

INHIBITED: YOUTH PARTICIPATION IN MAMAR SYSTEM

Case Study of Youth in Ponain Village, Amarasi
District, Kupang Regency, ENT, Indonesia



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Disclaimer:

This document represents part of author's study programme while at Van Hall Larenstein University of Applied Science, the Netherlands.

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DEDICATION

This work is dedicated to my dearest parents and little brother who are always there when I need them. My determination and hard work with your love and prayers have been driving force that pushed me through this passage of study.

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“It is your road and yours alone. Others may walk it with you, but no one can walk it for you” - Rumi

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LIST OF ACRONYMS

5P	<i>Peternakan/Livestock, Perikanan/Fisheries, Pertanian/Agriculture, Pariwisata/Tourism, Perkebunan/Plantation</i>
BPS	<i>Badan Pusat Statistik</i> (Central Bureau of Statistics)
BUMDes	<i>Badan Usaha Milik Desa</i> (Village Government-Owned Business Entity)
DFID	Department for International Development
DGB	<i>Desa Gaya Baru</i> (New Village Model)
ENT	East Nusa Tenggara
FAO	Food and Agriculture Organisation
GMIT	<i>Gereja Masehi Injili di Timor</i> (Christian Evangelical Church in Timor)
IDR	Indonesian Rupiah
IFAD	International Fund for Agricultural Development
PLUS	<i>Platform Usaha Sosial</i> (Social Enterprise Platform)
Politani	<i>Politeknik Pertanian</i> (Agricultural University of Applied Science)
SHS	Senior High School
TVET	Technical and Vocational Education and Training
USAID	United States Agency for International Development

ABSTRACT

This research aims to investigate factors that are inhibiting youth participation in Mamar system in Ponain Village, Indonesia. Mamar system was established since 1800s, had become main income generation activities for Ponain villagers until horticultural products were in demand in 1990s and 2000s. Until now, Mamar is perceived as additional income generation activities in the village. Youth participation is only as participation for material incentives, where they can get and sell banana and coconut from Mamar for additional pocket money.

There are five assets that are considered crucial in involving youth in Mamar system. Youths in Ponain are mostly high school graduates who have practical knowledge on farming, both for Mamar and horticulture. In terms of natural assets, availability of land and water springs helped them to conduct main income generation activities: horticulture, while livestock, water tank and irrigation system support it as physical assets. Credit cooperatives are available in Ponain village while there are other income generation activities inside the village besides horticulture. Those possibilities are in the informal sector, BUMDes, or by emigrating to work in urban areas. In terms of social assets, there is strong bonding in-group feeling for both Christian denominations group, GMIT and Adventist.

Local institutions in Ponain Village are represented through existing authorities and regulation. Authorities in Ponain Village are coming from four sources: religious, legal-rational, traditional, and charismatic. Religious authority is the strongest authority inside the village, together with legal-rational authority. Traditional authority is not as strong as it used to be since resettlement of Ponain Village following DGB regulation on 1968. Local regulation that exist in Ponain Village are 5P regulation by regency-level government in which made village government focus on agriculture and livestock as their main agenda of village development.

Youths and farmers in Ponain are struggling with their dilemma. Emigration to study and work in urban areas and land expansion to accommodate the demand from horticulture seems like a promising income generation activity. As their livelihood strategy, this approach can be harmful for Mamar system and their horticulture system in the long run since the core zone of Mamar provides water to irrigate both land use: Mamar and horticulture. At the same time, village government is focusing their village development through agriculture and livestock.

Keywords

Mamar; youth participation; horticulture; livelihood assets; local institutions; Ponain; Indonesia

INTRODUCTION: CHALLENGE OF FOOD SECURITY IN INDONESIA

Background

As a fourth most populated country in the world, Indonesia has 45% of its population living in the rural area, whereby 33% of the total population is employed in the agricultural sector (FAO, 2018). There is a 13.2% poverty rate in rural areas, and 93% of farmers in Indonesia are small-holder farmers with an average land size of 0.6 hectares with six to seven members per household.

The challenge of food security in Indonesia arises in the face of population growth, migration, and climate change. Every year, Indonesia faces 1.07% of population growth (Worldometers, 2019) while rural-to-urban migration rates also increase with a projection of a 68% of the total population living in the urban areas by 2025. Thus by 2030, a total of 90 million Indonesian people could join the consuming class which means that the agricultural productivity needs to be increased by 60% (IFAD, 2014).

Around 40,000 ha of productive paddy land in Indonesia's main island, Java, is converted into non-agricultural land (IFAD, 2014) per year, while changes in precipitation patterns and cycles of natural disasters (droughts and floods) have damaged the agricultural production in Indonesia (Naylor, 2007). The average precipitation has decreased 3% per year for the last 30 years, while sea level has risen 2-10mm per year and temperature has increased 0.04°C per year (USAID, 2017). As a result, there is a decreased rice production and an increase of pests and disease due to heat stress together with increased flood damage; crop loss and failure seems inevitable. Rural households, their livelihoods, and national food security are at stake.

East Nusa Tenggara (ENT) as one of the 34 provinces in Indonesia is located in the semi-arid region and dominated by dryland. It is the third poorest province where 70% of its population rely on the agricultural sector (BPS, 2009). Importantly, in ENT, agroforestry, locally called *Mamar*, is an important sociocultural cultivation system. Agroforestry combine trees and agriculture (crops and/or livestock).

Extensive researches have shown that a well-managed agroforestry system exceeds the benefits of monocultures in ensuring food security and climate change adaptation and mitigation, in the case of ENT especially during the dry season (Mbow, *et al.*, 2014). Also, more diverse crops choices provide farmers more diverse sources of income during the year, which are not limited to the long dry season in the area.

As an over-generations communal-traditional agroforestry system, Mamar has been used as an important water and soil conservation system in ENT. Research by Lusiana (2008) shows that the Mamar is excellent as water protector and regulator around the water springs. Njurumana's research (2008) also elaborates over the Mamar's suitability for soil rehabilitation for people's forest accordingly to soil characteristics and local wisdom.

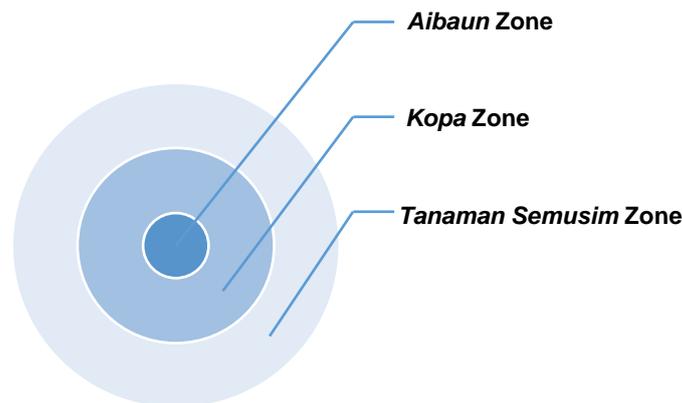
Moreover, Mamar has good water stability throughout the season (Njurumana, 2008) therefore supporting profitable crop production such as coconut which can be supplied in the local markets

(Setiawan, 2008), although ENT is currently challenged by a more erratic rainfall pattern during the two months of the rainy season (Lassa, 2014).

Regarding its structure, the Mamar has three zones that are established by socio-cultural belief (Sumu, 2003). There is the *Aibaun* (core) zone which is a sacred zone and cannot be entered nor penetrated for any commercial activities since it has water springs that are believed to be a source of biodiversity life. The crops appearing in this zone ($\approx 0.5-1$ ha) are only harvested for cultural ceremony.

The second zone the *Kopa* (buffer zone) is specifically intended for yearly profitable priority crops i.e. coconut, areca nut, and banana. Research by Politani Kupang (2018) indicates that this 7-20 ha zone has the most potential for income generation activities because of its high soil fertility and water discharge. While the last zone, the *Tanaman Semusim* (developing zone) consists of seasonal crops, animal feed plants, and livestock itself.

Figure 1: *Mamar* Zoning System



(Source: Politani Kupang, 2018)

As one of leading universities of applied sciences in ENT and as commissioner of this research, Politani Kupang has identified a knowledge gap in the social aspect regarding the Mamar system in terms of youth participation in today's Mamar practice and its sustainability in the future. Research conducted by Politani Kupang (2018) in the specific area, Ponain Village in Kupang Regency has covered all technical aspects (biophysics, carbon, soil).

However, research on the Mamar system focusing on its social aspect is limited. The existing research is covered by Oktavia (2018) in which the Mamar is included as one suitable system for marine conservation in coastal areas in ENT. Other research conducted by Setiawan (2014) elaborates communalities of Mamar management as part of the socio-ecology values that are rooted in the ENT communities. And importantly, research by Suek (2017) stresses on the old average farming labour age in Mamar systems.

Unfortunately, none of those researches covered factors that inhibit youth participation in Mamar system. And especially its sustainability in terms of labour availability in the future has not been covered, leaving knowledge gaps in who will take care of the Mamar system in the future.

Suek, *et al*, 2017 has shown that more than 50% of the farmers in Amarasi District have low to very low level of awareness on agroforestry practices, which is mainly caused by the low level of education and old age of household head. At the same time, youth (16-30 years of age) involvement in the farming is low as most youth in Kupang Regency tend to migrate to urban areas (PLAN, 2017).

As the result, the Mamar system is managed mostly by old aged inhabitants (above 50 years of age), leaving the average age of Mamar's farmers at 57 years. If this tendency continues, the practice of the Mamar system is expected to last for around one decade as the productive age in Indonesia ends at 65 years of age. In practice, farmers are able to work until more than 65 years of age. However, the availability of future farming labour is at stake.

Although agriculture is the biggest sector providing labour opportunities in Indonesia, youth seems not to be highly interested in this sector since there is limited access for them to crucial assets within the village (e.g. agriculture land). Moreover, there is incomprehensive curricula in elementary and high school regarding farming and its importance for future food security (Maning, 2011 in Suek, 2017), resulting in significant gaps in the vocational training in agriculture. Also, inequalities in landholding and long wait for land inheritance results into a limited income generation activities for the youth within the village, leading the youth to leave the farm and migrate to urban areas in search for better job opportunities (White, 2015).

Problem Statement

As a higher educational institution in Indonesia, Politani Kupang has three main obligations as ruled by Law No. 12/2012, called *Tridharma Perguruan Tinggi*. The law states that higher educational institutions must be able to administer learning environment for students, conduct scientific research to close knowledge gaps, and undertake social services for communities. In Politani Kupang, the social services they deliver are knowledge dissemination and skills development for farmers in rural areas, including in Ponain Village, Amarasi District, Kupang Regency, ENT.

Politani Kupang, as the commissioner, have identified the lack of research regarding the social aspects of the Mamar system, especially the youth participation in the Mamar, which has left a knowledge gap for Politani Kupang to improve their community services involving the participation of the youth in the Mamar system aiming at maintaining this system as a feasible agricultural system in the future.

Thesis Outline

This thesis is organised and presented in six chapter. Chapter one is the Introduction part which contains background information and problem statement as well as thesis outline itself. Chapter two, Setting the Scene, talks about research objective, questions, and research methods. Research methods include area description, research strategy, sampling, methods of data collection, and findings analysis strategy.

Chapter three, Literature Review, loads review on literatures in concepts that are being used in this research from various authors to offer insights for the recent studies related to the research topic and problem. In this part, framework for this research is also being explained. Chapter four, Findings, describe answers on each questions and sub-questions of this research, while chapter five, Discussion, analyse findings and limitation of this research.

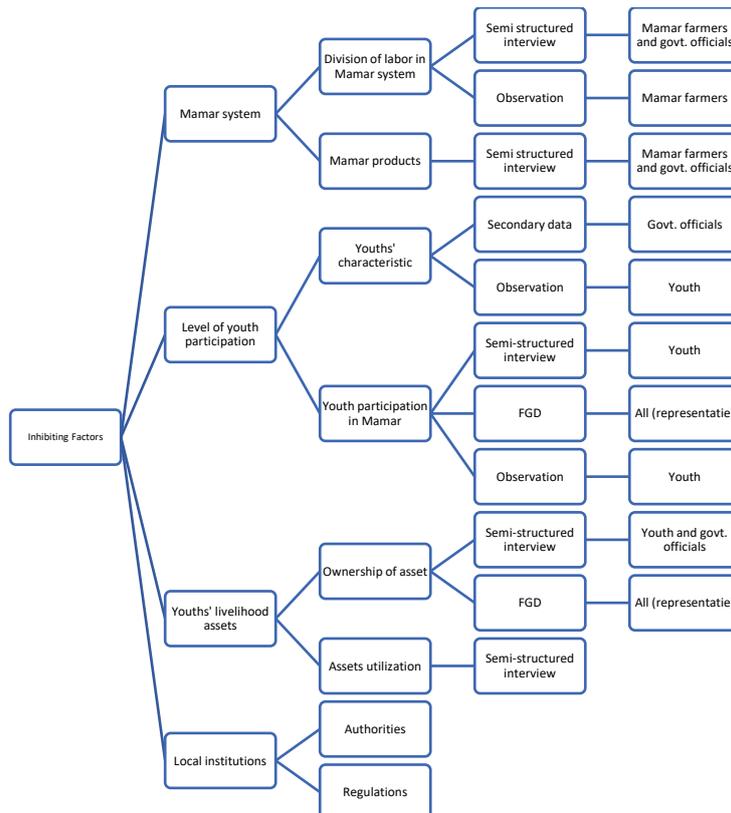
At the end, chapter six, Conclusion and Recommendation describe summary of this research while at the same time provide feasible recommendation and action plan for commissioner, Politani Kupang, in conducting their community service regarding youth participation in Mamar sysem in Ponain Village.

LITERATURE REVIEW: INHIBITING FACTORS OF YOUTH PARTICIPATION IN MAMAR SYSTEM

This section presents review on literature from various authors to offer insights for the recent studies related to youth participation in agroforestry as a concept and its operationalization in understanding factors that inhibit youth participation in the Mamar system in Ponain Villages, Indonesia. Description of each elements' operationalization will be given at the end of each subsection.

According to Youth Law of Indonesia (Law No. 40/2009), youth age is ranging from 16-30 years of age), in which they are expected as moral force, social control, and agent of change in national development context. These expectations have been manifested through *Karang Taruna*, village-level youth organization which is regulated under Social Ministry Regulation No. 77/2010. One of the major tasks of this organization is to actively involve youth in local income generation activities while conserving environment. In practice, *Karang Taruna* works with local authorities either legal-rational and traditional authorities to reach their own goals.

Figure 2. Operationalization of Concept



(Source: Researcher, 2019)

Mamar System

An over-generations agroforestry system the Mamar has a zoning system with three levels that are established by socio-cultural belief (Sumu, 2003), i.e. *Aibaun*, *Kepa*, and *Tanaman Semusim*. The *Aibaun* (core) zone is a sacred zone and cannot be entered nor penetrated for any commercial activities since it has water springs that are considered as source of local life. The *Kopa* (buffer) zone is specifically intended for yearly profitable priority crops i.e. coconut, areca nut, and banana. Finally, the *Tanaman Semusim* (developing zone) consists of seasonal crops, animal feed plants, and livestock itself.

To respond the sub-question regarding how the Mamar system is implemented in Ponain Village, data on farmers' characteristics were gather, i.e. age, sex, and size of land, as well as their daily activities, seasonal activities (by seasonal calendar), Mamar's products, its utilization and economic value, and accessibility of Mamar (i.e., who has more access into Mamar, decision-making, and information sharing).

Youth Participation

The definition of participation is a challenging one since there are many different academic definitions according to the research field. Draper (2010) argues that participation must be understood as complex and variable social process and situation specific. Concurring with Draper, Carpentier (2012) argues that participation is situated in particular processes and localities, and involves specific actors, while he added both 'power struggles' and 'contingency' as affecting power.

However, both aforementioned scholars did not elaborate the concept of participation into the topic of development work. In addition, Mansuri and Rao (2012) mention a paradigm shift in participation in the socio-political sphere that shifted from top-down in the mid-1980s into bottom-up in the 2000s. The latest approach, bottom-up, is also considered as organic participation by both of the aforementioned authors. None of the mentioned literature provides practical evidence in participation. Interestingly, Arnstein (1969) proposes a ladder of participation that has eight levels as shown below.

Figure 3. Ladder of Participation



(Source: Arnstein, 1969)

As noted by Cornwall (2008), Pretty (1995) developed the ladder of participation based on Arnstein's study where she reconceptualized the ladder into seven steps as shown below.

Table 1. Participation Ladder by Pretty

Type of Participation	Features
Manipulative Participation	Pretence, with nominated representatives having no legitimacy or power
Passive Participation	Unilateral announcements without listening to people's responses
Participation by Consultation	External agents define problems and information-gathering processes and so control analysis
Participation for Material Incentives	People participate by contributing resources (labour) in return for material incentives
Functional Participation	External agencies encourage participation to meet predetermined objectives
Interactive Participation	People participate (as a right) in joint analysis, development of action plans and formation or strengthening of local institutions
Self-Mobilisation	People take initiatives independently of external institutions to change systems

(Source: Cornwall, 2008)

The different levels of participation are the result of different access to power and type of power itself that the social entity has within the community. It is also stratified by the relation between those who have more and less power within the society. As the result, sense of belonging towards certain communal activities or assets could be low, which in the end might affect the sustainability of those activities or assets. However, Cornwall (2008) states that approach on measuring participation by Arnstein and Pretty are normative and vague.

Interestingly, Norad (2013) through their framework in analysing participation mentions that there are four important issues in measuring participation: subject of participation, motives of participation, outcomes or change that might happened, and result of participation.

Also, Checkoway (2011) tries to concatenate diverse aspects of participation, especially youth participation. According to Checkoway, youth participate themselves in community through various forms and channels in which obstacles and opportunities lie in front of social stratification and differentiation.

Understanding level of participation is essential in order to see how and why youth are participating in the Mamar system. Moreover, the aspect of the youth daily activities has also been measured by looking at their activity pattern.

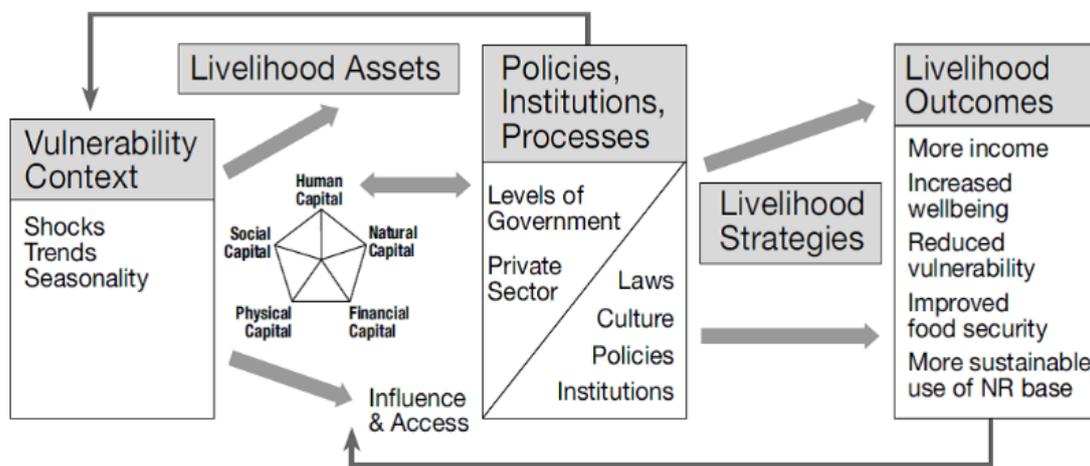
In this research, the information over the daily activities has been complemented with information about how the Mamar system is implemented, which in turn has been linked to the level of participation. Thus, knowing in what level the youth are participating in the Mamar system make the basis of the suggested model of community service that is proposed to Politani Kupang in order to ensure sustainability in the youth participation in the Mamar system.

Additionally, to understand youth participation in the Mamar, gathered data also included youth' knowledge on Mamar, how they get that information (channels), motivation in participating in Mamar (or not), their position in the division of labour, their access in decision making and information sharing, and opportunities and barriers for them in participating themselves in Mamar system.

By looking to aforementioned debate, in this research youth refers as to the one defined by the Indonesian Law, which are those between 16-30 years of age while to identified the level of participation this research used the channels that involve youth and to what extent youth participate in today's Mamar system. The ladder of participation developed by Pretty (1995) is used in this research since Pretty's approach is more applied and development oriented than Arnstein's (1969).

Youths' Livelihood Assets

Figure 4. Sustainable Livelihood Framework



(Source: DFID, 1999)

DFID (1999) uses the Sustainable Livelihood Framework as tool to assess the rural households' livelihood condition, which is a useful tool to conduct appropriate developmental interventions. There are five elements in this framework: Vulnerability Context, Livelihood Assets, Transformative Structures, Livelihood Strategies, and Livelihood Outcomes. Regarding livelihood assets, DFID distinguish the latter into five categories of assets: human, natural, financial, physical, and social.

Human assets are related to labour capacity including level of education and technical skills while natural assets are related to ownership of and access to land and animals. Financial assets refer to income generation activities (financial resource) and access to credit facilities. Physical assets cover water and energy supplies, communications, housing, and vehicles. At last, social assets refer to social bonding and bridging between households in communities.

In this research, livelihoods assets were the entry point to investigate other elements in the Sustainable Livelihood Framework since this research is participatory, based on community's asset. Livelihood assets are related to every element in the framework.

Through their relation to transformative structures and process, youth' livelihood assets that exist are influenced by the transformative structure to be used as livelihood strategy. In other words, local institutional frameworks (transformative structures) either give or limit youth' space in utilizing their assets as livelihood strategy. At the end, livelihood outcomes as results of livelihood strategy will affect youth' livelihood assets, creating continual relation among elements of SLF.

In analysing access and ownership to livelihood assets, Oxfam (1999) distinguish two elements: access to and control over. Access means that subjects (in this case youth) are able to use the available resources either in human, social, physical, financial, and natural. On the other hand, control is referring to decision making in utilization on those assets or resources. Both access and control are important to be measured and analysed in order to see the potentiality of youth in Ponain Village.

In this research, youth' livelihood assets in Ponain Village were measured by looking at their existing assets within the community, source and ownership of those assets, and to what extent they use those assets in the relation to Mamar system.

Local Institutions

Local institutions refer to transformative structures in Sustainable Livelihood Framework that consist of stakeholders and culture. Stakeholders could be divided into three categories: public sector, private sector, and civil society. Public sector refers to governmental and private sector refer to profit-oriented organization, whereas civil society could be identified through its aim and characteristic.

Crane (2011) through his study in stakeholder analysis gather different definitions on stakeholder, and he made a division into three different approaches to understand the concept of stakeholder: instrumental, normative, and descriptive. In the instrumental approach, the stakeholder could be defined in their emphasis in exchange benefits through relationship and contractual ties.

The normative approach defines stakeholder through social cooperation within the community in which social cooperation is often degraded into economic cooperation. Lastly, the descriptive approach defines the stakeholder through their relation transformability from one form to another, which mostly arise in the time of emergence of a specific issue and claims at stake.

In a broader sense, den Hond and de Bakker (2007) situate the stakeholder analysis into the community level by stressing on the importance in acknowledging social identity for stakeholder group mobilization and collective action, in which could be seen by social identities, claims, values, and actions themselves.

In the context of rural livelihood, stakeholders are part of a transformative structure which is defined as institutions. Because institutions are fluid, stakeholders can come from different backgrounds and authority: legal-rational (governmental), non-governmental, private/business sector, and local community themselves (DFID, 1999). The power relation between stakeholders could be identified and measured by knowing their interest in particular issues, which in the case of this research was youth participation in Mamar system.

On the other hand, culture refers to traditional practices that could be seen as living law that is becoming common sense in daily practice (Abubakar, 2013). Dimensions of local traditional practices are broad, covering marriage, inheritance, death, social stratification and differentiation, institutions, and assets ownership.

In the context of Ponain Village, local institutions were depicted by the identification of existing stakeholders (public, private, and civil society) and their power and interest in the sense of youth participation in the Mamar system, and also existing cultures and how they shape the way of life for youth in this village.

SETTING THE SCENE: PONAIN VILLAGE

Research Objective

Based on the aforementioned knowledge gap, this research aimed at investigating the factors that inhibit youth participation in the Mamar system, particularly in Ponain Village, Indonesia, which is an important research area for the commissioner. This research will provide the commissioner with strategies to improve their community services regarding youth participation in the Mamar system.

Research Questions

Since this research aims to investigate factors that inhibit youth participation in the Mamar system, the author came up with four sub-questions that are related to the topic. The formulation of these sub-questions is based on literature review that has been conducted on youth participation and by utilizing the Sustainable Livelihood Framework as conceptual framework, which provide guidelines to categorize the inhibiting factors for youth participation in the Mamar. Proper description on the framework will be given in literature review section.

1. Main Question

Based on the aforementioned background and objective, the main research question of this thesis is: "What are factors that inhibit youth participation in the Mamar system in Ponain Village?"

2. Sub-Questions

In order to answer the main question over the factors that inhibit youth participation in the Mamar system, the author developed the following sub-questions as shown below:

- a. How does the Mamar system is implemented in Ponain Village?
- b. How does youth participate in today's Mamar system in Ponain Village?
- c. What affect youth participation in the Mamar system regarding the accessibility to livelihood assets in Ponain Village?
- d. What are the issues in local institutional frameworks that affect youth participation in the Mamar system in Ponain Village?

Asking how the Mamar system is implemented in Ponain Village is important since it is possible that each village implement the Mamar system differently, while asking how youth participate in the Mamar system will reveal the form and extent of youth participation in the village. On the other hand, asking what are the challenges in accessibility to livelihood assets and with local institutional frameworks is vital to understand what is hampering the youth participation at village level. With the ultimate goal of boosting their participation in the Mamar system.

Research Methods

Introduction

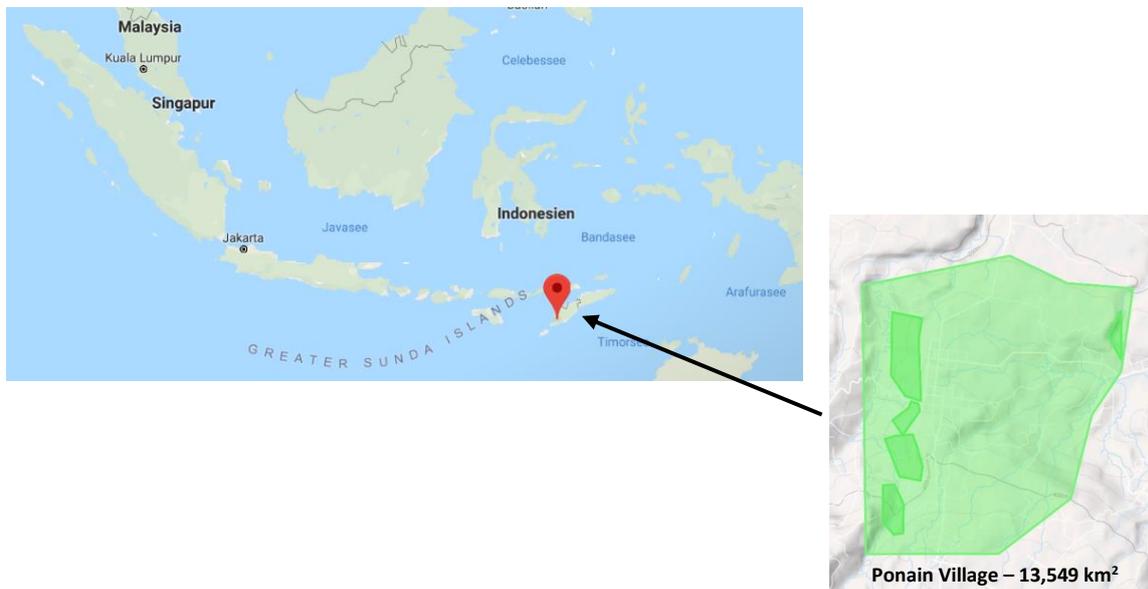
The research methodology is composed of the description of the study area, research design, method of data collection, sources of data, target population and sampling techniques, sampling size, data analysis and style of reporting adopted by the study.

Area Description

Ponain Village is located in Kupang Regency, East Nusa Tenggara (ENT) Province, Republic of Indonesia. Ponain ($10^{\circ}12'23.8''S$ $123^{\circ}51'11.6''E$) is part of the Amarasi District and is located 42 km from Kupang City, capita city of the ENT Province. This village has 2,383 inhabitants living in 13,549 km² area, divided into 560 households.

Ponain landscape is confirmed by a hilly area with elevation 200-600m above sea level. Ponain Village has average temperature in 20-34°C and, an average precipitation of 1,164mm/year. Normally, the rainy season last for three to four months in November to February while the rest will be dry season.

Picture 1. Location of Ponain Village in Amarasi District, Kupang Regency, ENT, Indonesia



(Source: Researcher, 2019)

Research Strategy

This qualitative research used a case study approach to investigate factors that inhibit youth participation in today's Mamar system since the commissioner, Politani Kupang, needs a niche-specific study on the area of Ponain Village regarding youth participation in Mamar system. Case study is based on understanding social phenomenon which in this case will close knowledge gap that Politani Kupang has and provide them with recommendation on strategy to involve youth in Mamar system.

Consequently, there were small number of research units in this research. Author depicted overall pictures of Ponain village in youth participation in Mamar with labour intensive data generation and triangulation of sources by using different research method as explained in next subsection.

Sampling

Population of this research was youths in Ponain Village, Amarasi District, Kupang Regency, ENT, Indonesia, while sampling frame was youths who are participating and not participating themselves in Mamar system within the villages. Sample size of this research was 10 youths in Ponain Village, in which selection of youths was based on gender-balanced.

In addition, information from 2 governments officials and 1 informal elite within the village was generated together from 10 farmers and 1 expert in the field of youth participation in agroforestry system. For total, there were 24 respondents in this research.

Table 2. Respondents of the Research

RESPONDENTS	TOTAL
<i>Youths</i>	10
<i>Farmers</i>	10
<i>Government officials</i>	2
<i>Informal elite</i>	1
<i>Expert</i>	1
TOTAL	24

(Source: Researcher, 2019)

Method of Data Collection

The primary data was collected by several methods that consist of semi-structured interviews, focus group discussion, and participatory observation. In addition, desk study was carried out to generate literature on key concept and gain secondary data on related topics. Each research method for this research was selected based on research dimension (sub-questions).

- **Semi-structured Interview**

Semi-structured interviews were conducted with 24 respondents in Ponain Village which composition has been mentioned in the previous section. Semi-structured interview to government officials, farmers, and expert generated information on how Mamar system works in Ponain Village, while semi-structured interview to youth generated information on youth participation in Mamar system (division of labour in the system for youth) and youth livelihood assets within the village that can be crucial for youth involvement in the Mamar system in Ponain Village.

Selection on interviewee was being done purposively. The entry point in finding respondent was supposed to be *Karang Taruna*, village level youth organisation, in which turned out did exist yet not active in the village. Instead, entry point to find respondent was the commissioner, Politani Kupang, that connected author to Village Chief and local informal elite within the village at the community wedding party. Snowballing technique was conducted based on those contacts provided by Politani on the first few days of primary data collection phase. The end point of interviews was determined after all research questions had been answered and cross-checked.

Two government officials were selected for interview based on their function in legal-rational authority: one was the Chief Village and one was staff in community development. Expert was selected based on his capacity as extension worker from Ministry of Agriculture in regency level that has lived in Ponain and served there since 1990s.

Picture 2. Semi-structured interview with respondents while watering the crops



(Source: Researcher, 2019)

As addition, semi-structured interview to local informal elite generated information on local institution that affect youth participation in Mamar system. Semi-structured interviews to elite and farmers were usually conducted at late afternoon and evening as

most farmers have free time in that period while semi-structured interviews to youth and government officials usually were conducted during the day. Interviews usually took 1.5 to 2 hours with guideline that is attached in the annex.

Local informal elite was selected based on his position in past and present social structure in Ponain Village. The elite has brought what is considered as biggest family name within the village in which has given him power to influence people in daily life. His wealth was also strengthening his position in the village.

- **Participatory Observation**

Observation was conducted with guideline which was based on dimension of research. Observation in this research was conducted in two ways: observation by researcher only and observation by involving villagers as observers (participatory observation). Observation that was conducted only by author generated perspective on how Mamar system works and change in land-use management system and perspective on youth daily activities either related or not to Mamar system in Ponain Village.

Picture 3. Participatory Observation with Students from Politani Kupang



(Source: Researcher, 2019)

Participatory observation, observation that was conducted together with respondents, generated information on youth crucial assets within the village and cultural norms that might affect youth participation in the Mamar system. Participatory observation was also generated perspective on Mamar zoning system and its challenge: horticulture extensification. Guideline for observation is attached in the annex.

- **Focus Group Discussion**

Focus Group Discussion in this research was a follow-up and validation step for findings gathered during the interview and observation phase. For total, there were 3 FGDs during primary data collection process.

Selection for Focus Group Discussion participants based on their position within the social structure. For content-specific, there were two FGD for specific target group: one FGD that only involved farmers (both male and female) for Mamar and horticulture topic and one FGD with youths (male and female) from both denominations to discuss youths' daily life, their assets, and source of authorities within Ponain Village. At the end, there was a closing FGD in which participants representing all background who were selected based on their knowledge and information about the topic.

First FGD was conducted with the farmers in the south part of the Ponain Village where those farmers usually take their break during the farming day. The FGD took place in a temporary settlement for farmers. In two hours and by using brainstorming and ideation phase, this FGD generated information on how importance of Mamar system for Ponain Villagers and change in land-use management of Mamar. This FGD also generated information on products of Mamar and their economic value in the market.

Picture 4. Focus Group Discussion (3rd)



(Source: Researcher, 2019)

Second FGD was conducted with youth during weekly youth praying time in the village. This FGD focused on youth social assets and their perspective on Mamar system as well as traditional authorities that might affect their involvement in the Mamar system. The two hours session took place in one of youth's house inside the village in the evening around 19.30 pm after praying time was conducted at 18.30 hrs. Tool for this FGD was mind map which equipped with probing and following-up questions.

Third FGD was conducted on the last day of author's stay in Ponain Village in which generated information on Mamar position as side income generation activities for Ponain Villagers. This FGD also generated main reasons on why youth are not involved in the Mamar system in Ponain Village and ideas on how Politani can improve that. This FGD was conducted at Chief Village temporary settlement (break house in horticulture area) for three hours with mind map and probing and following-up questions. Politani as the commissioner of this research was attending the FGD and bringing their own guideline to see the social exchange phenomena in keeping Mamar system.

Data Analysis

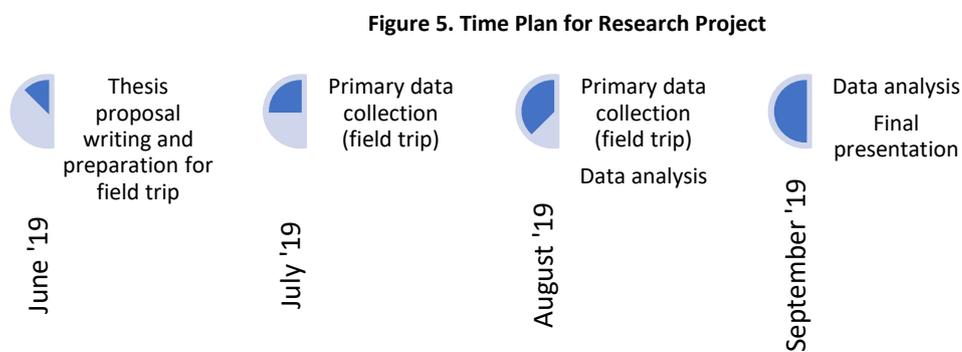
Data is clustered based on elements that are accommodated in each dimension of literature review of this research: dimension of level of youth participation in Mamar system, dimension of youth migration, dimension of youths' livelihood assets, and dimension of local institutions that affect youth participation in Mamar system.

In order to ease analysis process, an excel documents to record findings has been created. Coding of tabs is based on aforementioned dimensions and their elements, clustered to find the pattern. At the end, these managed findings have been analysed to answer each sub-question and the main question at the end.

Process of data analysis started from looking level of youth participation in Mamar system in Ponain Village, continued to youth participation level inside the village. Analysis on these two elements is continued by analysis on youths' livelihood assets within the which will reveal strongest and weakest assets of youth in the village. Analysis on transformative structures followed next to see the prospective of youth participation in Mamar system which in the end will produce proper intervention for Politani Kupang as the commissioner to improve their social services to sustain Mamar system through youth participation.

Timeline

The whole process of thesis research took place for approximately four months from June to September 2019 as could be seen in graph below.



(Source: Researcher, 2019)

RESEARCH FINDINGS

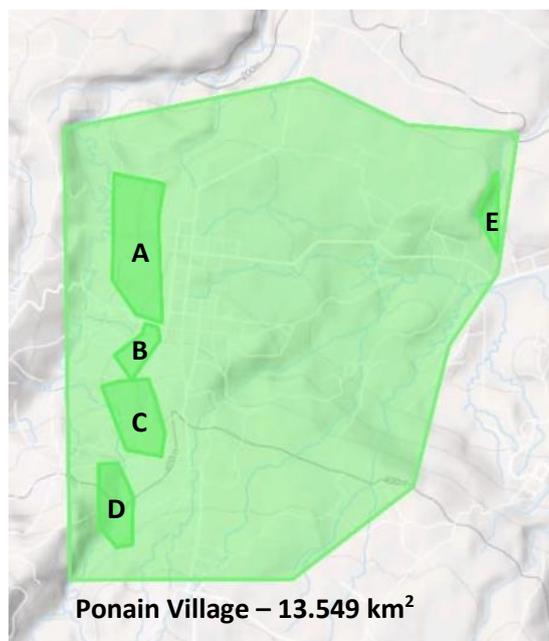
This chapter presents findings which clustered by concepts that are being used in this research. Each concept is based on sub-questions of this research, started with how Mamar system works in Ponain Village, level of youth participation in the village, youths' crucial assets, and existing local institution that exist in Ponain Village. Answer of each sub-question will be presented per section in this chapter with sequence accordingly to concepts aforementioned.

Koroh Kingdom and Horticulture over Mamar

Interviews conducted to youths and farmers depicted that Ponain villagers perceive Mamar as a mixed system between agriculture and forestry, or what so called agroforestry. In the local context, local crops for agriculture and forestry are mixed to preserve water and as source for income generation activities. Mamar system has been developed and managed over generations by clan or family own based. Banana and coconut existence in the area are considered as the main crops that defined that area as Mamar.

Chief Village and local informal elite through interview sessions mentioned that Mamar system in Ponain Village was established in late 1800s when Koroh Kingdom was still existed before it was merged into Republic of Indonesia on its independence day in 1945 together with other local kingdoms in the archipelago. Koroh Kingdom covered three areas in what so called greater Ponain until 1968, where a new law on village government in Indonesia was passed. Three areas were **Poti Village**, **Naikom Village**, and **Nungka Village**, in which after 1968 it became Ponain Village.

Picture 5. Ponain Village and Its Mamar Areas



(Source: Researcher, 2019)

Table 3. Total Size of Mamar Area in Ponain Village

MAMAR	SIZE (ha)
<i>A</i>	46.351
<i>B</i>	8.61
<i>C</i>	24.478
<i>D</i>	18.005
<i>E</i>	6.661
TOTAL	104.105

(Source: Researcher via Geo-tagging, 2019)

Picture and table above show there are five Mamar system that existed in Ponain Village at the time observation was conducted in this research. These Mamar system are located separately due to housing settlement that was existed during the Koroh Kingdom before 1968, in which in that year new national governmental policy (DGB) was constituting obligation of village government to do housing settlement formation arrangement into what Ponain Village is now as mentioned in previous paragraph. As the consequences, distance from housing area to Mamar area now is about two to three kilometers away.

Similar to what was mentioned in the literature study, Mamar system in Ponain Village was divided into three zoning system: *Aibaun*, *Kopa*, and *Tanaman Semusim*. Interviews conducted with farmers revealed that these three names aforementioned are not familiar for Ponain Villagers as villagers are using different terms for those zones.

Although villagers are using different terms, the concept of bullseye zoning was understood and confirmed by them through interviews. Instead of using *Aibaun*, villagers are using *Inti* which has literal translation 'core' in English to describe the core part of Mamar zoning system. For *Kopa*, villagers are using the terms *pepohonan*, in which has literal translation as trees in English to describe the second layer of Mamar system that has buffering role.

In describing third layer or *tanaman semusim*, villagers are using the terms *pohon ternak* which literally means livestock trees in English. This term was created as livestock care in Ponain Village was different with other area in Indonesia. Not like the other care system that put cows or goats in one settled area, Ponain villagers are used to move their cows and goats in daily basis for feeding and keeping them from eating the horticulture products. The third layer is also accommodating *Lamtoro* (*Leucaena leucocephala*), which is the main feed for livestock in Ponain Village.

Here we do not use those terms, we use *Inti* then *Pepohonan*, then *Tanaman Semusim* and *Lamtoro* then livestock then plantation -horticulture.

(Source: Farmer, female, on-record interview, 16 July 2019)

Outside of the Mamar system there is what so called kebun by villagers. Kebun has literal translation as garden in English, in which in this context referred to horticulture areas. In this zone, villagers are growing vegetables and fruits such as tomatoes (*Solanum lycopersicum*), bitter melon (*Momordica charantia*), chili (*Capsicum frutescens*), and mustard greens (*Brassica juncea*).

Focus Group Discussion with farmers revealed that there are four main products of Mamar in Ponain Village: banana, coconut, betel nut, and areca nut. As the total size of Mamar in Ponain is 104.105 ha with average distance 2-2.5 Meter between trees in Ponain Village. There is no exact number of quantities of production of these products per year as the system is left behind and villagers tend to focus on horticulture.

Mamar products were used to be sold to the available market in Oesao Market, 15 km from Ponain Village in direction to ENT capitol, Kupang. This market has been the main hub for agricultural products that are coming from villages in Amarasi District. Middlemen in this market has brought all products to the capitol in order to fulfill food demand in the city. By the research was being done, Mamar products from Ponain Village were no longer sold to Oesao market as there was an on-going trend of villagers to focus on horticulture rather than Mamar.

The trend on leaving Mamar behind was emerged in early 1990s when government extension worker came to Ponain and gave training in growing horticulture especially vegetables for villagers. Exposure on horticulture was continued in early 2000s when a non-governmental organization, conducted capacity building project in agriculture especially in horticulture. As the price of horticulture products way higher than Mamar products, villagers chose horticulture over Mamar. As the consequences, Mamar now has been the side income generation activities for villagers.

Table 4. Mamar Products in Ponain Village

PRODUCT	PRICE (IDR)
<i>Banana</i>	5,000 – 6,000 / bunch
<i>Coconut</i>	1,000 – 1,5000 / item
<i>Areca Nut</i>	30,000 – 35,000 / bunch
<i>Betel Nut</i>	20,000 – 23,000 / bundle

(Source: Focus Group Discussion conducted by researcher, 2019)

Table above shows the economic value of Mamar and horticulture products. Prices for horticulture products had been growing exponentially in early 2000s while there were some price fluctuations in 2010s, leaving prices for Mamar products low. However, demand on betel nut and areca nut are exist due to traditional reason that will be explained in Local Institution section in this chapter.

Through the FGD, farmers also mentioned that they are aware of environmental benefits of Mamar system that keep water springs on even in dry season to support all activities including horticulture activities. Per se, they see that cutting down trees especially in *Inti* or *Aibaun* zone is

considered harmful for next generations' water and food security and viable income generation activities in horticulture.

In conclusion, Mamar system was established since 1800s and was left behind since 1990s when horticultural products had better price in the local market. Terms of Mamar zoning system in the literature were not confirmed by the farmers as they have other local terms for those zones. At this time, villagers opt to do horticulture activities over Mamar as price for horticultural products way higher than Mamar products.

Youth Participation in Mamar System

Interviews with farmers and youths revealed that before 1990, the time Mamar system was the main income generation activities for Ponain villagers, division of labor in taking care of Mamar was divided by generational line. Parents, both father and mother, had to go to Mamar area in daily basis since morning, took the products (mostly banana and coconut), cut and swept old trees, brought the product home and stored it inside the house. Children only had to go to Mamar on weekend and helping their parents doing the aforementioned activities due to school days on weekdays. Grandparents, both male and female, mostly went to Mamar twice a week to do similar activities.

However, during the interview they mentioned that male and female villagers had different role in Mamar works. Male villagers had to climb the coconut tree to get fresh coconut while women picked the coconut on the ground and as male respondents mentioned that hard works were for men, not women. In terms of bringing Mamar products to their home, male would take more portion rather female for the same reason.

We usually do heavier activities than women, including bringing products to home or storing compartment. Usually men took heavier activities than women because men are stronger than women.

(Source: Farmer, male, on-record interview, 17 July 2019)

These practices also applied in horticulture where male work on what considered as heavier duties such as bringing more products, climbing and cutting trees, installing fence, irrigation and harvesting equipment, where women usually watering the crops in the afternoon. Moreover, women are also responsible for household chores such as cooking and babysitting.

Interviews conducted with farmers and youths also revealed that transfer of knowledge on Mamar management was being done on the weekend where children were involved in the work. Verbal storytelling and instructions were given by parents and grandparents to the children while doing activities together. Part of knowledge was also the boundary of each Mamar based on clan and inheritance law that will be described under Local Institution section in this chapter.

However, as villagers had left Mamar as main income generation activities in 1990s, division of labor on Mamar system in Ponain Village was not clear anymore. Parents simply did not have time for Mamar as they were busy focusing themselves in horticulture activities and only did the Mamar works on the weekend if there was a need for additional income. Youth were not involved either in the Mamar system and only went to Mamar to get additional cash for their daily

expenses such as cigarette and motor bike fuel, or for additional cash when they go to school and universities outside Ponain Village by taking banana and coconut and sell them in the market or to middlemen who come to the village.

When we go home on the weekend in school break, we usually go to Mamar with or without our parents to get products, sell them, and get additional pocket money when we return back to Kupang for studying. We usually take banana or coconut, not betel or areca nut.

(Source: Youth, male, on-record interview, 20 July 2019)

Different motivation for youth in involving themselves in Mamar could be seen by the time difference. Before 1990s or before villagers left Mamar, youth motivation was because of conforming themselves to the tradition to help parents in Mamar during weekend. Along with the times and tendency of villagers to leave Mamar, youth motivation has been changed into possession of additional cash for daily expenses. As youths have no control over Mamar system until they get married, they only follow the rules that had been set out over generations.

In conclusion, youth participation in Mamar system could be seen when they go to Mamar area with their parents in the weekend before 1990s when Mamar was still considered as main income generation activity in the village. After 1990s, youths are only going to Mamar to get and sell banana and coconut to get additional pocket money. Youths simply have no control over Mamar until they get married and inherit the land from their parents.

Youth Crucial Assets

Based on interviews and FGD with youths, there are five groups of assets that had been identified in this research: human, financial, natural, physical, and social. In terms of human assets, there are 754 youth in the village with sex ratio 89.45. Most of youths are Senior High School (SHS/secondary school) graduate both from non-vocational and vocational SHS (TVET). TVET graduates in Ponain Village came from mechanical engineering and agricultural engineering background, while non-vocational (general SHS) graduates were studying general subject in high school.

Beside having formal educational background, youths in Ponain Village are also having experience in informal knowledge especially those which are related to agricultural matters. As mentioned in the previous sub-chapter, youths are used to helped their parents both in Mamar and horticulture system in Ponain Village since they were kids, assisting their parents in collecting Mamar products, taking them home, processing and selling them to the market or to middlemen who come to Ponain. These activities give them knowledge on best practices on Mamar management and agricultural management (especially horticulture) due to long dry season that happened in Amarasi District.

As they are helping their parents, their skills in managing Mamar system (cutting trees, planting new trees) and horticulture system (grow and harvest) have been developed. More importantly, there are numbers of youths who are outside Ponain Village either for studying or working in

urban area like Kupang or Soe. Migration in Ponain Village is not a new phenomenon since it had been done by youth since 1960s.

In terms of financial assets, there are at least four options for income generation activities. First, by working in horticulture sector together with their parents and grandparents. Second, by working in BUMDes (village-government owned business entity) that focus on stone print for building construction, and tent and chair renting for weeding or funeral ceremony. Third option is by informal sector such as *ojek* and truck driver. Fourth option is by working outside Ponain Village, mostly in Kupang area.

Interviews with youths revealed that horticulture sector is considered as the most promising option for youths as Ponain has also been known as one of the most important suppliers for onion and tomatoes to Kupang City. In a year, there are three harvest time: two for onion and one for tomatoes. For vegetables, youths are growing them in between aerial blocks for onion and tomatoes. Income per household might differ based on size of land they had. With 1ha land, they can get approximately IDR 5,000,000 to IDR 8,000,000 net per harvest time, after deducted for paying seeds and fertilizers, while monthly expenditure per household (might differ) approximately IDR 750,000 to IDR 1,000,000

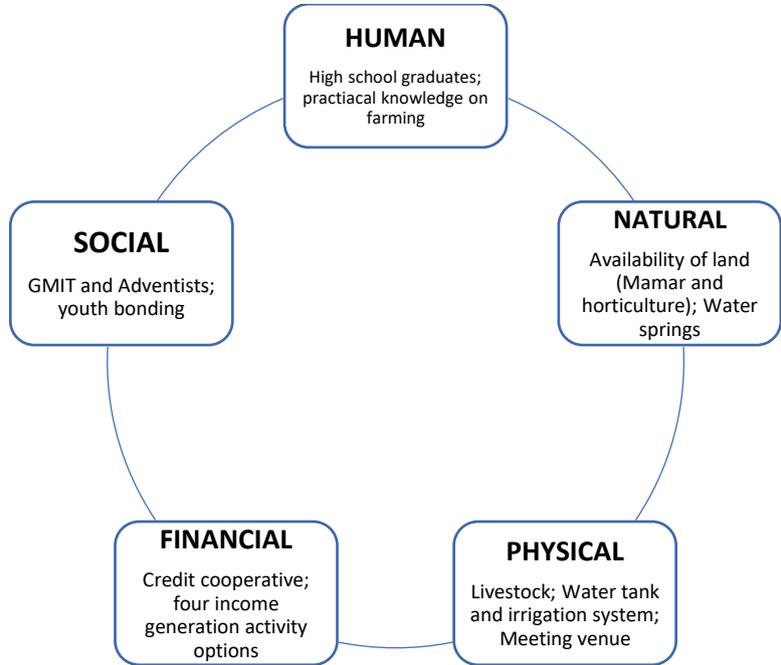
On the other hand, working for BUMDes is challenging for women because of the stereotype that stated installing and deinstalling tent and chairs for ceremonies are heavy things to do for women. Women are perceived not strong enough to do those jobs, especially in printing stone for building construction. This income per month is unpredictable due to dependency to ceremony. A worker can get IDR 150,000 per order per day, in which orders are not coming periodically and is unexpected.

Working in informal sector as *ojek* and truck driver is perceived not too promising for and by youths. *Ojek* is motorbike taxi that common in Indonesia. Uncertain number of passengers result uncertain income per day. Thus, subsistence income is inevitable. Working as truck driver also is not promising for youths as they have to travel to other island for weeks before go back to the village with low amount of money, IDR 1,000,000 per trip to other islands like Java and Sulawesi. Usually they get one or two trips per months to deliver livestock as Ponain is also famous for prominent livestock producer in the area.

Working outside Ponain Village seemed promising for youths based on interviews, although living expenses was also higher than living in Ponain. They usually cope with this issue by living with relatives in the city where they work to save money. It is also not too difficult to work in Kupang as they only require SHS certificate as proof of education obtained while most youths in Ponain were SHS graduates. Income per month might differ, depends on job type although most job pay minimum wage in ENT region IDR 1,700,000 per 2019.

Cooperative services are existed in Ponain with Credit Union as the main actor inside and surrounding villages. The Pintu Air Credit Union branch, which also covers most area in ENT Province has been in Ponain Village for the last seven years, providing saving and loan services for villagers with mostly three years tenure. There is no minimum and maximum amount of savings and loan, all depended on members financial capability.

Figure 6: Youths' Crucial Livelihood Assets in Ponain Village



(Source: Interview and FDG with Ponain youths, 2019)

In terms of natural asset, availability of land both for Mamar and horticulture is the strong asset according to respondents. Table below shows each type of lands and their size in Ponain Village. As a dry upland area, Ponain is suitable for Mamar (banana and coconut) as well as for horticulture (vegetables). Horticulture lately became food crops and cash crops for villagers while Mamar products are utilized as additional income generation option. Five water springs in five Mamar areas are also a vital asset for villagers as those water springs support household consumption and agricultural activities, in which supported by irrigation system as physical assets.

Availability of water tank and pipes to distribute water from water springs to households is considered as physical assets by villagers, together with fish ponds near water springs area and formal and informal meeting point for farmers and youth. Especially for youth, there are three main informal meeting points for them to talk and discuss about daily life while having local liquor or coffee and cigarette in the evening. During the day, these meeting points usually are used by farmers (which also youth) to rest after working in the field (horticulture).

Numbers of livestock are also considered as crucial assets for youths in Ponain since Ponain Village has been known as prominent livestock producers in Timor Island. In fact, this village was visited by Indonesian President in 2014 (was Jakarta Governor at the time) to discuss potential cooperation of meat supply from the Ponain and surrounding village to Jakarta to fulfill high demand on meat there. Although the political situation affected this potential cooperation,

Ponain is still considered as potential place to livestock breeding. Numbers of livestock can be seen in table below.

Table 5. Numbers of Livestock and Owners

LIVESTOCK	NUMBERS OF OWNERS	POPULATION (Approx.)
<i>Cow</i>	400	500
<i>Pig</i>	50	100
<i>Chicken</i>	100	200
<i>Goat</i>	50	100
<i>Dogs</i>	250	300

(Source: Village Government, 2019)

In terms of social assets, Ponain Village was divided into two groups: GMIT and Advent. Both of those groups were protestant denominations that existed in Indonesia. Both denominations had youth groups that consist of both sex from 10 years old to 25 years old. Each group had unique strong in-group feeling and out-group feeling towards each other. Lots of activities were conducted in the past to strengthen bonding between these two groups such as playing football, cooking and go to camping together, and inter-village Olympics for Indonesian independence day in August 17th.

Strong bonding within a youth group could be seen by weekly praying time together in different youth's house, while twice a year conducting outing program outside Timor Island. In order to finance the outing, youths ran two fundraising activities. First, growing and selling vegetables to church congregation. Second, by prepared-meal business such as rice with soybean chicken, cow, or dog meat. Male and female together managed the activities with division of labor between them. For first activity, there were no separation between male or female labor, while for second activity, female usually prepare the meal.

Local Institution: Authorities and Regulations

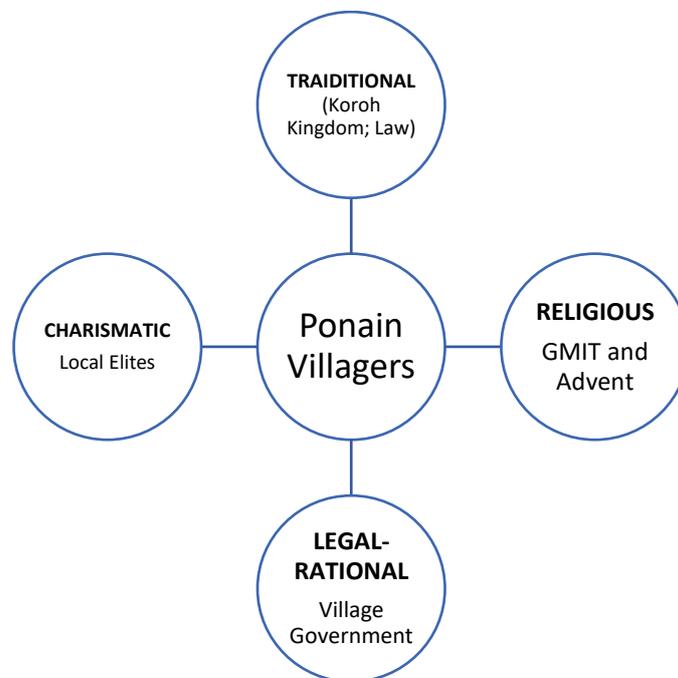
As described by Weberian source of authority, there were three sources of authority that existed in Ponain Village: traditional, legal-rational, and charismatic authority. In Ponain Village, a religious authority does exist and together with the other three has its own position towards each other.

Religious authority was considered as the most important source of authority in Ponain Village by farmers and youths in interviews and FGD, leaving traditional authority that was disappeared in 1960s after the law on Desa Gaya Baru was passed. Since Ponain Village is consisted of two protestant denominations (GMIT and Advent), churches play vital role in villagers' daily life together with legal-rational authority represented by village government.

Permissions and restrictions in daily life for both denominations are coming from the Bible, in which every Sunday is presented and discussed in the mass. For example, restrictions to eat pork and dog meat, drink alcohol, and smoke cigarette for Adventists while those things are permitted for GMIT followers.

On the other hand, traditional authority is getting weakened after Indonesian independence in 1945 and law on DGB in 1968 passed. The Koroh Kingdom still existed at the time this research was conducted, but the authority was no longer recognized by villagers. At some point, religious authority replaced the traditions in ceremonies especially in marriage and funeral ceremonies. In more important role, the Koroh Kingdom (which was addressed as *Lembaga Adat* / Traditional Party) is the one to give permission in case a clan or family wanted to sell their Mamar to outsiders of Ponain Village.

Figure 7. Sources of Authorities in Ponain Village



(Source: Researcher, 2019)

The village government with their legal-rational authority has involved youths in village development planning in sub-village (*musyawarah dusun*) and village level (*musyawarah desa*) before officials bring the development plan to district and provincial level. Involvement takes place once a year in September or October when officials are preparing the village development plan document. Both male and female youth are always involved in this meeting and actively give suggestions on budgeting for youth activities and empowerment projects such as renovation of sport facilities and leisure activities.

On the other hand, charismatic authority does exist in Ponain Village, led by an elementary school principal in the village as he was holding the Koroh Kingdom's last name based on clan. He is invited to every wedding and funeral ceremonies that happened inside the village together with church representatives and village chief. His role in youth involvement in Mamar system is not clearly defined as he is not focused in Mamar anymore.

Interviews with government officials revealed that local government has promoted the law of 5P (*Peternakan/Livestock*, *Perikanan/Fisheries*, *Pertanian/Agriculture*, *Pariwisata/Tourism*, *Perkebunan/Plantation*) for each village in regency level. Ponain Village, as it has been well known as livestock breeder, is focusing themselves in this issue by conducting several activities. Village government puts effort on winning local livestock breeder in annual district and regency livestock contest that is measured by height, weight, and bone structure of the cows. Another activity is *Lamotoronisasi*, growing Lamtoro in third belt of Mamar system in order to become self-sustained in providing livestock feed.

Beside focusing on livestock, Ponain Village is also focusing themselves in agriculture, in which they have been doing for almost 20 years in horticulture production. The only market they have is in Oesao Market, the main hub for Kupang City agricultural products chain from different producers in surrounding area. The government puts extension workers in the village to disseminate more information on seasonality, climate change, while at the same time introducing seed and fertilizers varieties, including cow dung as organic fertilizers.

Those activities are supported by annual budget from national government to every village in Indonesia. Each village receives different amount of rupiah, although literature mentioned that the range is between IDR 800 million to IDR 1 billion annually. With that funds, Ponain village government focuses on developing infrastructure such as road and irrigation to support the livestock and agriculture, the 'two-Ps' they focused from regency level government's development agenda.

In terms of traditional law as mentioned before, legal-rational law is getting strengthened due to Indonesian independence in 1945 and DGB law in 1968. However, before 1968, there was a law that regulated every male and female to do some specific activities related to Mamar before they marry each other. For the male, it was an obligatory to plant 50 trees in Mamar, could be banana or coconut trees. For female youth, they must be able to do traditional weaving before getting married. These two specific activities were supervised by the Lembaga Adat and village government.

DISCUSSION

This chapter presents a critical view on findings compared to the literature review as described in Chapter Two. The discussion reflects on the analysis and possible interventions regarding youth participation in the Mamar system. Moreover, reflexion on researcher positioning in this research is also explained bringing up discussion over the influence and validity and reliability of this research.

There are three sections in this chapter: emigration and expansion as livelihood strategy, reviving traditional law and incorporating horticulture for sustainability sake, and tackling knowledge gap as reflection of this research.

The Dilemma: Emigration and Land Expansion as Livelihood Strategy

In this section, the researcher discusses over migration and land expansion as livelihood strategies, as well as over the consequences of crucial assets that youth have and the local institutional frameworks that exist in Ponain Village. The current livelihood strategies of the villagers will affect the livelihood outcomes and their crucial assets in the future as a loop. At the end of this section, the researcher will discuss youth level of participation that might affect their livelihood strategy to emigrate and undertake land expansion.

As mentioned in the literature review, emigration does exist in rural Timor. Emigration to urban areas exists in Ponain Village. Not all Ponain youth were staying inside the village as they emigrated to pursue higher education or looking for better income by working in urban areas like Kupang City. The emigration could be seen as a livelihood strategy of Ponain youth since there is lack of assets and support from a transformative structure inside the village.

Lack of assets in this case were absence of higher education facilities in the village as there is only one high school and no universities. Youth who are willing to continue their education must go to at least Kupang City to pursue their education. The fact that there were lots of Adventist in Ponain Village narrowed the possibilities to only Adventist universities outside Timor Island i.e. Bandung and Medan became favourite places of study for Adventist households.

Working in urban areas is considered as the most viable income generation activities as the employers in urban cities are using minimum wage to pay workers and basic requirement of working in urban areas is to have high school diploma. As mentioned in the previous chapter, most of the youth in Ponain are high school graduates, thus they potentially will have more access to get jobs in urban areas.

In terms of local culture, there was a stereotypical view that being a farmer is not a proper job. Becoming a farmer is considered as a not proper jobs for the youth, therefore they tend to move to urban areas to work. Beside there is a stereotypical view that farmers are living in subsistence life and have no proper income, the fact that urban jobs offer bigger amount of money made the youth to decide leaving the village although they are aware that the average age of farmers in their village is 50s to 60s and thus farming is at risk.

Although a small number of farmers have found their future replacement, mostly their own children to continue with farming in the future, there are farmers who have not. This labour gaps can represent a problem in the future. To maintain the farming system both the Mamar and horticulture. at the regency level of government has launched the 5P Program (*Peternakan/Livestock*, *Perikanan/Fisheries*, *Pertanian/Agriculture*, *Pariwisata/Tourism*, *Perkebunan/Plantation*) as described in previous chapter.

Absence of human capital in terms of quantity and quality will be a vulnerability of Ponain Village in the future as there will be no human labour to keep the Mamar and horticulture running. Absence and control over assets by the youth are not ruled out in the transformative structure except by inheritance law that put man and woman with the same rights.

Although villagers know the environmental benefit of the Mamar system i.e. water springs as a source of water horticulture, villagers do not have interest anymore in the Mamar systems as they do not perceive financially viable. The dilemma in keeping Mamar systems or transform them to horticulture has come as the demand on horticultural products grows in Kupang City.

The situation is worsening by the lack of current management practices within the Mamar, such as the traditional selective thinning of old trees and their replacement with new trees as previously done based on the traditional marital law mentioned in the previous chapter. At this moment, villagers believe that the best system to manage Mamar is by leaving the natural vegetation succession to continue although there is existing land expansion turning the Mamar areas into horticultural land.

On the other hand, turning the Mamar area into horticultural land is permitted as the traditional authority is no longer the most important source of authority. Getting permission to turning the area is considered as a simple process that villagers can make although the permission will be only granted to those areas that are located in the outer belt of the Mamar system: livestock and its feeding area. This livelihood strategy is perceived as the most sustainable way of living by villagers to cope with the fact that the economic value of the Mamar products are not seen as financially feasible.

The author of this research notices that this phenomenon could lead to the decline of the Mamar area, that could consequently lead to the loss of all Mamar areas in the future. The latter remains a dilemma inside Ponain.

Alarmingly, the existing regulation about 5P could have a strong impact in the conversion of Mamar to horticulture through their policies to promote livestock and horticulture in the short run. By deforesting the Mamar areas, especially in the first and second layer, there will be a direct effect on water availability as water springs will degrade and ultimately disappear. The absence of water springs in the future will have tremendous consequences on the horticulture activities in Ponain village as this economic activity strongly depends on water availability (horticulture uses water irrigation systems that come from the spring).

In the long run productivity and income generation will decrease. Additionally, the fact that farmers are using chemical fertilizers has and will have an environmental impact, especially horticulture and livestock activities. Although dissemination of information regarding the benefits

of using organic fertilizers and how it is in line with the spirit of churches is being done, this seems to be insufficient to change the mind-set on how to perform agriculture. Adding to the latter, climate change brings more challenges to all agricultural activities, where the dry season is becoming longer and thus the lack of water is increasing. As mentioned in the literature review, the local institutional frameworks have an impact on the vulnerability context of the community, such as the aforementioned 5P regulation.

Youth low level of participation in the Mamar system can be one of the reasons why they emigrate and opt for horticulture instead of Mamar, besides another strong reason is the low economic value of Mamar products compared to horticulture products. In this context, youth level of participation can be seen in the 'participation for material incentive level'.

Youth go to the Mamar area and mostly involve themselves to get incentive (more Rupiahs) by selling Mamar products to the available market or middlemen in the surroundings of Ponain. Opportunity to take incentive i.e. Mamar products to monetize them into money is the main reason why youths are still involving themselves in the Mamar system. Simply youths have no power over Mamar system until they entering marriage life.

Reviving Traditional Law and Creating New Mamar System for Sustainability?

This section discusses the possibility of reviving the traditional law in Ponain Village to prevent future deforestation of the Mamar system while at the same time raising awareness of youths over the importance of the Mamar systems for local livelihoods. Since Ponain Village left the traditional authority at the bottom of the chain of the scheme of local authorities, the marriage ceremony and land-use change system was simplified as mentioned in the previous chapter. Therefore, reviving the traditional law seems a potential way to keep the existence and functionality of the Mamar systems alive by at least preventing further expansion of horticultural into the Mamar.

Traditional law that required bride and groom to plant 50 trees in the Mamar area could be effective to revitalize the Mamar and keep management actual. Although the process of reinstalling the traditional authority is very challenging, the process of acknowledging the multifunctionality of the Mamar systems i.e. environmental and traditional customs can be supported by the legal-rational authority i.e. village government together with the religious authority i.e. church. Both can be the two major stakeholders in protecting the existing Mamar system and its water springs and preventing it from future deforestation.

The power that village government have through their positive law and community development agenda, which is supported by annual fund from national government of Indonesia, can represent useful resources to gather local elites both formal and informal to come up with concrete ideas on how to preserve the Mamar systems while at the same time providing income generation activities through horticulture but also niche premium markets where Mamar products can access.

On the other hand, churches with their power on the religious life of villagers will be useful to influence their followers over sustainability issues similarly to their current promotion of organic

fertilizers for horticulture. It is also possible for churches to spread the word over the importance of the Mamar system in supporting horticultural activities in Ponain Village.

In line with the Sustainable Livelihood Framework by DFID, reviving traditional law as part of transformative structure together with existing stakeholders (village government, churches, youth, and local elites) will directly affect the livelihood strategy and vulnerability context of Ponain villagers. Reviving traditional law on marriage ceremony and land use management could provide villagers with coping mechanism for climate adaptation and mitigation.

Inti or Aibaun zone of Mamar, being the core of the system, has the ecological properties to maintain water availability as well as protecting beneficial biodiversity, if well managed and protected. Products of Mamar, e.g. banana and coconut, can be produced for income generation but also other specialty products that can access premium markets such as fair trade and/or organic. The latter can increase the income generation for villagers. Especially for youth, this idea has potential to raise awareness on Mamar system and its benefit, as well as an new market opportunities that premium markets can open with potentially higher revenues than horticulture.

On the other hand, reviving traditional law can be an uneasy agenda for the village government and churches as it means there will be a challenge on their status quo as authorities. As mentioned earlier, both village government and churches are the main influencers in the village. Thus, strengthening traditional authority in the village means village government have to share their power in order to keep the Mamar system well preserved for better future.

This plan seems possible to be done since youths' social asset is quite strong in both Christian denominations (GMIT and Adventist). These two groups can be the first point of raising awareness and action planning in reviving traditional law, to make it more suitable for youths' perspective in protecting the Mamar system.

On the other hand, another possibility to keep Mamar running in the future is by integrate horticulture area as the fourth layer of the Mamar system, resulting in a new Mamar system. As horticulture has become the main income generation activities in Ponain Village, incorporating it as an integral part of the Mamar system seems a possible way to preserve Mamar (especially first and second zone).

Horticulture needs sustainable supply of water in which coming from *Inti* or *Aibaun* zone through irrigation piping line as described in previous chapter. Thus, horticulture existence as main income generation activities of Ponain villagers depends on sustainability of core zone of Mamar. This idea can also be facilitated by youth Christian groups since they have strong social bonding that will ease the knowledge and awareness dissemination process.

Looking through the eye of the commissioner, this new system will facilitate them to conduct community service aiming at preserving the Mamar and optimize horticulture/agricultural activities. However, possible constraints will come from traditional authority which are represented by the local informal elites that see the zoning system of the Mamar zoning as unchangeable. Nevertheless, as traditional authority is not strong enough compared to legal-rational and religious authority, the proposed changes are possible.

Tackling Knowledge Gap: Current Mamar System

Different research, e.g. Suet (2017) and Mbow (2014), has shown the vital role of the Mamar system as in providing sustainable income generation sources. However, as the Mamar no longer represent the main source of income for villagers, the present research was adapted to the new situation in the Mamar system as well as including the consideration over horticulture being the main income generation activities in Ponain.

This knowledge gap in the present research was caused by the lack of existing research focusing on the livelihood in Ponain Village. Therefore, the author of this research had to cope with the new situation and adapt the research accordingly.

In terms of using Pretty's approach of ladder of participation in measuring youth participation in the Mamar system in Ponain Village, there is a critical consideration on it. This ladder of participation by Pretty (in Cornwall, 2008) was meant for development work to see how rural communities involved in development planning by outsiders i.e. development agencies. As mentioned earlier in the literature review, this approach could be interpreted in the context of youth and Mamar system in Ponain.

Moreover, other literatures e.g. PLAN (2017) have successfully claimed that the youth is leaving the villages in Timor Island due to limited access to assets and limited opportunities in the village. Emigration exists in rural Timor Island, including Ponain Village, that let youths go to urban areas to study and work. The claim that youths are not interested in the agricultural sector were also confirmed in this research. Thus, this research contributes to provide current knowledge on how Mamar system works at this moment in Ponain Village and reasons for the lack of involvement of the youth in the Mamar systems.

The author of this research found difficulty when developing research proposal since literature on specific research area, Ponain Village, was difficult to be found. Moreover, the literatures did not specify function of Mamar system in today's life in Amarasi District. Different expectation especially different research area as researcher wrote in research proposal was the ultimate shock researcher found during this research. Previously, Politani as commissioner assigner researcher to conduct research in Oesena Village, a village next to Ponain Village. Change of research area happened on the second day researcher arrived in Kupang, ENT capitol.

This change happened since Politani Kupang as the commissioner was considering the practical matters i.e. accommodation and information flow as well as the trajectory of their community service in the future. When this research was conducted, Politani had already conducted research on sustainability of Mamar system in Amarasi District by looking into environmental benefits to the issue while focus on social issues i.e. availability of human labour in the future had not been conducted yet.

Last minute adjustment was inevitable. Beside research area, data-gathering tools were also adjusted. Semi-structured interview, participatory observation, and Focus Group Discussions (FGDs) were conducted in this research while Visual Research Method and Digital Story Telling that includes photo elicitation and personal stories was not being done due to technical issue. To

tackle this, questions that previously belong to two latest methods were accommodated in semi-structured interview.

This change was not influence difficulties in primary data collection as researcher identity was similar to Ponain villagers. Although researcher was an outsider for the villagers, researcher comes from same province but different island in the East Nusa Tenggara. Thus, cultural and languages similarities helped researcher gained primary data easier.

Advantages for researcher on his identity as a person coming from ENT were researcher get along with respondents and Ponain villagers easily. Similar culture and traditional language including household diversity food consumption ease the process of primary data collection for researcher during his stay in Ponain Village. Disadvantage for researcher were data could be biases and researcher did not see the problem thoroughly in interview, observation, and FGD process.

The researcher himself was considered as youth by Ponain villagers as researcher age was still 25 at the time this research was conducted. Consequently, researcher presented himself as a youth who was flexible, easy-going, eager to learn and experience new things that considered exotic by villagers for outsiders. Researcher was also perceived as part of the community, being in-group in Ponain Village.

In order to increase validity and reliability on the findings, researcher conducted different primary data collection methods i.e. interview, observation, and FGD to cross-checking findings. This strategy could not be proven effective nor ineffective since there were no conflicting information found in those activities. However, this research is suitable for Ponain Village context as this was conducted in case-study basis.

CONCLUSION AND RECOMMENDATION

This chapter consists of conclusion and recommendations. Conclusion is based on the research findings related to each sub-questions of this research. The recommendations are based on the research objective to which this research propose a strategy to improve Politani Kupang's community service regarding youth participation in the Mamar system.

Conclusion

East Nusa Tenggara (ENT) Province in Indonesia is located in the semi-arid region and dominated by dryland. It is the third poorest province where 70% of its population rely on the agricultural sector (BPS, 2009). Agroforestry, locally called Mamar, is an important sociocultural cultivation system. Agroforestry combine trees and agriculture (crops and/or livestock).

Researches have shown that a well-managed agroforestry system exceeds the benefits of monocultures in ensuring food security and climate change adaptation and mitigation, in the case of ENT especially during the dry season (Mbow, *et al.*, 2014). Diverse crops choices provide farmers more diverse sources of income during the year, which are not limited to the long dry season in the area.

As an over-generations communal-traditional agroforestry system, Mamar has been used as an important water and soil conservation system in ENT. Research by Lusiana (2008) shows that the Mamar is excellent as water protector and regulator around the water springs. Njurumana's research (2008) also elaborates over the Mamar's suitability for soil rehabilitation for forest accordingly to soil characteristics and local wisdom.

Ponain Village, as one of village in ENT Province, is one of the research areas of Politani Kupang's community service. As the commissioner of this research, Politani Kupang aims to develop Mamar management system in order to preserve Mamar system in the future. Consequently, this research aims to closing the knowledge gap of Politani Kupang about factors that inhibit youth participation in the Mamar system in Ponain Village.

In Ponain context, Mamar system was established since 1800s and was left behind since 1990s when horticultural products had better price in the local market. Terms of Mamar zoning system in the literature were not confirmed by the farmers as they have other local terms for those zones. At this time, villagers opt to do horticulture activities over Mamar as price for horticultural products are way higher than Mamar products.

Youth participation in Mamar system exisited before the 1990's as they would accompany their parents to visit the Mamar area during the weekend. During the aforementioned period, the Mamar was still considered as the main income generation activity in the village. After 1990s, youths are only going to Mamar to harvest banana and coconut fruits to get additional pocket money. Youth simply have no control over the Mamar until they get married and inherit the land from their parents.

There are five assets that are considered crucial in involving youth in Mamar system. Youths in Ponain are mostly high school graduates who have practical knowledge on farming, both for

Mamar and horticulture. In terms of natural assets, availability of land and water springs helped them to conduct main income generation activities: horticulture, while livestock, water tank and irrigation system support it as physical assets.

Credit cooperatives are available in Ponain village while there are other income generation activities inside the village besides horticulture. Those possibilities are in the informal sector, BUMDes, or by emigrating to work in urban areas. In terms of social assets, there is strong bonding in-group feeling for both Christian denominations group, GMIT and Adventist.

Local institutions in Ponain Village are represented through existing authorities and regulation. Authorities in Ponain Village are coming from four sources: religious, legal-rational, traditional, and charismatic. Religious authority is the strongest authority inside the village, together with legal-rational authority. Traditional authority is not as strong as it used to be since resettlement of Ponain Village following DGB regulation on 1968. Local regulation that exist in Ponain Village are 5P regulation by regency-level government in which made village government focus on agriculture and livestock as their main agenda of village development.

Youths and farmers in Ponain are struggling with their dilemma. Emigration to study and work in urban areas and land expansion to accommodate the demand from horticulture seems like a promising income generation activity. As their livelihood strategy, this approach can be harmful for Mamar system and their horticulture system in the long run since the core zone of Mamar provides water to irrigate both land use: Mamar and horticulture. At the same time, village government is focusing their village development through agriculture and livestock.

In this case, reviving traditional law to preserve Mamar system in the future is a possible factor that can contribute to the cosnevration of the Mamar system both for their environmental and socio-cultural functions. Land expansion will be inevitable if regulation on Mamar is not strong. Particular traditional law in this case. i.e., for the traditional rule of bride and groom candidates to plant 50 trees in the Mamar before marriage, will help to ensure Mamar sustainability. On the other hand, putting horticulture as an integral part in the fourth layer of the Mamar system could be seen as a fresh perspective to think holistically over the interaction Mamar-horticulture.

Recommendation

This section provides recommendation for Politani Kupang as the commissioner to improve their community service regarding youth participation in the Mamar system. Although environmental benefits of Mamar are unquestionable in this research, Ponain villagers are still struggling to preserve Mamar as horticultural products offer more financial benefits for them.

Possible recommendations for Politani Kupang will be divided into two: short and medium term. Short-term recommendation refers to one to two-year activities that can be conducted by Politani Kupang while medium-term recommendation refers to five-years activities. Recommendations are focused on Politani Kupang as the main actor of these possible activities.

- **Short Term**

In the short run, Politani can conduct further research on value chain of Mamar products. It is important to see demand of Mamar products i.e. banana, coconut, betel nut, and areca nut, especially when traditional ceremony always requires the last two crops mentioned. Also, the exploration of premium markets for Mamar products as well as the diversification of premium products within the Mamar. The output of this activity will result in the development of feasible and profitable business models for the farmers including youth.

Exploring the possible development in sustainable value chains will answer the question on where Mamar products in Ponain and surrounding village can be directed as well as exploring international markets. Especially if the prices are too low in Kupang City. Also developing an added value for raw products can open business opportunities for Mamar products. Moreover, availability of viable business inside Ponain will attract youths to stay inside the village and run this business.

This activity is doable for Politani Kupang as they have specific expertise in agribusiness. Therefore, Politani Kupang has the knowledge and practical experience to conduct this analysis while at the same time it is politically feasible since Politani Kupang has good relationship with villages in Amarasi District, including Ponain Village.

In terms of cost, it is a cost-efficient activity for Politani as they have annual research fund for community services, for which it is possible to be submitted annually. Moreover, this activity could be part of their community service. Result of this further research on value chain analysis could be used as basis for business model development for Mamar products.

In order to make the activity easier, Politani can partner with the social enterprise platform in Indonesia, such as PLUS (*Platform Usaha Sosial*) to conduct this value chain and in the future develop business model for it.

- **Long Term**

In the long run, Politani Kupang can assist BUMDes (*Badan Usaha Milik Desa / Village-Government-Owned Business Unit*) to become a viable business entity that provide annual financial contribution for village development. This activity can be done if the short run activity i.e. value chain analysis and business model development will have been conducted as precondition for the latter activity.

Since Politani Kupang may have not yet the capability to assist emerging business entity at village level, the partnership with the social enterprise platform such as PLUS and credit cooperatives in the village will be the most feasible option. The business model itself does not have to be about Mamar products only, but also can be mixed business models such as livestock feeding or Mamar area as tourism destination.

This activity is politically feasible since national government is pushing village government to be more independent, not relying on annual village funds. Nevertheless,

option to finance this activity can come from annual village funds provided by national government.

However, this activity may have constraints from cultural and environmental perspective if it is not properly planned and managed. Openness to wide world has consequence on disappearance of cultural identity of Ponain village, although the trick to use cultural identity as market-penetrating spearhead is possible to tackle the aforementioned issue.

In terms of environmental sustainability, more demand seems to be threat for sustainability of Mamar system. Increased demand on Mamar products will force villagers to accelerate harvesting period of Mamar products. Consequently, there will be more penetration to Mamar system which in the end threaten its sustainability. To tackle this issue, ecological social business model and enterprise will be the suitable type for Ponain BUMDes to keep run the business while preserving the harvest area.

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APPENDICES

Appendix 1: Semi-Structured Interview Guideline

I. Related to Mamar System

What do you know about Mamar system?

How do you know about the system?

How is division of labor in Mamar based on age group and sex?

How Mamar products being utilized?

What are economic values of those Mamar products?

Who has access to Mamar and control over it?

II. Related to Youth Participation

How is knowledge dissemination on Mamar system?

What are youth activities in Mamar and horticulture?

What are youth motivations in participating (or not) in Mamar?

How is youth position in control over Mamar?

III. Related to Youth Crucial Assets

How is human asset of youth in Ponain Village?

What are physical assets that are available?

What are income generation activities in the village?

How is existence of credit cooperative?

How is social bonding between groups?

Is there any land available for Mamar and horticulture?

IV. Related to Local Institution

Who has authority in the village?

Which authority is the strongest?

Who are actors and what are their roles in Mamar system?

What are existing regulations in Ponain Village?

Appendix 2: Observation Checklist

- a. Daily activities of farmers
- b. Daily activities of youth
- c. Interplay of authorities in Ponain Village
- d. Social in-group and out-group feeling between social groups
- e. Mamar zoning system
- f. Value chain of Mamar and horticulture products (to nearest market)
- g. Livestock care system

Appendix 3: Pictures



**Youth is working in horticulture
(July 25, 2019)**



**Horticulture next to Mamar area
(July 20, 2019)**



**Stone-printing by BUMDes Ponain
(July 18, 2019)**



**Tomatoes in horticulture in Ponain
(July 29, 2019)**