local researcher who usually helps local government in evaluation study. Her education background is bachelor in forestry and she is being selected because she is a Torajan which really helpful in communication with residents in local language. She is experienced in data collection both qualitative and quantitative and familiar with study area, because she has been visiting the agro-tourism project before.

3.3. Method of Data Collection

Considering the COVID-19 pandemic, this study used some online methods to gather both primary and secondary data.

3.3.1. Primary Data

Primary data collected by several methods below:

a. Online survey

Online survey was used in the first stage of data collection in order to get an overall perception of local residents' on agro-tourism development. Online survey used google from by collecting both qualitative and qualitative data from respondents and has both close and open questions related to local residents' perception on agro-tourism. The online survey has been administered by 25 local residents who are the members of coffee cooperative (Pa'pakuan) and involving in agro-tourism development with the assistance from co-researcher. All the members were chosen to get the variety of perception based on their experiences following the process of agro-tourism development.

The online survey covered some topics, such as socio-demographic variables like age, gender, level of education, length of residents, marital and parental status, and type of job. These variables are included because they have been studied and proved have influence on residents' perceptions. Google form also contained a list of positive and negative aspects of agro-tourism on residents' lives which covers three aspects: economic, socio-culture and environmental. The survey also provided open questions about the challenges in agro-tourism project, description of favourable agro-tourism and the role they want play in the agro-tourism project and they reason behind the selected role. The questionnaire of google form is attached in appendix 1.

b. Online In-depth interview

Online in-depth interview is a structured conversation which consists of the question set by using the technology used to conduct and record the interview from primary respondents (Madox, in Lupton, 2020). This method was used to dig deeper the local residents' perception on agro-tourism and the reason behind it based on their experiences and knowledge. This method has been done by asking some open semi-structured questions to respondents through WhatsApp. The total of primary respondents for in-depth interview was 4 farmers with the different characteristic which influence on residents' perception, such as education, their roles in the group and experience living in tourism area. This interview collected data about the current condition of coffee farmers' livelihood and their perception on agro-tourism development and challenges that have been facing by agro-tourism. The interview has been done in Toraja language as a local language and all the interview conducted by researcher.

c. Online Key informant Interview (KII)

This method helped to get various perspective from different people who have relevant knowledge and experience about agro-tourism development in North Toraja, including residents' perception on agro-tourism. This method also helped researcher in interpreting data from google form survey and primary respondents' in-depth interview. The key informant interviews have been done through WhatsApp call and by sending questions through email. There were four key informants that have been interviewed on this research, including:

- The Head of Plantation Sector of DAO who are responsible for agro-tourism program. This interview covered some topics including workplan, activities that have been done, challenges that have been facing by agro-tourism, stakeholder and their role in agro-tourism as well as acceptance of local residents toward agro-tourism project. This interview also collected data about future steps that will be taken by DAO to improve performance of agro-tourism.
- Village Head of Benteng Ka'do Toria who is just start to work around 8 months ago, but has been living in the village for a long time. Through this interview some data have been gathered, including local governments' perception on agro-tourism development and residents' perception of about agro-tourism. Besides, data about challenges in agro-tourism and the role of village government in agro-tourism were also gathered from this interview.
- The Chief of Tikala Municipality with his secretary who have been involving in agro-tourism development. Some information that have been gathered are the perception of municipality government on agro-tourism activities, challenges in agro-tourism, the role of municipality government in agro-tourism as well as the acceptance of local residents on agro-tourism.
- Head of The Development of Tourism Awareness Internalization Section who has been working for 9 years in DTO. This interview gathered some information, including role of DTO in agro-tourism, benefit and negative impacts of agro-tourism, challenges of agro-tourism and requirements for an area to be tourism attraction in North Toraja.

d. Video taking is a method to substitute direct observation method, considering the COVID-19 restriction which prevent researcher to do direct observation. This method helped researcher to gain more information about the condition of agro-tourism through the video, including infrastructures, scenery, products, farmers' activities and services which have been carrying out in agro-tourism. This video also covers the condition of farmers environment, houses, and other livelihood activities that have been done by coffee farmers. The video taking was done by co-researcher with the guidance from researcher and concern from coffee farmers.

3.3.2. Secondary Data

Secondary data collected through desk study from several related articles and journals, about definition of agro-tourism, livelihood diversification in general and specific in North Toraja, local residents' perception on agro-tourism, benefit and negative aspect of agro-tourism, determinant factors on residents' perception and others data which are related to the research concept. Some

articles and books about research methodology also reviewed in this process. Besides, data from North Toraja statistics, including agriculture production as well as data from DAO North Toraja about coffee production and reports related to agro-tourism project which cover budget and activities that have been carrying out in agro-tourism were also reviewed through this method.

3.4. Sampling Strategy

Sampling method for online survey used cluster sampling, because all respondents are coming from natural group that have been created in the community which is in this research is Pa'pakuan group. Moreover, in-depth interview method used purposive sampling, because primary respondents in this interview have been determined based on the most important socio-demographic characteristics which influence residents' perception according to result of online survey. Key informant interview also used purposive sampling, because researcher set specific criteria related to the expertise and knowledge of the informant about agro-tourism in North Toraja.

3.5. Data Processing and Analysis

Data processing have been done by categorized the data that collected through online interview, online survey and videos based on the thematic from operationalization. In the first stage, data divided into five big categories based on the sub-questions, such as livelihood situation, benefit of agro-tourism, negative aspect of agro-tourism, challenges in agro-tourism project and desired role of farmers in agro-tourism. Every category has a code and colour label which can simplify data tracing, for example data about livelihood will get code 1 with blue colour. After that, big categories divided again into the small group, for example benefit of agro-tourism divided into 3 categories, including economic, socio-culture and environmental. Every group also got the code and colour label, but similar answer got the same code and label in order to reduce the number of categories. Then, the small group also divided into the more specific group based on the socio-demographic characteristic of respondents, such education, role in the group, among others. This group helped researcher in doing comparison in analysis. The groups and categories of data were putting into the table in word and after that trying to make sense for each category and link each category to sub-questions.

Data from desk study especially about the local residents' perspective about positive and negative aspects of agro-tourism from the previous study used in discussion part by comparing or alignment with research finding. The quantitative data have been analysed by excel and presented in table, graph and diagram. Finally, triangulation used in discussion by comparing or alignment specific topic from different method of data collection and different respondent, for instance online interview is used to triangulate data from online survey.

3.6. Ethical Consideration

In carrying out this research, especially during data collection researcher took into consideration and adhere with all ethical concern. All the processes of data collection have been approved by all respondents by asking consent about their willingness to be part of research with the assurance that all data will be anonymous. Both researcher and co-researcher explained the aims of the research is just for academic purpose and recommendation for DAO in order to improve the performance of existing agro-tourism project in North Toraja. Researcher ensured no one is under any compulsion to be part of the research. Moreover, researcher respected all the culture in the community and followed all the administration process and procedure which are necessary, started by requesting research permit from local government and seeking approval from local leader before starting the data collection. All data that have been gathered from interview have been approved by all respondents before it is showing on the final report. Besides, before doing the video-making, co-researcher also asked the concern of respondents. Co-researcher also keep distance while conducting survey with community in compliance to COVID-19 preventive measures.

3.7. Research Schedule

Below is the implemented schedule of the research, there is slight difference with the schedule in proposal, especially in data collection, because there several challenges during that process, including rainy season, harvesting period who fall in the same time with field, among others. All the challenges during the research will be reflected in chapter 5. Despite all the challenges, all activities planned in this research have been carried out properly.

Table 1 Research Schedule

Key Stage	Activity/Output	Timeframe
Desk review	<ul style="list-style-type: none"> • Problem identification and definition • Research objective • Research question and sub questions • Literature review and operationalization • Methodology • Online interview guideline and google form preparation for online survey 	4 weeks
Data collection	<ul style="list-style-type: none"> • Online survey • In-depth interview • Key informant interview • Video taking 	7 weeks
Data analysis and report writing	<ul style="list-style-type: none"> • Data analysis and writing of findings • Discussion of findings • Peer review of report • Presentation of findings • Conclusion and Recommendations 	6 weeks
Report Submission	<ul style="list-style-type: none"> • Final review of report • Printing and binding of report hard copy and soft copy 	2 weeks

Source: Managed by Author, 2020

Chapter 4 Research Findings

Introduction

This chapter covers the findings for data collections which will be presented based on the five sub-questions of the research. The results are the combination from online survey with coffee farmers who belong to Pa'pakuan group ($n_1=25$), in-depth interview with 4 farmers selected from the online survey, according to socio-demographic criteria. Furthermore, 4 key informants are interviewed and observation through videos and pictures.

4.1. Profile of In-depth Interview Respondents

In the table below some characteristics of the 4 people who have been interviewed in-depth are presented.

Table 2 Profile of Respondents Involved in In-depth Interview

Initial	Sex	Age	Education	Role in farmer group	Length of residency	Experience living in tourism area
R1	Female	44	University	Secretary	Since birth	No
R2	Female	63	Not graduated from elementary school	Member	Since birth	No
R3	Male	73	University	Chief	Since birth	No
R4	Female	52	Junior High School	Member	3 years	Yes

Source: Fieldwork, 2020

The four respondents above are selected based on the several characteristics which are proven have influence on residents' perception in online survey. Below is description of farmers characteristic who have been involved in online survey.

Table 3 Profile of Respondents Involved in Online Survey Based on Gender and Education

Education Level	Male	Female
University	1	1
Senior High School	1	1
Junior High School	2	2
Elementary School	2	6
No Education	5	4
Total	11	14

Source: Fieldwork, 2020

Based on the survey, more women are involving in farmer group compared to men, because male mostly have other jobs and several men from households who participated in this research living outside the village, which leave women to work on the farm. From the table 3, it shows there is no difference in terms of education level between female and male. From survey, around 17 respondents have been living in Tikala Municipality since they were born and 5 respondents were living for 15 to 20 years and 3 of them just living around 1 to 3 years in the village. It also shows that all members have married and have children who live with them and some live outside the village. From 25

respondents, 3 respondents are at age range 25-40 years old, 13 people at age between 41-56 years old, 8 respondents at age around 57-72 years old and one respondent is 73 years old.

4.2. The Current Livelihood Situation of Coffee Farmers

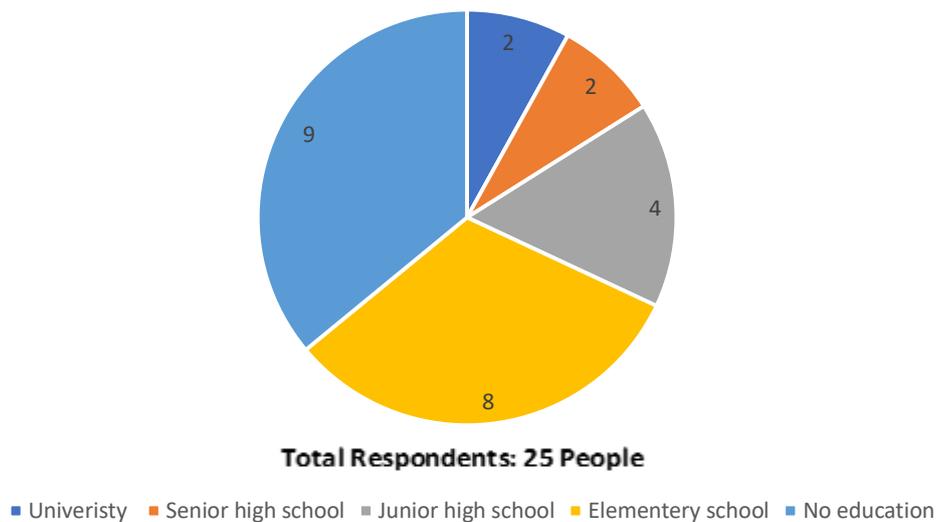
4.2.1. Livelihood Assets

a. Human Assets

Based on 4 respondents of in-depth interview, the average farm household in Benteng Kado To'ria consists of 8 people, of which 2 are adult men, 4 are adult women. Most women are staying in the village compared to men, because men usually look for a job, such as construction labour in other cities. From 4 respondents, at least there is one man from their family who work outside the village, either it is the head of household or children.

In terms of education background, based on the online survey, only two of 25 respondents have completed university level of education and majority of them do not have education and/or just finished elementary school. R2 [in-depth-interview, 2020] stated that financial problem was the issue which prevent them to go for further education. Besides, from observation, even though they are lacking in formal education, farmers have knowledge and skill in farming and growing livestock which are obtained from ancestors. Below is the description of respondents' education background based on online survey.

Diagram 1 Respondents' Education Background



Source: Fieldwork, 2020

b. Natural Assets

Based on the 4 respondents, the area for coffee field ranges from 0.5 to 2.5 ha, with an average of 1.25 ha. Besides, coffee farmers also have paddy field, but based on the interview, the rice production is not enough for household consumption in a year. All respondents confirmed that the land is inheritance from their ancestors and in the future will be passed to their children both male and female. This statement expressed by R1:

"...the land that I run is inheritance from my parents and in the future, I will give it to my child..."
 [R1, in-depth-interview, 2020]

Besides, land for coffee and paddy, 4 respondents also confirmed has land for growing vegetables, include cassava leaves, collards, chives, chilies, tomatoes, among others. But, from 4

respondents it is also revealed that they do not have enough land to build all supporting facilities for agro-tourism activities, such as restaurant, hotel and parking area. The land that they have just enough for them to build their houses.

c. Finance Assets

Based on the survey with 25 respondents, it is confirmed that respondents have different type sources of income, including farmers, rear pigs, construction labour, among others. Nevertheless, the income that they get every month sometimes it is not enough to meet household daily needs, so sometimes there is a need to take credit from Balo Toraja which is one of cooperation in North Toraja which provide credit for all citizen with low interest.

“...If our income is not enough in a month, we usually borrow money from Balo Toraja, because the interest is quite low compare to other organisations...” [R1, in-depth-interview, 2020]

d. Physical Assets

In terms of physical assets, based on the interview and observation from video, the road to Benteng Ka'do Toria village is still damaged. This condition causes farmers cannot sell their product directly to the market in Rantepao, because it will take around 1 hour by motorbike and 2 hours by car, meaning they have to spend more money to reach the market. Based on the interview with R3 [in-depth-interview, 2020], they have to spend around \$7.1² for two ways by motorcycle to get to the market.

Picture 4 The Road Condition in Benteng Ka'do Toria



Source: Fieldwork, 2020

Four respondents also stated that they have limited access to clean water. Two of respondents still need to lift it manually from water resources around their village, but and two other respondents now using pumps to lift the water to their houses, so they just need to pay for the electricity for operating the pump:

² 1\$ is equal to Rp14.000

“...we got the water from springs around the village and we use pumps to drain it into the house, so we just need to pay for the electricity...” [R4, in-depth-interview, 2020]

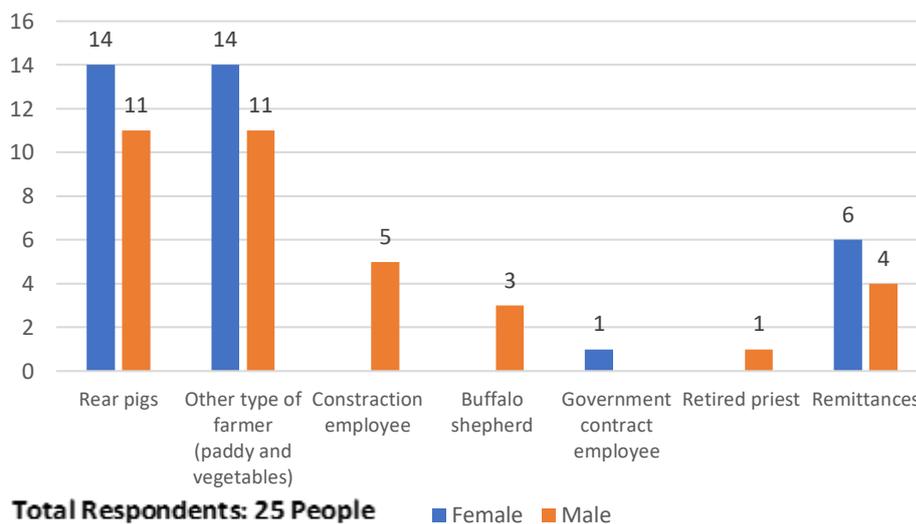
e. Social Assets

In terms of social assets, 25 respondents belong to Pa’pakuan group which facilitate them to get free assistance from DAO. Sometimes, being the part of the group also help them to sell their coffee collectively in order to get better price, but this is not compulsory for group members. Strong skin ship in the village also bring the advantage for farmers during the harvesting time. Even though this does not apply to all group members because two of four respondents still need to hire labour for harvesting, but R1 [in-depth-interview, 2020] stated that there is a form of mutual cooperation between farmers in coffee harvesting, so they will harvest the coffee together and do it in rotation from one land to others.

4.2.2. Livelihood Strategies

Below is the description of type of livelihood strategies of 25 respondents based on online survey.

Graph 1 Livelihood Strategies Other than Coffee Farmer



Source: Fieldwork, 2020

Based on the graph 1, it shows that all respondents rear pigs in their house as additional source of incomes and performance of funerals. The pig will be sold after six months of rearing, usually it will be sold in June and December when many funerals is carried out. Three of four stated that rearing pigs is not profitable for them because they invest so much money and time for it, so mostly rearing pigs is for funerals purpose. Besides, all respondents also growing paddy and vegetables for their consumption. Five male residents from online survey also work as a daily construction labour in North Toraja who usually get paid between \$7.1 to \$10.7/ day. Some women also get remittance from their husband or children who are working as construction labourers in the other cities, mostly in Papua.

“...I have children who are working but not as an officer, but also work as a construction labourer with their father in Papua...” [R4, in-depth-interview, 2020]

Besides, three old men among respondents in online survey whose age ranges between 53 and 67 years old choose to be buffalo shepherds (taking care others’ buffalo) as a side job in order to generate more income where, they usually get paid around \$21.4/month. Old men do this job, because it does not require so much physical energy and specific skill like construction labour which is the only off farm job which can be accessed by residents with low education. One of the group members also

worked as a government contract employee in village office which paid around \$42.8/month. Respondents also work as a farm labour to mow the lawn and harvest produce.

From several livelihood strategies that have been performed by respondents, it shows that coffee farm and construction labour are the only opportunities for profitable income generations, if farmers can maximise their coffee farms. On the other hand, other livelihood activities, such as rearing pigs and growing paddy as well as vegetables are just enough for consumption and funerals.

Picture 6 Coffee Tress in Agro-tourism Area



Source: Fieldwork, 2020

Picture 5 Woman is Drying Rice



Source: Fieldwork, 2020

Picture 7 The Buffalo that Rearing by a Respondent



Source: Fieldwork, 2020

Picture 8 Vegetables Growing by Households

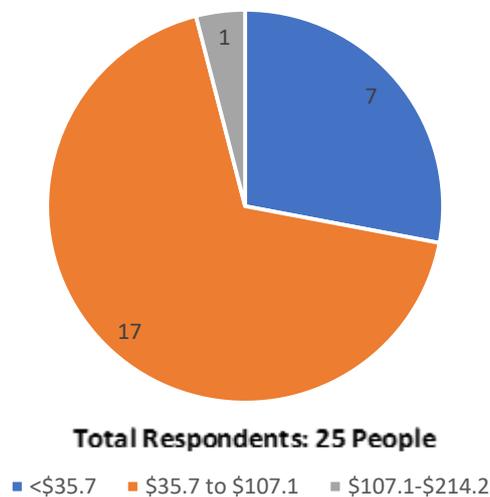


Source: Fieldwork, 2020

4.2.3. Livelihood Outcomes

Below is the description of average monthly income of household of coffee farmers based on online survey.

Diagram 2 Respondents' Average Monthly Income



Source: Fieldwork, 2020

From several types of income generating activities done by respondents, around 68% respondents stated that household average monthly income ranges between \$35.7 to \$107.1, but sometimes it could be lower than this amount especially during this COVID-19 where most male residents do not work and the price of coffee fall. This income is very low compared net living wages for standard family which is around \$130.7-\$145.2/month. For some old residents who are more than 60 years old they have more low income which is less than \$35.7. On the other hand, one respondent has high income, because he still gets pension from his previous work as a priest. R3 [in-depth-interview, 2020] stated that usually farmers get profit of around \$35.7-\$71.4 on each harvest from 200 coffee trees. The low income from coffee sector is one of the reasons to establish agro-tourism in this village according to DAO.

On the other hand, online survey shows that around 76% respondents stated that they have to spend around \$35.7-\$107.1/month, this includes rice, pig feed, fertilizer for farming, electricity and other fees related to children's education. If we compared to average of monthly income of household, around 8% respondents spend more expenses compared to their income. Four respondents of in-depth interview stated that their income is usually not enough for a month, for example R4 who has husband and children work as daily construction labour in Papua as well as raising 2 pigs, growing vegetables and paddy, normally her household monthly income is around \$57.14, but she has to spend around \$71.42 to \$107.1 to meet family needs in a month.³

Besides, this expense does not include funeral ceremony's cost which is higher. Based on the interview with R3 [in-depth-interview, 2020], residents need to spend more than \$10,000 to held one ceremony for family member, the cost it depends on social status of the household. For attending other resident's funeral, residents need to bring rice, sugar, pig or buffalo as a sign of condolences (the type of stuff to bring depending on the relationship within the residents). Based on the interview with four respondents, the price of one pig is around \$214.2 and a small buffalo price at least \$1,071.

³ In-depth-interview, R2, 2020

4.2.4. Livelihood Challenges

There are several issues that causes farmers' income reduction and the first one is the increasing rainfall which reduce their yield, because coffee beans fall before harvesting time due to the heavy rain. Four respondents and almost all farmers in online survey stated that their production is higher and the quality of coffee is better if the dry season is longer than rainy season. Normally, on one-hectare land, farmers could get approximately 100 litres (3 litres equal to 1 kg) per harvest, but nowadays they just get less than 50 litres.⁴ In 2020, farmers are only able to produce coffee for their own consumption, because the yield is low. R2 stated that:

"...our production has decreased over time due to the increasing rainfall, because the coffee beans fall before the harvest time" [R2, in-depth-interview, 2020]

The second issue, four respondents agreed that the existence of pests, such as rats, fungal, and insects also reduce their yield. One of the efforts that have been done by farmers to reduce pests in their farms is by mowing the lawn around coffee trees, to give clear sight to cats, owls and dogs to catch rats. This technique was obtained from their ancestors and comparative studies when DAO brought them to the coffee companies in North Toraja.⁵ However, farmers still do not have any knowledge and resources to deal with other types of pests, such as fungal and insects.

The third challenge, all respondents also revealed that they have limited access to fertilizers due to limited financial resources.⁶ The price of fertiliser also increase all the time, now it is around \$7.1/50kg (if they have farmer card)⁷ or around \$10.7 (if not) for one type of chemical fertiliser. Usually farmers mix three types of chemical fertiliser. R1 [in-depth-interview, 2020] stated that usually farmers buy fertilisers after harvesting and selling coffee, because that is the time when farmers can get money to buy fertiliser, meaning that farmers are only able to fertilize coffee once a year which decreases production.

Moreover, it is quite difficult to get free fertiliser from government, because there is no regular schedule of fertiliser distribution. Upon establishment in 2014, all members in online survey stated that Pa'pakuan group only got free fertiliser once from DAO in 2019. Moreover, R4 stated that initially individual farmers could buy fertilizers in the market. However, nowadays they must buy it as a group, which is quite difficult because not all group members want to buy the fertilisers at the same time.⁸

The fourth issue, four farmers confirmed that the price of coffee is decreasing from time to time. R1 [in-depth-interview, 2020] stated that initially farmers could sell their coffee around \$1.4/litre, but in the past few years and especially following the COVID-19 pandemic, the price of coffee has fallen down to \$0.7/litre. The price of Arabica coffee sometimes goes even lower than Robusta coffee, though Robusta has low quality than Arabica coffee produced by these farmers. This condition also causes farmers leave the coffee trees without management and focus on other source of incomes, such as paddy, vegetables, among others. Farmers also need to spend a lot of money to pay employees wages during the harvest time or just to clean the farm.

"...Each person can just harvest around 5 litres in a day, to harvest our coffee we need more people which can cost us much money, since we pay \$5 for women and \$7.1 for men per day from 8AM in the morning to 4.00PM, excluding their food and water. Sometimes our production is not even enough to pay employees' wages. Therefore, we do not put so much effort in our coffee farms..." [R3, in-depth-interview, 2020]

⁴ In-depth-interview, R1, 2020

⁵ In-depth-interview, R3, 2020

⁶ In-depth-interview, R2, 2020

⁷ Farmer card is identity of farmer from Ministry of Agriculture

⁸ In-depth-interview, R4, 2020

All those challenges that faced by farmers make them lose interest in investing their money and time in coffee, because it is no longer profitable. Four farmers confirmed that the harvest time of coffee and rice fall in the same period between June and July, so usually farmers will leave their coffee behind and prioritise to harvest rice and vegetables, because it is for their consumption. R3 stated that this situation was different in 80s when farmers always prioritised coffee than rice, because the price was higher compared to rice.⁹

Another challenge is that farmers' dependence on middleman to sell their products, which prevent them from getting better prices. The damaged roads, lack of transportation facilities and long distances between the village and market point are the drivers of farmers' dependence on the middleman. Besides, middlemen impose the prices based on their own perception on quality of coffee, leaving no chance for farmers to bargain.¹⁰ For instance, middleman can buy the coffee at \$0.7/litre which far less than the normal price. From middleman, coffee will be sold to companies in North Toraja.

Not only reducing the price, COVID -19 also decreased the number of coffee buyers, especially private companies who no longer operate like they used to, so likewise, the middleman also stopped buying coffee from farmers.¹¹ Nowadays, farmers decide to keep their coffee and plan to sell it for the next year.

Following the unprofitability of coffee and given much effort and time spent by the farmers during weeding and other farming activities, R3 stated that DAO trained them on how to spray their coffee as alternative to manual weeding and lower the cost of labour, consequently coffee trees could not produce beans due to spray. Furthermore, a farmer also stated that there was one-time DAO trained them to clean the grass by using spray and all the coffees that were sprayed has not produced beans for 2 to 3 years. Even until now it is still difficult for coffee to produce beans. Using spray make farmers' work easier than cutting grass manually and it also means farmers do not need to pay employee to clean grass, but it affects coffee beans production:

"... DAO taught us on how to spray grass, but as the result all our coffee that we sprayed did not produce beans and some trees even died. So, even until now the trees barely produce coffee..." [R3, in-depth-interview, 2020]

All challenges above have drastically reduced farmers income and make farmers lose interest in growing. Therefore, agro-tourism project is needed, first to bring back the attention of farmers in growing coffee as well as increasing coffee farmers, because farmers do not have other option to generate a sufficient income, since other type of farms are not enough for commercial needs. According to the average of monthly expenditure, it will be safe for farmers if they can get minimum income around \$145.2 per month, which hopefully can be obtained from agro-tourism activities in the future. The summary of livelihood framework of coffee farmers is available at appendix 5.

4.2. Benefits and Negative Aspect of Agro-tourism Perceived by The Respondents

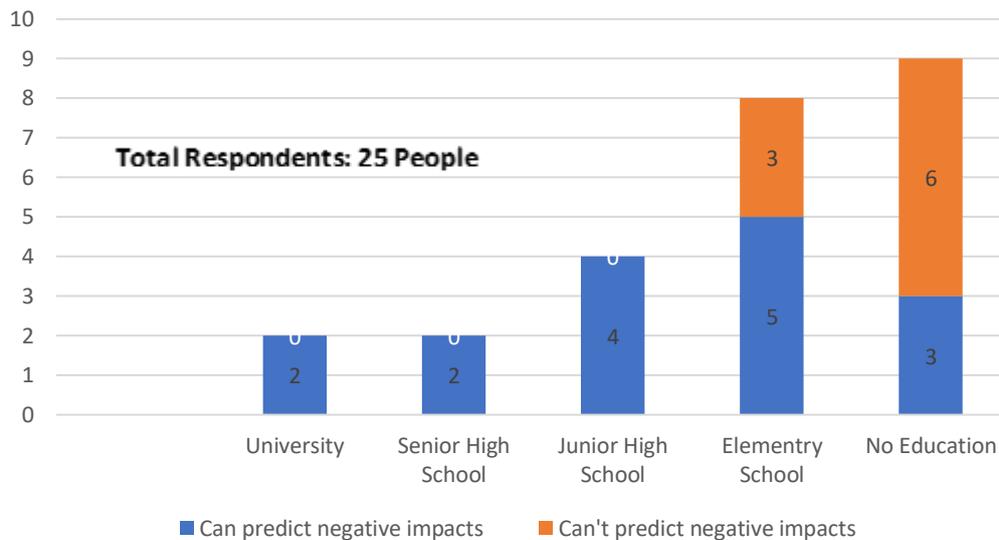
From online survey, around 100% respondents agree with agro-tourism development in their area, because they expect some benefits from agro-tourism, including increase their income. However, there are also some negative aspects of agro-tourism which perceived by respondents. Below is the result of online survey about residents' perception on negative impacts of agro-tourism which are grouped by education background.

⁹ In-depth-interview, R3, 2020

¹⁰ In-depth-interview, R1, 2020

¹¹ In-depth-interview, R4, 2020

Graph 2 Education Background VS Knowledge about Negative Impacts of Agro-tourism



Source: Fieldwork, 2020

From graph 2, around 36% respondents cannot predict the negative impacts of agro-tourism on the open questions, because agro-tourism is still not yet operating as a tourism attraction. The residents who cannot predict negative impacts are mostly coming from low education level group or do not even have chance to go to school as well as those who never leave their village and live in other cities. On the other hand, residents with high education can easily predict the possibility of negative impact by having agro-tourism in their village, especially those who has experienced living in other cities and tourism area.

Below is explanation of positive and negative impacts of agro-tourism perceived by respondents in economic, socio-culture and environment aspects.

a. Economic Aspect

Even though the agro-tourism is still not working effectively, but based on the survey 100% respondents agree that in the future agro-tourism will increase their income not only from coffee sale but also from entrance fee and entrepreneurship activities. Four respondents and village head stated that they will get more income by selling their coffee directly to the consumer with proper price around \$1.4 to \$1.7 per litre. This price is higher compared to current price from middleman. Two of four respondents stated that the thought of better price of coffee with agro-tourism start to draw back farmers’ interest in growing coffee.

Moreover, around 100% respondents also agree that agro-tourism will bring several job opportunities for farmers and their children, including operator of agro-tourism, guide and businessman. Some of jobs of operator in agro-tourism, include counter keeper, security, parking guard, among others. Some farmers wish that governments can provide foreign languages training for their children who have high education, so they can work as a guide in agro-tourism as stated by R3:

“...I also hope that government can train our children in foreign language, we have some youths here who are in senior high school and university, we hope that they can also take part in agro-tourism as a guide, so that they do not need to go out to look for a job...” [R3, in-depth-interview, 2020]

Besides, based on survey 100% respondents also agree that agro-tourism will also give them opportunity to start their own business as an entrepreneur by selling food, drinks, snack as well as their vegetables that they grow in their farm. Farmers stated that DAO also motivate them to make use of vacant land around their coffee tree to grow cassava and banana which will be sold as a complementary food when drinking coffee in agro-tourism:

"...Yes of course, DAO also ask us to use our vacant land around coffee trees to grow cassava and banana, because we will sell it later as a complementary food for coffee..." [R1, in-depth-interview, 2020]

Furthermore, since the development of agro-tourism, residents realised that government started to give attention to the infrastructure, especially roads. Moreover, survey result also shows that 92% residents said that government are starting to build some infrastructures since agro-tourism established in their village. Besides, four residents believe that in the future, government will continue to build all the facilities to support the agro-tourism.

On the other hand, from the list on the questioner in online survey, 44% respondents agree that agro-tourism will increase their sales price of things, including food which is resulting in high living cost. However, 84% respondents disagree that agro-tourism will increase the price of land and houses, because they have limited land and do not have plan to sell it to everyone who want to stay in their village. Furthermore, the Chief of Tikala Municipality [KII,2020] stated that agro-tourism might give increase the income of farmers who are joining in agro-tourism project, but at the same time can also decrease other coffee farmers' income who are not belong to agro-tourism group, because visitors in North Toraja might just want to buy coffee in agro-tourism area.

From the explanation above, it can be concluded that in terms of economic, respondents perceived more benefits from agro-tourism than its negative aspects. The amount of economic benefits from agro-tourism will be influenced by the number of visitors, the more visitors come and buy coffee the high economic benefit will be obtained by farmers.

b. Socio-culture Aspect

In terms of socio-culture aspect, based on the survey, 92% respondents agree that the existence of agro-tourism will help residents to preserve their local culture, art, crafts and local food, especially coffee which is an identity of Toraja. Moreover, 100 % respondents as well as DAO agreed that agro-tourism can create better image for their village and get more attention from government and tourists:

"...I believed agro-tourism can also promote and create a good image of their villages, I mean it can be more famous than before..." [DAO, KKI,2020]

Furthermore, around 88% residents believed that agro-tourism will help them to ensure farm legacy like what their ancestors did before. R3 stated that the farm will remain for their next generation, because the land is customary land, so it cannot be traded and can only be managed by the local residents. Besides, around 72% respondents agree that agro-tourism will bring them opportunity to meet and interact with foreigners, even though they are aware that it will be difficult for them, because they do not know how to speak English or other foreign languages. A farmer stated in 80s and 90s when their production was still high, so many tourists visited their farm and even built tents in their coffee farms in order to enjoy the beautiful scenery around their village. Besides, all respondents also hope that in the future many international tourists will come and visit their agro-tourism:

“...Yes, foreign tourists have visited us before in 80s and 90s when our production was still high. They like to stay and build their own tents in the middle of coffee trees, we tried to offer them stay in our house but they said it is beautiful to stay in the farm compared to house. We were so happy back then whenever they came and visit us, I hope many foreign tourists will also come and visit our agro-tourism in the future...” [R3, in-depth-interview, 2020]

Additionally, 88% farmers agreed that the existence of agro-tourism will also bring back the enthusiasm of farmers to go back to their farm and keep their work in agriculture sector. Farmers believe that agro-tourism can help them to get better price for their coffee which can make them stay in growing coffee like their ancestors.¹² Back then in 80s-90s, coffee price was higher than rice that made residents choose to focus more on coffee plantation.

Also, around 100% residents agree that development of agro-tourism in their area give them opportunity to get additional education, especially from DAO. In 2016, DAO provided 6 months training for all members of agro-tourism on how to improve coffee production. Farmers also got opportunity to visit coffee company in North Toraja in order to learn best practices in coffee plantations. Unfortunately, farmers do not have time to apply all the knowledge they got from the training because currently they lose interest in investing their time in coffee, so the training does not achieve its outcome which is increasing coffee production. Currently, both DTO and farmers confirm that there is still no training related to tourism management. DTO just met farmers once in planning stage without further training about tourism management.

Finally, 100% residents agree that agro-tourism will not give them chance to enjoy restaurants or hotels, because they are aware that there is no opportunity to build such facilities in their village due to limited land. So, both DAO and residents agreed to give opportunity for visitors to enjoy natural environment without accommodation facilities due to limited land, in case they want to stay in agro-tourism, visitors can build their own tents around coffee trees like what happened in 80s and 90s.

On the other hand, in terms of socio-culture aspect, just around 32% respondents agree that agro-tourism can increase the number of criminal rates in their villages and the rest do not agree with it. Besides, 100% local resident disagree that agro-tourism will increase the use of drug, alcohol and number of prostitutions. R4 who has been stayed in Papua before stated that access to alcohol in North Toraja is still limited compare to Papua. Usually community in North Toraja just drink beer and ‘tuak’ (traditional alcohol of Toraja) which are not strong to make people get drunk and cause some trouble in their village. So, it will not become an issue in the future if people drink alcohol in their agro-tourism:

“...I think we have limited access to alcohol here in North Toraja, except beer and tuak (traditional alcohol) which are not too strong to make people get drunk and make some troubles, so I think it will not become an issue in the future. This condition is different in Papua, when people have access to various type of alcohols which are causing them to get drunk and create some problems, such as fighting and sleeping on the road...” [R4, in-depth-interview, 2020]

Moreover, just around 36% respondents agree that agro-tourism will affect their children to abandon the indigenous culture and adapt the modern culture that they see from visitors. Farmers believed that their children will not be affected by foreign or outside culture, because the visitors will not come often or stay longer, so it will be difficult for their children to change their behaviours. Besides, 3 of 4

¹² KII, Village Head, 2020

respondents stated that they will keep educate their children to focus on adapting positive culture or behaviour of visitors who will visit them in the future:

“...I don't think it will affect our children, because the visitors won't come every time and we will also watch their behaviour and teach them to just adapt the positive culture from the visitors...” [R2, in-depth-interview, 2020]

One of the respondents of in-depth interview also mentioned that agro-tourism will cause unequal economic benefits within the residents. Farmer believed that agro-tourism will be more profitable for rich residents and leave behind poor people.

“...Moreover, from my experience as a resident in Lolai (tourism attraction in North Toraja), I think agro-tourism will form difference social status within residents, because in Lolai for example, some community who have enough money can establish their own small businesses in tourism attraction, but for community who do not have financial capital will left behind and will just end up as a worker for the rich community...” [R3, in-depth-interview, 2020]

From the explanation above, it can be concluded that respondents perceived agro-tourism will not bring so many negative socio-culture aspects in their life, instead will bring more benefits, including create better image of their village.

c. Environment Aspect

Based on the interview and survey, it is quite difficult for community to realise the positive impact from environmental aspect of agro-tourism on their life. Whilst from DAO's [KII,2020] perspective, one of the main ideas of agro-tourism development is to educate tourists about coffee plantation which is also part of protecting environment. DAO believed that so many people drink coffee every day, but they do not have knowledge about the coffee production, even coffee trees.

“...This agro-tourism also intended to educate the visitors about coffee plantations, because most of the coffee lovers, do not even know coffee trees, so through this agro-tourism project, DAO hope visitors can learn the process in coffee production that they drink all the times...” [DAO, KII,2020]

Besides, DAO [KII,2020] stated that agro-tourism will also help farmers to protect their land from chemical fertiliser. One of the efforts that have been done by DAO is through a training on how to produce organic fertiliser for their coffee and the benefits of organic compare to chemical fertiliser. On the other hand, 3 of 4 respondents stated that they have been using organic fertiliser from pigs and buffalos' junk even before the training, but organic fertiliser will not be enough to grow coffee, it should be mixed with chemical fertiliser if they want to increase coffee production. R1 believed that their land is fertile, so they do not need to worry about the use of chemical fertiliser:

“...we will continue to use chemical fertilizers, we will mix with organic, because the soil here is fertile, so it is fine to use chemical to increase our yield...” [R1, in-depth-interview, 2020]

On the other hand, a farmer stated that the used of fertilisers both chemical and organic actually do not have big influence in coffee growth, sometimes it even makes the trees not produce beans. In the first year using fertilisers, the trees may produce abundant fruits, but in the second and third years, the coffee production will decrease dramatically. He prefers to use grasses as substitute for fertiliser, because even if the production is not as much as the first year using fertiliser, but the trees will continue to bear fruit beans on the second, third and continuing years:

“...in the past, our ancestors only put grass around the coffee trees, from my experience if I use fertiliser, only in the first-year trees will produce a lot of beans, after that we have to wait two to three years for the tree to bear beans again. But if we use grass trees will produce beans every year...” [R3, in-depth-interview, 2020]

Based on the interview with key informants and respondents as well as online survey, there are two predictable negative impacts of agro-tourism in terms on environmental aspect which are increasing waste and traffic jam in agro-tourism area. Around 96% respondent in survey agreed that agro-tourism will increase the number of waste and air pollution in line with the increasing of tourists whom will visit their village. Village Head as a key informant also agree that garbage will be one of the most disadvantages of agro-tourism if local residents do not have strong commitment in managing the wastes:

“...the most negative impact of tourism on local residents is garbage, especially if there is no commitment for local residents to keep their environment clean...” [Village Head, KII,2020]

In order to manage the waste from agro-tourism, R3 stated that organic waste can be processed into fertiliser which can be used for their coffee, whist non-organic waste, such as plastic can be burned by farmers:

“...I think we can be processing organic garbage into fertilisers and use it in our coffee farm and the plastic waste will be burned like what we used to do, so I think it will not become a big issue in the future, if agro-tourism already implemented...” [R3, in-depth-interview, 2020]

Besides, around 72% respondents in survey agree that agro-tourism will create traffic jam in their village. R4 [in-depth-interview, 2020] stated that the number of vehicles will increase in line with number of people who will visit their village, especially they do not have enough land to build parking area around agro-tourism. Moreover, one respondent also thinks that there is a possibility the existence of agro-tourism will destroy their coffee trees, because so many activities will be carried out by visitors in their farms.

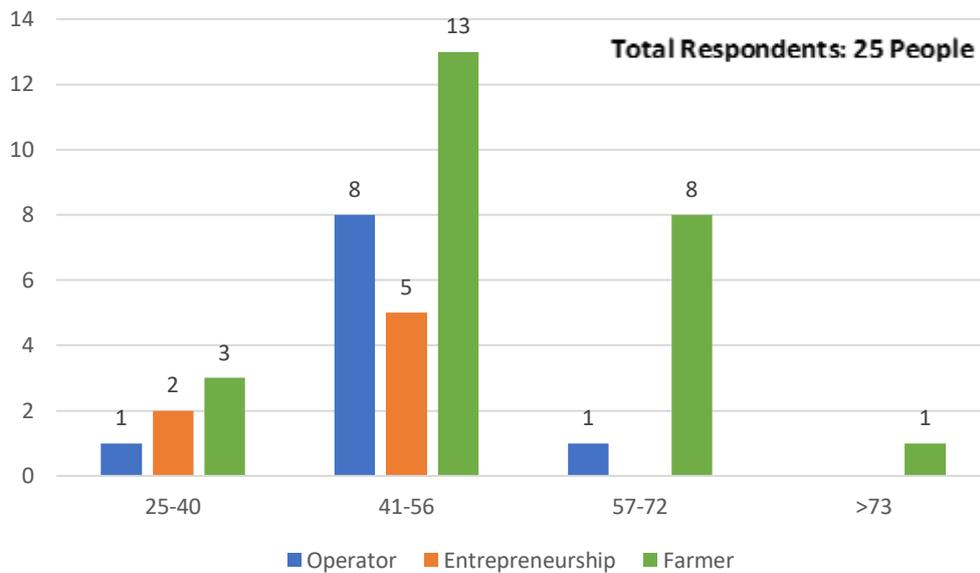
From the description above, it shows that in terms of environment aspect, respondents perceived agro-tourism will bring more negative aspects compared to benefits. This result is quite different with economic and socio-culture aspect where respondents are perceived more benefits from agro-tourism than negative impacts.

Overall, from the result about the perception of residents on benefits of agro-tourism, it is clear that socio-demographic variables, such as age, education, and among others do not have significant influences on how residents perceived, because all the answer almost similar to each other. The quantitative analysis of local perceptions about benefits of agro-tourism can be found in appendix 6. On the other hand, the result about residents' perception on negative impacts of agro-tourism shows that there is a difference in perception between educated and less educated residents. Educated residents are more critical in defining negative aspects of agro-tourism compare to less educated residents. Moreover, it is also shown that residents who have experienced living outside the village and experienced living in tourism attraction have more knowledge about negative effects of agro-tourism compared to residents who have never left the village. The analysis table about negative aspect of agro-tourism perceived by residents is available on appendix 7.

4.5. Desire Roles of Local Residents in Agro-tourism

Below is the result of online survey about desired roles of local residents in agro-tourism based on their age. From several socio-demographic variables, age is the one of the strong variables which influence the perception of residents about desired roles in agro-tourism.

Graph 3 Desired Role Perceived by Local Residents by Age



Source: Fieldwork, 2020

Based on the survey, 100% group members will stay as a coffee farmer even when the agro-tourism is operating as tourism attraction, because they still need to produce coffee that will sell at agro-tourism. But some of old respondents with age between 57 to >73 years old choose to stay as a farmer without trying other opportunities, such as operator or open small business, because they are used to being a farmer and they are too old to do others job. R2 [in-depth-interview, 2020] stated that she is too old to be part of operators in agro-tourism or even to build her own business at her age, so she will stay as a farmer because she has experience in that role. Even so, she would not waste the opportunity, so she will recommend her children to replace her as an operator in agro-tourism as well as grab the opportunity to established a business by selling some foods, drink, cigarette and vegetables from their farm in order to increase their family’s income:

“...Now I am old and I do not have energy to work other type of job, except farming. But my children can take my position as an operator. It is also difficult for me to make business, but for sure I will ask my children to do it, we can also sell our vegetables and get more money...”
 [R2, in-depth-interview, 2020]

On the other hand, 28% women respondents with age range from 25 to 56 have interest to establish their own small business as entrepreneurship by selling food, snacks, drinks, cigarette and vegetables from their farm. R4 [in-depth-interview, 2020] stated that she will open a small shop in front of her house to sell her vegetables and other things for tourists, to get more income from agro-tourism activities.

Based on the graph 40% respondents who are men are willing to work as an operator. Even though, in the survey women did not choose to be operator, but they will participate in that role. Based on the interview with R1 and R3 [in-depth-interview, 2020], government and cooperative members already made an agreement related to the division tasks for operator jobs in agro-tourism between women and men. Women will focus in preparing and serving coffee for the tourists, whilst men will focus on cleaning, ticketing and security part. The Pa’pakuan members will be divided into small group and will be scheduled on duty each day. They will be paid based on working hours, although it does not yet decide when is the payday and how much wages will they get.

From the result above, it can be concluded that even though agro-tourism is still not yet operating, but local residents have been planning to play all roles that are needed to support agro-tourism in the future. Age and gender are two socio-demographic variables which influence farmers' perception in defining their roles in agro-tourism.

4.6. The Challenges of Agro-tourism Development Perceived by Respondents

DAO and all farmers stated that the first challenge of agro-tourism development was the process of expropriation and compensation for the landowners especially for building of the pathway, office, gazebo and toilets in agro-tourism area. But both DAO and farmers also confirmed that this issue has been resolved by government and closed in 2019, so now DAO can start building the pathway as mentioned by R1:

"...Actually, the development of agro-tourism has been started long time ago, but one of our members don't allow DAO to build pathway before the compensation for the land. But as far as I am concern, government has paid the compensation last year, so the case is already closed..." [R1, in-depth-interview, 2020]

Another important challenge which is stated by DAO is the financial constraints whereby the project mainly depends on support from the provincial government to build all the facilities in agro-tourism and initial operational costs, because local government do not have specific budget to support the agro-tourism development.

"...We also need to wait for the financial support from APBD and APBN to build all those facilities..." [DAO, KII,2020]

R4 [in-depth-interview, 2020] also realised that they are too dependent on financial support from government in agro-tourism development, because they do not have money to fund the development. Moreover, R2 added that they need a lot of money to build all the facilities, including pathway, all the materials, as well as for workers' wages, but their lack of financial capital.

"...We want to build pathway in agro-tourism, but we do not have financial capital, because we need to pay for the worker's wages to build it. Nowadays, it is difficult to ask people to working voluntarily, especially youths, so we need money to pay the labour. [R2, in-depth-interview, 2020]

Furthermore, till now coffee production in Benteng Kado To'ria is too little. Based on the interview with R3, it is clear that coffee production is not enough for agro-tourism activities, currently the yields can only be enough for household' consumption, if they use it for agro-tourism activities, it might be only used for one to two weeks, because for agro-tourism it needs around 66.6kg coffee per day (200 litres)

"...if we want to operate the agro-tourism, we have to increase our production, because the coffee that we have now it just enough for our consumption. We can sell it in agro-tourism, but maybe it will be sold out just in one or two weeks. From the training with DAO, we need around 200 litres coffee per day to be able to meet the demand of agro-tourism..." [R3, in-depth-interview, 2020]

On the other hand, DAO realise that there are some internal issues in their organisation, such as limited number of staffs in their office which also affects their performance in every project, including agro-tourism. Nowadays, DAO especially plantation division has only three heads of divisions and six contract employees. This limited number of staffs reduces the intensity of meetings and coordination

with farmers in agro-tourism development. Moreover, staff rotation especially for middle and upper positions in DAO is very fast, sometimes the head of DAO just stay for six months to one year which influence decision making and program implementation since they do not have enough time to work and finish the project.

“...We also have internal issue in DAO which is limited staff, now in plantation division we just have 3 head of divisions and 6 contract employees. Moreover, the rotation of head of department and division in DAO is too fast, so that they do not have enough time to work and finish the project...” [DAO, KII,2020]

Three of four respondents of in-depth interview also stated that the coordination between DAO and farmers is too limited and until now they do not have routine schedule for meeting about agro-tourism development. Besides, farmers also do not know current DAO representative who is responsible for the agro-tourism program.

All farmers, DAO and DTO [in-depth-interview & KII, 2020] confirm that upon established in 2014 DAO has not yet register the licence of agro-tourism as one of tourism attractions in North Toraja which hold back farmers to operate the agro-tourism. Furthermore, both farmers and DAO also stated that COVID-19 also take part in delaying all plans to operate agro-tourism in the near future.

On the other hand, Tikala Municipality government stated that the agro-tourism program still cannot perform well, because of lack of commitment from all related stakeholders to manage agro-tourism, especially DAO as the owner of the project. In addition, the effort to promote agro-tourism to the public both verbally and on social media is still not efficient, so in order to increase the performance of agro-tourism in the future, the first thing to be done by Tikala Municipality government is to promote agro-tourism through social media and verbally, so that tourists can visit and enjoy the agro-tourism:

“...in the future, we will continue to promote agro-tourism and socialising with community to keep preserving and maintaining the agro-tourism...” [Chief of Tikala Municipality, KII, 2020]

From the result description above, it can be concluded that some of the challenges that have been facing by agro-tourism so far are including lack of financial resources as well as limited coffee production. Besides, lack of commitment and coordination within the related stakeholder is also a challenge which should be taking into consideration by all stakeholders. Limited marketing about agro-tourism should also be a concern for all related stakeholders in the future, once it is established as a tourism attraction. Moreover, DAO also need to minimize the impact of internal issues within their organisation on agro-tourism performance in order to improve the performance of agro-tourism in the future. Over all, there is no socio-demographic variables which influence residents' perception on the challenges of agro-tourism, but R3 which is the chief of the group has more knowledge about challenges that have been facing by agro-tourism compare to other members in the group.

Chapter 5 Discussion

Introduction

This chapter is presenting the analysis and discussion of findings with related previous studies in order to draw the conclusion which can be useful to draw recommendation in order to achieve the research objective. This chapter also provides reflection of researcher during the study process.

5.1. The Benefit of Agro-tourism

In terms of economic aspect, local residents perceived that agro-tourism will increase their income in the future. This statement is confirmed by Bwana et al. (2015); Schilling, Sullivan & Komar (2012) and (Barbieri, 2013) which stated that agro-tourism create possibility to increase farmers' income as well as strengthen food security. Another economic benefit from agro-tourism based on the finding is that employment and business opportunities for farmers as well as their literate children. Srisomyong (2018) agreed with the statement that agro-tourism will provide both job opportunities (operator and guide) and allow villagers to establish small and micro-business, such as hotels, restaurants and craft production. But for agro-tourism in Tikala Municipality, there is small possibility for farmers to build or operate hotels and restaurants due to limited land. Moreover, the lack of capacities and financial resources also limit farmers to run business in hotel and restaurant. Instead, local residents will focus to establish small shops in their house to sell some food, snack, drinks and vegetables.

Moreover, local residents also agree that agro-tourism has increased infrastructure development in their area. This result is supported by Lo et al. (2013) who believed that tourism will increase infrastructure development, such as road, electricity, water and among others which can support residents in running other economic activities. The economic benefit and infrastructure development of tourism depend on number of tourists or degree of tourism activities. The more visitors come to visit agro-tourism, the high tax will be gathered which can be useful to develop infrastructures. In addition, Bwana et al. (2015) believed that agro-tourism also give opportunity to create more value addition to agriculture product which can improve farmers' income. In Tikala Municipality, even though, farmers do not directly mention that they will do value addition to their coffee, but with agro-tourism, farmers will produce grounded coffee that has never been produced before which can be considered as value addition for coffee.

In terms of socio-culture aspect, both findings and Barbieri (2013) agreed that agro-tourism will allow farmers to preserve their local heritage. Besides, this research also found that agro-tourism will create good image for the village. This is also in agreement with the findings of Petrović et al. (2017) that agro-tourism will help residents to build good image of their village. Finally, Schilling, Sullivan & Komar (2012) stated that agro-tourism give opportunity for local residents to get additional education, especially in tourism management, language and among others. This study also agrees with that statement, because ever since its establishment in 2014, farmers already got some trainings from DoA about coffee production and in the future DTO will also train them about tourism management.

In environmental aspect, both this study and Petrović et al., (2017) agreed that agro-tourism will encourage education for tourists about nature-based tourism through plantation which also part of protecting environment. The residents' perception about benefit of agro-tourism is still limited because around 88% respondents are at the age range between 41 to >73 years old which make them less conscious with the impact of agro-tourism. Gracie et al. (2016) stated that young generation has more conscious and education about environment compared to old people.

Based on the analysis between findings and previous studies about benefits of agro-tourism perceived by residents, it can be concluded that agro-tourism will bring some economic, socio-culture and environment profits on local residents once it is registered and operating as a tourism attraction. Some benefits which are perceived by residents mostly in economic aspects, such as increase income and create job as well as business opportunity for residents.

5.2. Negative Impact of Agro-tourism

Despite all the benefits of agro-tourism, there are also some negative impacts perceived by local residents in this study and one of them is that the increasing of living cost due to the rising price in products, including food. This statement is in agreement with Mensah (2012) who stated that agro-tourism will bring disadvantages to economic condition of local residents, for instance it leads to the increasing of sale prices in community, especially food items. The increasing of price will be influenced by number of tourists who visit and eat locally. On the other hand, around 84% residents disagree that agro-tourism will increase the price of land and houses. This condition is in contrast with the statement from Petrović et al. (2017) who believed that agro-tourism will increase the land value and prices. There is a different statement between the result of this study and previous study due to the different conditions, findings of the study suggest that, residents have limited land and they express no interest in selling their land to the outsiders which make them perceived that land prices will not be increasing.

Besides, this study also found that, agro-tourism will create big gap in social status, because agro-tourism will just bring more benefits to rich residents and leave behind the poor. Moreover, agro-tourism will also create unequal benefits between members of cooperative and non-members. Junaid (2015) also found the same idea that agro-tourism will create unequal economic benefits between residents who have more capital and indigenous or poorest residents. From both statements, it is clear that agro-tourism will be more profitable for rich people than poorest, because they have enough financial resources to establish their own business around agro-tourism, such as restaurant, shop and among others. Besides, members of cooperative will benefit more compared to non-members, because they have all the change to participate in agro-tourism.

In terms of socio-culture, this study found that residents disagree that agro-tourism will create some disadvantages for them, such as moral degradation, increase crime rates, prostitution, drugs and abandon the indigenous culture. These findings are in contrast with the statement of Lo et al. (2013) and Petrović et al. (2017) who believed that agro-tourism can cause criminal action, increasing the use of drugs, prostitution as well as abandon the indigenous culture and starting to adapt modern culture. The difference statement between result and previous studies occurs because currently agro-tourism has not yet been operationalised as a tourist attraction, so people have not yet experienced and seen a negative impact on socio-cultural aspects, while the previous studies were conducted on operated agro-tourism. The impact both negative and positive aspects of agro-tourism will also depend on the number of tourists who will visit agro-tourism. Besides, difference in culture and belief can also influence the difference in result of studies, for example Indonesia which is known as a Muslim country will be stricter with the use of alcohol and prostitution, so the possibility of increasing use of alcohol will be limited, compared to Serbia which is known to use alcohol (Serbia is the research area of Petrović et al., 2017).

In environmental aspect, this study found that agro-tourism will increase waste as well as traffic jam in Benteng Ka'do Toria. This finding is similar with Nyaupane (2006) and Sharma & Dyer (2008) studies which stated that tourism development will cause mineral bottles littered and also increase number of vehicles which is resulting in traffic jam and air pollution. From discussion, it can be concluded that the perception of the villagers in environmental effect is quite limited. But the environmental effects are the most recognisable both by this study and previous research, because these issues are common in every tourism activity, so there is no need to experience agro-tourism to discover these issues.

5.3. Determinant Factors of Local Residents' Perception on Agro-tourism Development

Mensah (2012) and Gracie et al. (2016) stated that there are some socio-demographic variables which influence the perception of local residents on agro-tourism, such as age, gender, education level, marital status, parental status, length of resident and type of work. While this study found just few variables that influence residents' perception on agro-tourism, including age, education level, previous experience living around tourism area and role in cooperative.

In terms of age, this study found that old residents have limited job opportunity compare to young residents in agro-tourism due to limited energy to work. This statement is in line with Mensah (2012) and Gracie et al. (2016) which stated that agro-tourism will bring more economic benefit to young generation, because they get more job opportunity compare to old generation. From both these studies, it can be concluded that young generation will benefit more from agro-tourism compare to old generation, because of physical limitation of older residents which is required for every job in agro-tourism.

In terms of educational level, this study found that the higher the educational level of residents the more they become critical to predict the negative impact of agro-tourism on their lives compare to less educated residents. However, Aref & Redzuan (2009) stated that the higher the educational level of residents the more positive their perception toward tourism impacts. From the discussion, we can see the different perspectives between findings and previous study, because in this study the agro-tourism is not yet operating whilst the agro-tourism in previous study have been operating. But from this different result, it can be concluded that educated residents will be more critical in perceiving both positive and negative aspects of agro-tourism without experiencing it directly, whilst the less educated residents' perception will just be based on their experiences.

5.4. Desired Role of Local Residents in Agro-tourism

There are several roles needed to be performed by local residents in agro-tourism, including farmers, operators and entrepreneurs. This study found that 100% local residents will stay as farmers meaning that they will stay to produce coffee and sell it directly to visitors. Chase et al. (2018) stated that agriculture production and selling farm's product are the main activities in agro-tourism. So, it is really important for residents to stay as farmers in agro-tourism in order to provide the main product for the visitors. With this role, farmers will get their income from agro-tourism through sales of their agriculture product which is coffee.

Besides, this study also found that 28% women has interest to establish their own business as entrepreneur in agro-tourism by selling some food, drink, and vegetables in order to get more income. In line with that, Defra (2009:14) stated that entrepreneurship become the most commercial advantages for local residents as long as they have enough financial resources to establish their own business. Some enterprises which have potential to develop, including restaurants, shops, hotels among others. But for agro-tourism in Tikala Municipality, it is not possible for residents to build a big business, like hotel or restaurants, because of limited land as well as lack of financial and human resources. From this discussion, it can be concluded that in order to establish entrepreneurship in agro-tourism, it is important to consider all resources of residents, not only the business skills but also the availability of land.

Moreover, this study also found that 40% male residents also have interest to work as an operator in agro-tourism. Even so, women will also involve as an operator in agro-tourism but mostly focus in preparing and serving coffee for visitors. Some jobs which can be performed by operators, including counter keeper, security, parking guard and among others. This finding is quite different with Tew, C. and Barbiere, C. (2011) study which found that the role of operator should be supported agro-tourism to sustain by continuously promoting it through paid advertisement, blogging, and among others. This means that residents in Tikala Municipality still have lack of knowledge about some roles that should be playing in agro-tourism. Therefore, it is important for government to educate and train local residents about other skills and knowledges which are required for agro-tourism, such as marketing strategy and foreign languages. From this discussion, it can be concluded that role as an operator in agro-tourism will not just focus on services but also marketing in order to improve the performance of agro-tourism.

5.5. The Challenges of Agro-tourism Development

One of the challenges of agro-tourism development found in this study is the lack of financial resources both from DAO and farmers which cause the delay in some activities, including infrastructure development. This finding is confirmed by Zhang et al. (2009) who stated that there are four major challenges in tourism development and one of them is lack of financial resources. Su (2011) added that the support from government through finance and marketing is essential to develop agro-tourism. It is important for government to support agro-tourism financially starting from infrastructure development until establish entrepreneurship activities in order to avoid imbalance impact of agro-tourism within the residents. In-line with Su (2011), this study also found that marketing which is one of essential factors of agro-tourism development is still low both through social media and verbally which resulting this agro-tourism is not well-known. From these discussions, it is important to take into consideration the availability of financial resources before establishing agro-tourism. Besides, marketing also plays a vital role in improving performance of agro-tourism.

The lack of coffee production which is the main product was found as one of the barriers in agro-tourism development. The recent coffee production is not enough to meet the requirement of agro-tourism development. One of agro-tourism in Indonesia which is Mesastila in Mangelang needs to produce around 12 tons per year for agro-tourism activities (Petrilia, 2019). DAO in this study also revealed that for agro-tourism, farmers need to provide coffee around 66.6 kg/day meaning farmers should produce around 23.9 tons/year to support agro-tourism activities. From the two statements, it concludes that agro-tourism needs average 17.9 tons coffee per year. Compare to recent farmers' production which just managed to produce around 33.3 kg per ha/ year, meaning for 25 members with an average land around 1.25 ha, farmers can just produce around 1.04 tons/year. This amount is low with the average coffee production which is needed to keep agro-tourism.

Finally, on challenges, the lack of commitment from government, especially DAO. This manifests through the lack of coordination with farmers and the delaying registration of agro-tourism as one of tourism attraction in North Toraja. Colton and Bissix (2005) also agreed that one of the obstacles in agro-tourism development is the lack of involvement and commitment from government. Li Yang (2012) added that government has a vital role in support agro-tourism development both through policy and financial support, because in many developing countries, the main source of investment mostly come from government. Therefore, it can be concluded that the role of government has a big influence in defining the performance of agro-tourism.

5.6. Reflection on My Role as a Researcher

5.6.1. Research Process and Methodology

COVID-19 circumstance prohibited me to from going to the field for data, so it was very challenging process. Though I had a co-researcher who helped in process, but at some points, I lose opportunity to be able to directly communicate with respondent and do direct observation to see the condition of agro-tourism. During the data collection, I tried to do in-depth interview by myself through telephone call to be able to understand the situation with some information that I already got from online survey. At first, I wanted to use video call, but the poor network connection in research area forbid me to do it, so I lost chance to observe the body language and expression from respondent which is important factor in researcher related to perception. This may affect the quality of my data collection as I did not see the expressions.

Another challenge during the data collection was that July is a busy month for farmers because it is harvesting period. So, my co-researcher could not find right time to meet farmers during the online survey. Moreover, it was rainy season which made it more difficult to meet all the farmers. After some discussion with my co-researcher, we decided to call by phone the rest of farmers who are respondents in online survey at afternoon after coming from farms through a youth in that village who has WhatsApp application, because my co-researcher cannot reach the village during the rainy season.

Moreover, time difference between Indonesia and Netherland is 6 hours also a challenge for me, because in order to reach key informants during work time which is around 9am to 12am (WITA), I have to wake up around 3am in the morning to be able to conduct the interview. Sometimes, I already arrange appointment with key informants, but they cancel it on the same day or even 5 minutes before the schedule. This conditions really effect the cycle of my daily activities, because I slept in the morning at 4 after interview and wake up in the afternoon and start working on my thesis at evening to midnight. Besides, some key informants also difficult to reach both by co-researcher and I, and ask to send the questionnaire instead, this is also one of the challenges, because I did not have chance to ask probing questions. In order to get key informants' participation in my research, I made use of my connection through my aunty who is working as a government staff to find the right informants based on the criteria that I have been set. This method was working, though maybe there will be some bias from the answer because they became my informants not because they were willing to do it, but because of my aunty.

Before the data collection, I discussed with my co-researcher to inform the respondents the real situation that she come to help me a student from Toraja who are now pursue my master in Netherland and due to the COVID-19 I cannot go home to conduct research by myself. I also explained to the respondents that I am not working for the government but I have discussed with DAO several times about this research and their needs from this study which can provide them knowledge to improve agro-tourism project in the future. From this explanation, respondents were welcome to answer the questions with the expectation that I could communicate the findings to DAO, because all of them wish that DAO can start operating agro-tourism as tourism attraction as soon as possible.

Before having the letter from university that recommend us not to go home, I had intention to just use qualitative research strategy, but after decided to conduct research from distance, I adjust my methodology by combining qualitative and quantitative research in order to get more sources of data to understand the whole situation of agro-tourism. From my experience, I think I made the best decision to combine qualitative and quantitative, because I have been able to collect data from all related respondent to answer both main question and sub-question of this study.

Finally, as a professional researcher, I would like to admit this study will be more interesting if I have opportunity to do the field work. If I had opportunity to participate in the data collection myself, I would choose to live with the farmers for a month like what I used to do when conducting a research in order to build trust with local residents and learn more about their perception and factors that influence it. But, during the research under special restriction due to COVID-19 pandemic, I learn more about the complexity of research, the difficulties in reaching respondents/informants, how to keep someone interested to talk for a long period on phone, and among others. I also discover some data collection methods in pandemic during this research, such as video-taking as a substitute for direct observation.

5.6.2. Quality of Research Findings

Despite the fact that I cannot conduct the fieldwork in Indonesia, but I am sure that all findings in this study is valid based on the real situation in agro-tourism in Tikala Municipality. Moreover, the use of several methods and involve various respondents and key informants allowed me to do triangulation of my data to make sure the validity of data. For example, in order to test the validity of data from survey, I ask related questions in key informant and in-depth interviews.

Besides, fact that residents do not have so many different characteristics also affect the findings, because the way they think or perceive something, including agro-tourism are mostly similar to each other. Therefore, I tried to pick farmers from different characteristics for in-depth interview to get various perspectives which can enrich my findings. Some characteristics that I used mostly related to socio-demography variables, such as age, education, role in group and experience living in tourism areas.

During data collection, I did not put pressure or lead opinion of respondents and key informants, I just give the floor for them to express their perspective about agro-tourism. Moreover, during interview, I was using my local language and creating comfortable conversation with respondents by starting with small talk about the current situation and other interesting topic which can make them open to answer all questions. Furthermore, before doing the real interview, my co-researcher and I tried to do simulation to questionnaire with other farmers from different village to see if our questions are understandable.

The topic of the study is about perception of local residents and I gave all members of cooperative (25 farmers) opportunity to contribute in giving their perspective about agro-tourism in their village to improve the performance of agro-tourism. So, I can ensure that my findings are enough to represent farmers' perception about agro-tourism. Moreover, in analysis and writing findings, I do not change any statement both for farmers and key informants, I just try to make sense all information I got.

Despite the care taken to ensure quality of research findings, I would like to mention that my research findings are only valid for the case of agro-tourism in Tikala Municipality and cannot be generalized to other areas, because all the research findings are based on local residents' perception. Moreover, I also wanted to mention that I did not have opportunity to interview all the key informants directly and I just got their answer through email, so I do not have opportunity to do probing. Furthermore, fact that I just involved members of cooperative as respondents in my research also create bias in my data, because the members of cooperative are the beneficiaries of agro-tourism who have gotten several benefits, so there is a tendency that they will bias in perceived agro-tourism development.

Chapter 6 Conclusion and Recommendation

Introduction

This section answers the research questions based on the findings and their analysis in correlation with research question. Besides, it also contains recommendations which are provided for related stakeholders in order to improve the performance of agro-tourism in the future.

6.1. Conclusion

From findings, it shows that residents have several livelihood strategies, but only few helps them to generate income, including coffee farm. Those who have formal job as an officer in village government or pension can generate more income compared to those who just work as farmers or construction labours. The average of household monthly income is around \$35.7 to \$107.1 which is less than net living wages which is around \$130.7-\$145.2/month. Fact that farmers start to lose their interest in coffee farming due to the low price also effect their income, therefore agro-tourism is expected to boost coffee farming in the future.

This study concludes that agro-tourism based on locals' perspective can increase their income as well as well-being through new job and business opportunities. There are three roles that should play by residents in agro-tourism which can help them to generate income, including as farmers to produce agro-tourism-based products, operator for technical support and marketing, and the last is entrepreneurship which support agro-tourism activities by established some businesses. Besides, local residents also perceived that increased agro-tourism can stimulate infrastructure development which they hope can be utilized for other economic activities as well.

Furthermore, residents believed agro-tourism will also create better image of village as well as help them to ensure farm legacy. Providing opportunity to meet with visitors and preserve local culture as well as opportunity to get additional education through training are also the positive aspects of agro-tourism. Besides, agro-tourism will also help to protect environment by promoting nature-based tourism.

In order to achieve all the benefits of agro-tourism and keep it sustainable, it is important to manage all the negative aspects and challenges that have been facing by agro-tourism. In terms of economic aspect, locals perceived there is an issue of increasing living cost, unequal economic benefits between poor and rich residents as well as members and non-members of cooperative. In terms of environment aspect, residents perceived that agro-tourism will also increase waste and traffic jam in their area.

Furthermore, there is an issue of lack of coffee production which should address in order to keep agro-tourism sustain in the future. According to analysis, an agro-tourism needs around 17.9tons a year to serve tourists who visit agro-tourism. Besides, according to the local (fore)see the following as challenges for stimulating agro-tourism should also be address, including limited financial resource, lack of coordination and commitment from government to continue the development of agro-tourism which is resulting the agro-tourism is still not yet registered as one of tourism attraction. Furthermore, lack of marketing is also one of barriers in agro-tourism. Finally, COVID-19 also play a big role in delaying some processes and activities that should be done by all stakeholder related to agro-tourism development.

6.2. Recommendation

The recommendations address some feared the negative impacts of agro-tourism by residents as well as the challenges in agro-tourism in order to improve the performance of agro-tourism in the future:

- a. In order to meet demand of coffee production (17.9tons a year) in agro-tourism, in the short-term, the deficit of coffee can be acquired from other farmer cooperatives with similar quality arabica coffee. Pa'pakuan group can do this by engaging other cooperatives with outsourcing contract meaning that cooperative just buy the coffee from others whenever they need more coffee for agro-tourism. With this scheme agro-tourism will not just give benefit for members of cooperative in agro-tourism but also other farmers. In the long-term, coffee farmers should put back all their attention in coffee farm, they need to modernise their coffee farming, meaning apply fertiliser, manage their land, pest management, among other to produce more coffee and meet demand of agro-tourism.
- b. To provide equal distribution of economic benefits between poor and rich residents, DAO should help poor people by lending financial resources for them to established their business in agro-tourism. DAO also need to train farmers on how to establish profitable business.
- c. Waste management training and infrastructure development in order to help farmers in manage the trash from agro-tourism activities. Through the training, farmers will be able to separate between non-organic and organic waste, the organic waste can be processed into fertiliser which can be useful for coffee and non-organic will be dumped into the final shelter. DAO also need to provide trash bins in agro-tourism as well as processing for organic waste.
- d. All related stakeholder should work together to establish Agro-tourism Committee which can improve the coordination within the related stakeholder about agro-tourism. It is important to establish a committee which contains representative from DAO, DTO, local government, coffee industries in North Toraja and representative of coffee farmers. Through this committee, all issues that have been facing by agro-tourism can be communicated to all parties, so that it can be solve together not just by DAO like they used to do. This committee can also develop module for extension training for agro-tourism development which covers some topics, including introduction about agro-tourism, how to improve production, marketing, financial management, managing safety risks of agro-tourism, among others.
- e. District Tourism Office in collaboration with local government can start to promote agro-tourism activities by posting it on the website and social media of DTO and North Toraja district. Marketing can also be done by create a coffee festival in agro-tourism, so that tourists can recognise its visibility. Government can also work in cooperation with media to promote agro-tourism through newspaper, local TV, radio, among other.
- f. For coffee companies in North Toraja, they can contribute by providing training for farmers on how to increase the production by applying sustainable agriculture practice which include how to manage pest, the use of fertiliser, rejuvenation, nursery among others. In return, coffee companies get recognition and award for its contribution for agro-tourism as a corporate social responsibility from government.

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Appendix

Appendix 1 Questionnaire of Google Form

Good morning/afternoon Sir/Madam, I am Delfania Matasik, one of the students of Van Hall Larenstein University majoring in Management of Development who are currently conducting a research about the perception of local residents' on agro-tourism in Tikala Municipality, North Toraja. For this reason, I would like to request your cooperation to fill the form which just take times around 10 to 15 minutes. I use this online survey due to the COVID-19 pandemic which prevent me to go the field and take the offline survey. I guarantee you that all the information will be anonym and the data will just be used for the education purpose. Thank you in advance.

If you have any questions about the questionnaire, please let know by contacting me through:

Email: delfania.delfaniamatasik@hvhl.nl.

Please tick the question below:

1. Sex:
 Male Female
2. Age:
 <20 20-44 45-64 >65
3. Level of education
 No study Primary Junior High Senior High School University
4. Marital Status
 Single Married Divorce Widow
5. Do you have children?
 Yes No
How many:
6. Indicate how long have you been lived in this municipality:
 Less than a year From one to five years Six to ten years More than eleven years
His/her previous residence was:
7. Other jobs beside coffee farmers (you can tick more than one):
 Cattlemen Trader Government Staff Private Employees Farmer with other crops
Others:
8. Average monthly income of household:
 <\$35.7 \$35.7-\$107.1 \$107.1-\$214.2 >\$214.2
9. Average monthly expenditure of household:
 <\$35.7 \$35.7-\$107.1 \$107.1-\$214.2 >\$214.2
10. Do you agree with the agro-tourism development in your area? Should you not want to know if they are involved in agro-tourism? Because their experiences might colour the level of agreement
 Yes No

Describe the reason behind in:

.....

11. Describe two positive aspects of agro-tourism development in your area:

- a.
 b.

12. Describe two negative aspects of agro-tourism development in your area:

- a.
 b.

13. Local residents' perception about agro-tourism aspect (please tick your response below):

a. Economic aspects of agro-tourism

No	Economic Aspect	Agree	Do not know	Disagree
1	Increasing income of coffee farmers			
2	Increasing employment opportunities			
3	Increasing opportunity to establish small entrepreneurship			
4	Improving public infrastructure development, including roads, electricity, water, etc.			
5	Increasing sale prices/cost of living			
6	Increasing the price of land and housing			

b. Socio-culture aspects

No	Socio-culture Aspect	Agree	Do not know	Disagree
1	Opportunity to preserve their local culture, art, crafts and local food			
2	Opportunity to enjoy the tourism facilities, such as restaurant, hotel, etc.			
3	Ensure farm legacy			
4	Keeping their work in agriculture sector			
5	Opportunity to meet and interact with foreigner			
6	Opportunity to get additional education from other stakeholder, such as District Agriculture Office, including tourism			

	management, communication, languages, etc.			
7	Create favourable image of villages or municipality			
8	Agro-tourism causes more crime			
9	Increasing drug, prostitution and alcohol			
10	Abandonment of indigenous culture and adapting to modern, especially youth			

c. Environmental aspects

No	Socio-culture Aspect	Agree	Do not know	Disagree
1	Improving the use of organic fertilizer			
2	Encourage education on coffee plantation to visitors or tourist			
3	Increasing water and air pollution and solid pollution			
4	Traffic congestion			

14. Describe at least two challenges and opportunities of agro-tourism development from your opinion:

- a.
- b.
- c.

15. The role that you would like to play in agro-tourism development (still looking for the literature):

- Farmers Operators Entrepreneurs

The reason behind your selected role:

.....

16. In your opinion, under what condition under would you be in favour of agro-tourism?

.....

Appendix 2 Online In-depth Interview Guidance

Age	:
Sex	:
Education	:
Marital status	:
Parental status	:
Type of work	:
Length of residency	:

1. Besides, going to the farm, what kind of job do you do in your live?
2. What kind of issues/challenges that you have been facing in growing coffee?
3. What kind of assets do farmers have, including human, natural, social, financial and physical?
4. Do you participate in planning process of agro-tourism? If not, why did not you join?
5. What kind of activities that you know have been done in the agro-tourism? What kind of activities that you joined so far?
6. What kind of facilities and infrastructures that have been built to support agro-tourism?
7. What do you think the development of agro-tourism? (Do you agree or not? Please describe the reason behind it your opinion?)
8. In your opinion, what are the benefit of agro-tourism development (include: economic, environment and socio-culture)?
Please explain the reason behind all the benefit?
9. In your opinion, what are the negative aspect of agro-tourism development (include: economic, environment and socio-culture)?
Please explain the reason behind all the negative aspects?
10. What role do you want to play in agro-tourism? Why do you choose this role?
11. What do you think about tourist (exited, apathy, annoying and uncomfortable)? Why?
12. In your opinion, what are the challenges that have been occurred in agro-tourism development?
13. What are the causes of the challenges? What are the effects of the challenges in agro-tourism development?
14. What did you or other parties do to solve the challenges?
15. In your opinion, what are the actions should be taken to improve the performance of agro-tourism in the future?

Appendix 3 Key Informant Interview Guidance

Age	:
Sex	:
Education	:
Type of work (position)	:
Length of service	:

a. District Agriculture Office

1. What is the reason behind the development of agro-tourism?
2. Why did they choose Benteng Ka'do Toria as an area for agro-tourism?
3. What are the objectives of agro-tourism development?
4. What are the activities that have been planned to be carried out in agro-tourism?
5. From the several planned activities, what activities that have been carried out so far in the agro-tourism?
6. What kind of training that have been carried out so far by DAO related to agro-tourism?
7. Who were the stakeholders involved in planning process of agro-tourism development?
8. What kind of facilities and infrastructures that have been built by DAO to support agro-tourism?
9. What are the positive and negative aspects of agro-tourism for local community, in terms of economy, environment and socio-culture?
10. What are the challenges which make agro-tourism is still not yet open as a tourism attraction?
11. What are the causes of the challenges? What are the effects of the challenges in agro-tourism development?
12. What are the actions that have been taking by DAO to overcome the challenges?
13. What should be done by DAO, farmers or other stakeholders to improve the performance of agro-tourism in the future?

b. District Tourism Office

1. What are the roles of DTO in agro-tourism development?
2. What kind of collaboration that have been made between DAO and DTO in agro-tourism development?
3. What are the positive and negative impacts of agro-tourism on local community?
4. What is the reason agro-tourism still not considered as one of the tourism attractions in North Toraja?
5. What are the requirements for a place to become a tourism attraction?
6. What kind of assistance is provided by the DTO, if there is a group of people or organisation that want to open tourist destinations in North Toraja?
7. What are the roles that can be playing by community in agro-tourism?
8. What are the challenges of agro-tourism development in North Toraja from tourism perspective? What are the causes of the challenges? What are the effects of the challenges in agro-tourism development?
9. What is the opportunity that can be maximize to improve the performance of agro-tourism in the future?

c. Village and Municipality Government

1. What do you think about the development of agro-tourism in your area?
2. What is your role or contribution in agro-tourism development?
3. What are the positive and negative impact of agro-tourism on your area (including: economic, socio-culture and environment)?
4. How is the local residents' acceptance of agro-tourism development?
5. What are the roles that have been playing by residents? And what kind of roles that can be played by local resident in the future?
6. What are the challenges that have been facing by agro-tourism development?
7. What are the actions that have been taken by local government to solve the challenges?
8. What is the opportunity that can be maximize in order to improve the performance of agro-tourism in the future?

Appendix 4 Video-taking Guidance

Duration of the video : 15-30 minutes

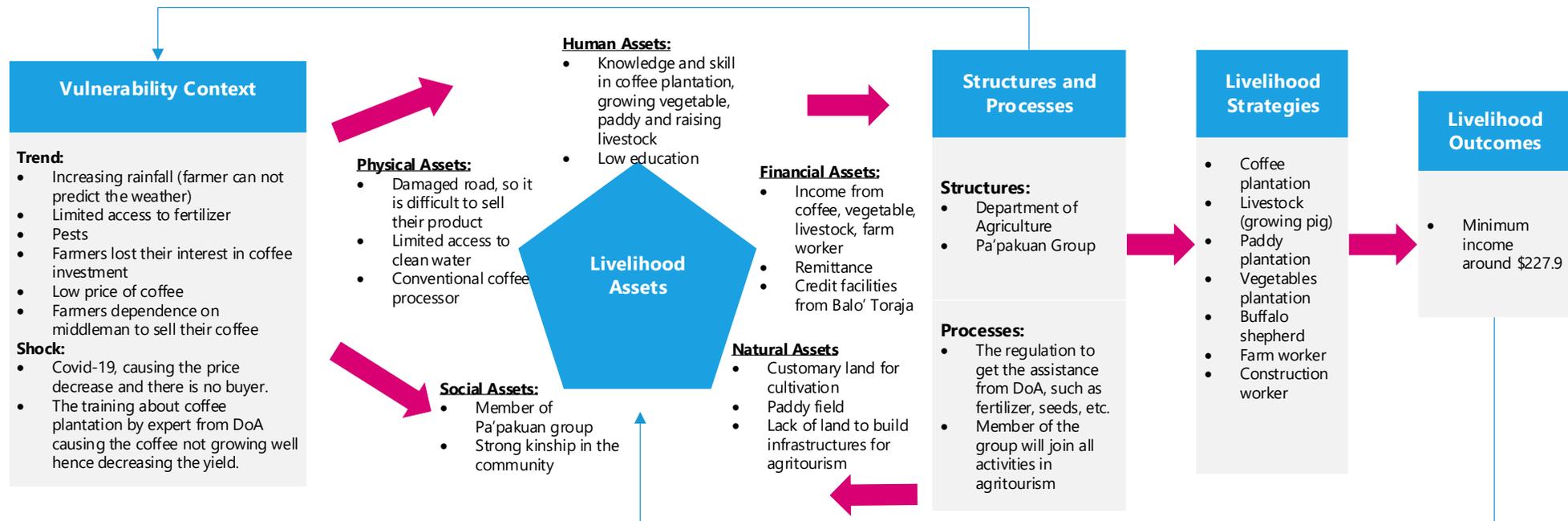
Number of videos : 1 video

List of scenes of the video including:

- Activities that are carried out in the agro-tourism, such as planting, cultivation, production, and among others;
- Environment condition
- Infrastructures that have been developed for agro-tourism, such as road, path way, gazebo and among others;
- Facilitations that have been provided by DAO to support the agro-tourism, such as coffee production tools, coffee maker tools, and among others.
- The scenery around the agro-tourism, including Sesean Mountain, coffee plantation, rice field scenery and other environmental conditions around agro-tourism.
- Interactions with tourists

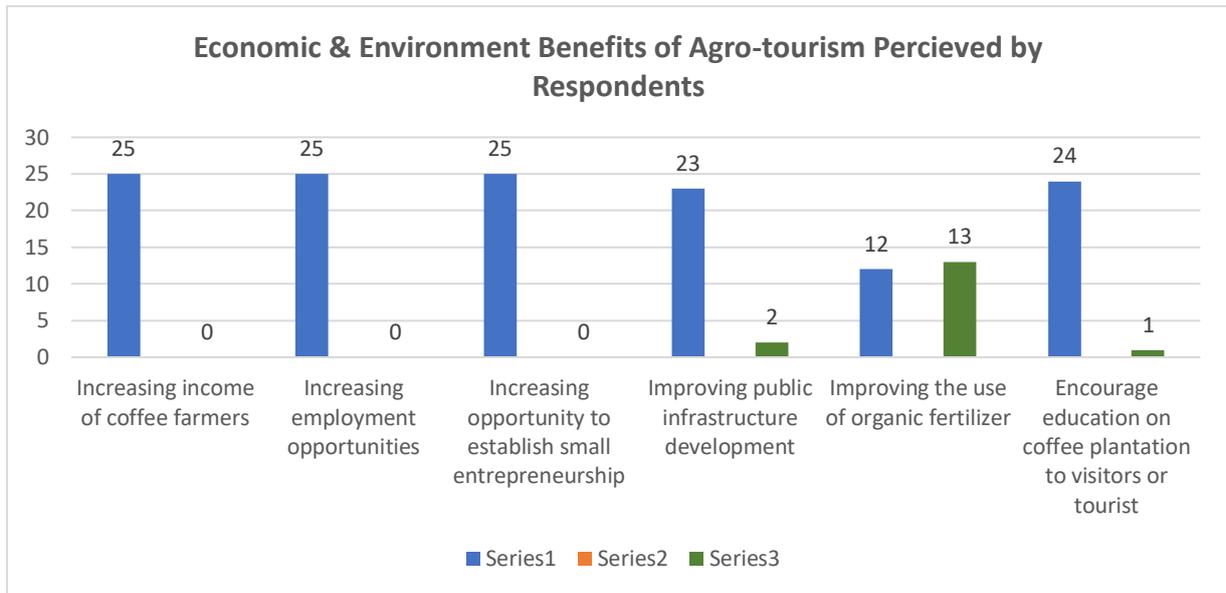
Appendix 5 Sustainable Livelihood Framework Coffee Farmers in Tikala Municipality

Sustainable Livelihood Framework Coffee Farmers in Tikala Municipality

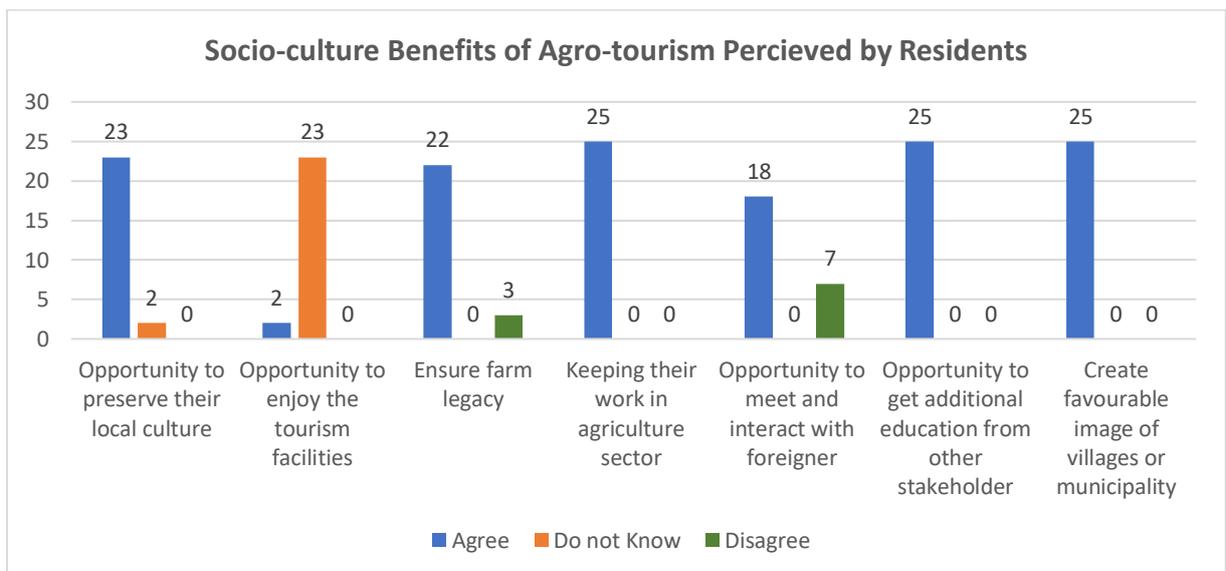


Source: Developed by Author, 2020

Appendix 6 Analysis Data for Benefits of Agro-tourism development Perceived by Respondents



Source: In-depth Interview and Online Survey

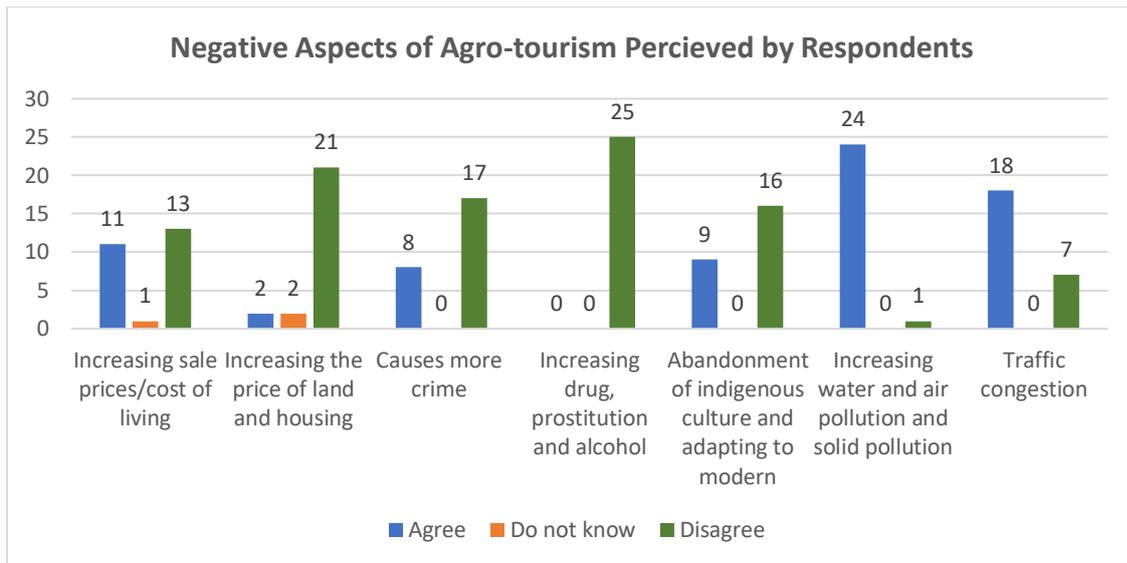


Source: In-depth Interview and Online Survey

Appendix 7 Analysis about Negative Aspect of Agro-tourism Perceived by Respondents

Based on Education	
Education	Answer
University	<ul style="list-style-type: none"> It will increase the number of waste as well as traffic jam because we do not have enough land for parking area. Destroy the coffee trees
Senior High School	Garbage and traffic
Junior High School	Garbage and traffic
Elementary School	<ul style="list-style-type: none"> 3 respondents answer that "we cannot predict because the agro-tourism is not yet operated. 5 respondents answer: garbage and traffic
No Education	<ul style="list-style-type: none"> 6 respondents answer that "we cannot predict because the agro-tourism is not yet operated. 3 respondents answer: garbage and traffic
Based on The Experience Living Outside the Village and Living in Tourism Attraction	
Experience living outside & tourism attraction	Answer
Have experience	<ul style="list-style-type: none"> From my experience and what I saw in Lolai, I think garbage will be one of problem which is facing by every tourism attraction, including agro-tourism in the future. Until now, I still do not know how will we manage our garbage in the future from the tourism activities. Moreover, from my experience, I think agro-tourism will create social status within the community, because in Lolai for example, some community who have enough money can establish their own small businesses in tourism attraction, but for community who do not have financial capital will left behind and will just end up as a worker for the rich community. Furthermore, I think agro-tourism will create traffic jam, because so many people will come to visit our village, but the fact that we do not have enough land for the parking areas will cause traffic in our village. I don't think foreign culture will affect our children, because the visitors won't come every time and we will also watch their behaviour and teach them to just adapt the positive culture from the visitors.
No experience	<ul style="list-style-type: none"> Maybe there will be a lot of rubbish because there are a lot of people will come, but we will clean up the trash because it's around our house, for example cigarette trash. I do not think agro-tourism will increase crime, because men will be responsible to keep us secure. People will not come here to drink I think so. It will increase rubbish and traffic. 9 respondents cannot predict the negative aspect of agro-tourism.

Source: In-depth Interview and Online Survey



Source: In-depth Interview and Online Survey