Intrinsic motivation of sustainable agriculture for small island communities: a case study in Binongko, Wakatobi

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Abstract. Sustainable agriculture appreciates the development of cultural values that come from the community local wisdom. Cultural values can be an intrinsic motivation that underlies the community's agricultural techniques. This motivation is relatively strong in small island communities who have limited land and water resources for agricultural activities. This study aims to reveal and review the intrinsic motivation in the sustainable agriculture of small island communities. The research was conducted from April 2018 to April 2019 on Binongko Island, Wakatobi Regency, South east Sulawesi Province, Indonesia. Data were collected through observation, interviews and literature study using the data triangulation method. The results showed that the Binongko community were intrinsically motivated by the desire to be winners (hoppatallo) in conquering natural challenges on land (rocky rocks) and oceans (high waves). This desire is based on the spiritual belief about God's power and the awareness to work hard as expressed in the ancient philosophy of society “wale menturu wale bhila, mayi wale mangare wale mo’aro”. This motivation drives them to cultivate plants with rituals such as bhelai, phitado, honowu/katambhari, bhija-bhija/bhatata, pajare’a, phidawu-phidongka and tompe’a. The motivation in agricultural culture has social, economic and ecological implications that support a sustainable agricultural development system.

1. Introduction

Indonesia consists of 17,504 islands, one of which is Binongko Island has located in the Wakatobi archipelago, Southeast Sulawesi Province. This archipelago was formerly known as the Tukang Besi Archipelago. Geographically, Binongko Island occupies a position between 06°000'42" South Latitude and 124°002’31” East Longitude. The island is located in the southern part of the Wakatobi District archipelago. It is bordered by the Banda Sea and Flores Sea [1].

Binongko Island consists of 2 subdistricts, 14 villages, and 36 hamlets. In 2018, the population of Binongko Island was 12,311 people. This area has 15,600 Ha. Land use for buildings is 17.64 ha, yards 54.45 ha, farming 115.03 ha, not cultivated 9.71 ha and other uses 8.17 ha [2][3]. The land for upland is wider than for other uses because each family head has more than one land for cultivation. One family head usually owns at least 2 farms in different places. This condition is influenced by the suitability of farming land, land ownership status and is one of the community adaptation strategies in a sustainable
agricultural system [4].

Sustainable agriculture appreciates the development of cultural values that are sourced from the local wisdom of the community. Cultural values can be an intrinsic motivation that underlies community agricultural cultivation techniques. This motivation is relatively strong for the people of small islands who have limited land and water resources in agricultural activities. They need motivation in the form of a high work ethic to fight the challenges of limited resources. This study aims to reveal the intrinsic motivation in the culture of sustainable agriculture in small island communities.

Studies on intrinsic motivation associated with community culture in agriculture are still relatively rare. The study of motivation is generally related to the motivation of farmers in cultivating an agricultural commodity, for example the motivation of farmers in cultivating dragon fruit [5], rice farming [6] and cultivation of Mendong plants [7], organic grain farming [8]. There are also studies on the motivation of farmers in applying agricultural technology [9,10], the application of conservation systems [11] or farmer participation in a program [12].

2. Materials and methods

This qualitative research was designed using a case study approach. The study was conducted from April 2018 to April 2019. The research took place in 14 villages in Binongko and Togo Binongko Subdistricts, Wakatobi District, Southeast Sulawesi Province, Indonesia.

Data were collected through observation, interviews and literature study with data triangulation method. Interviews were conducted on informants who were determined purposively with certain criteria, and used the snowball technique. Informants consist of key informants, main informants and supporting informants. There is 1 key informant who is a community leader and has knowledge of the life philosophy of the Binongko community. The main informants and supporting informants have criteria, namely the head of the family and a profession as a farmer who manages land based on local community knowledge. The main informants in this study amounted to 21 people. Furthermore, there are supporting informants whose number is limited when the information obtained is saturated.

The research data were analyzed qualitatively by making meanings or interpretations, classifying and presenting them based on the research objectives. Data were analyzed using historical analysis methods according to anthropological and sociological approaches to reveal the intrinsic motivations underlying the agricultural culture of the Binongko Island community.

3. Results and discussion

Intrinsic motives are motives that do not need to be stimulated from outside [13]. This motive arises from within humans psychologically. Motives in psychology also mean stimuli [14], encouragement or power generation for the occurrence of an action and or behavior [15]. Intrinsic motives are motives that arise on the basis of human consciousness itself, for example the awareness to work hard because they want to earn financial income and then the income is used to meet their needs. Meanwhile, awareness is triggered by a person’s belief as a manifestation of his hopes or desires for the results of something he has done.

Intrinsically, the motivation of the Binongko community is actualized as a work ethic that stimulates their awareness and enthusiasm to carry out various activities to meet their needs. The work ethic is expressed in the spirit of being a ‘winner’ (hopotallo) on land and at sea. Winning in this context does not mean mastering, but rather an effort to conquer natural challenges by managing them so that they are able to provide a sustainable source of life. The motivation or work ethic developed from a community tradition that equated challenges on land with challenges at sea. Land and sea are considered as two places that occupy the same function to earn a living. The rock is considered the same as the height of the ocean waves, so if a person can face the steep waves in the ocean, then he can also overcome the rock on land. One of the main informants of this research who is now a farmer and mosque administrator (kasisi masigi), but used to be a sailor for more than 30 years said that “Life in Binongko is indeed difficult, but for us sailor, let alone the sharp rocks on this land, we only face the high waves of the sea in search of life” (La Jakarta, Interview, June 14, 2018). This statement indicates that there
are similarities between the profession as a farmer and as a sailor. Rocky land requires hard work to be able to plant, as well as the hard work of a sailor in holding back the waves in the ocean. The results of sailing are more than farming, but the sacrifice of sailors is being away from family. In addition, this narrative illustrates the similarity between the rocky rocks in the Binongko farming area and the steep ocean waves in the east monsoon. This figure of speech tends to justify the opinion of the people of Binongko and even the people of Wakatobi in general who equate the position of land and sea. The phrase "the number of fish in the sea is equal to the number of leaves on the land" also indicates that the situation in the ocean is no different from the land. Sustainability and integrity of resources, including challenges on land and at sea tend to be the same.

A lyric from Wakatobi's song "... te laro mbea dipooli, di olo nasintuwu ano..." (unstopable feelings, the sea is a place to vent). It is widely understood that the sea has a strategic position in overcoming the bitterness of human life. The word "nasintuwu" may mean to be managed or processed which also implies that the sea can be taken care of or managed to solve life's problems. The lyrics of this song also describe the 'close relationship' between the Wakatobi people and the sea, which later provides an interpretation in society that when a person experiences problems in life such as heartbreak and food difficulties. Then by looking at the ocean or by wading through the ocean, everything can be forgotten or can be overcome. If the sea has that position, so does the land, so that by navigating the ocean or by managing the land we can overcome the bitterness of life, including obtaining results to meet the necessities of life.

It is this thought that has inspired the people of Binongko, so that they not only challenge the arid agricultural land, but also the steepness of the ocean waves. No matter how big the threat in the ocean such as high waves, it still needs to be managed in order to obtain shipping or trade results. Land and sea are places to find sources of life, so all the problems that exist in both are considered as natural challenges that need to be faced. Both places have taught the community to deal with it with a number of strategies and skills that are ongoing. The process of facing these challenges has shaped the character of the Binongko community, for example the birth of a maritime character.

The real maritime character is from Binongko [16]. The maritime characters possessed by Binongko sailors are steadfast, tough and unyielding, simple, honest, creative, communicative, intelligent, dynamic, willing to take risks, adventurous, egalitarian, and responsible [17]. Rudi [17] Argues that "the Binongko people have long been known as boat makers and sailors who are very skilled at sailing the oceans so that they are dubbed the king of the ocean. The desire to conquer the oceans and a number of these characters has intrinsically motivated people to try to face the challenges of nature and produce something to meet their needs. From these activities, optimal results are obtained that encourage them to continue to do so, and it has become a tradition of social life for the people in this region.

For the people of Binongko, it takes hard work to make ends meet by managing land on land or navigating the ocean. The persistence to work hard in fulfilling the necessities of life is inspired by an awareness that is embodied in the ancient philosophy of the people of Binongko Island, namely "Wale mencuru wale mobunci, mayi wale kangarea wale mo'aro (Cia-cia language) or Wale menturu wale bhila, mayi wale mangare wale mo'aro (Mbedha-mbedha language)"). (Whoever is diligent in trying/working, then he will remain full/sufficient, and whoever is lazy to try/lazy to work, then in the end he will starve lack)."

According to [18] that philosophy has been spoken by their ancestors since they first set foot on Binongko Island. It is said that the first place occupied by one of the ancestors of the Binongko community was Yoro Beach (ngapa). It's called (mengapa) Yoro because when they set foot on the beach they heard the magical voice "Yoro" which means do/work for your life. The voice indicates that people who come to Binongko Island must work hard in order to survive. Natural conditions are dry, arid and land dominate by rocks require extra will and energy to be used as agricultural land. This story also illustrates that the first people who inhabited Binongko Island had realized the need for hard work to survive in the area. Therefore, it is not surprising that the people of Binongko Island today are known to be hard workers because this spirit has been inherited by the early inhabitants of the island.
The ancient philosophy of the Binongko community implies that people who work diligently will always be full, and vice versa, lazy people will starve. The word 'full' can be interpreted as a condition of prosperity or the satisfaction of all needs, and conversely 'hunger' is associated with a state of adversity or poverty. This philosophy believes that there is a positive correlation between hard work and prosperity as a result. Those who have the will and ability to cultivate agricultural land or carry out other activities to earn income can certainly fulfill their needs which will bring prosperity to them. Furthermore, this philosophy teaches humans to work hard if they want to get optimal results. The effort made will always be proportional to the results achieved. The proverb says 'One reaps what he sows', which means that we get results according to our efforts.

Related to this, the teachings of Islam require the need to strive achieve change in life. The people of Binongko, who are all Muslim, also believe that an effort will determine our life situation, including the change in fate. A change in life will only be achieved if we try. This is in accordance with the word of Allah SWT in the Qur'an surah Ar-Ra'd (11). This verse of the Qur'an has spiritually anchored the hope that change for the better can only occur if we try. Change requires human awareness to face the challenges of nature and manage its resources in order to provide the expected results. Even though it is in the form of critical land, it still needs to be processed because it is believed to be a creation of Allah SWT for the prosperity of human life as Allah says in the Qur'an surah Yasin (33) and (35). Both verses tell that barren or arid land is like the case in Binongko Island is also a gift from Allah SWT which if managed properly can provide welfare for the community. With all the power and will of God, barren land can produce food for humans who want to try to cultivate it. Human efforts determine the results of the land, so it is appropriate for the Binongko community to continue to carry out farming activities so that their food availability can always be guaranteed in a sustainable manner.

In connection with the verse of the Qur'an in Surah Yasin, there is also Surah Al Imran (191) which also states that nothing created by Allah SWT on this earth is in vain. This means that everything created in nature has a purpose and a benefit. In plain view, the rocky soil on Binongko Island may not produce food crops, but the reality shows that under such soil conditions, food crops grow and farmers can get results from their cultivation. Believers and pious people mentioned in the verse of the Qur'an Surah Al Imran (191) are people who remember Allah SWT while standing, sitting or lying down. Those who believe certainly believe that everything in nature is God's creation, and everything has benefits for human survival. There is nothing created by Allah SWT that is in vain, so that whatever form it takes, it certainly has benefits for mankind who believe in it. This belief seems to have been engraved in the soul of every farmer in Binongko who is all Muslim. They persist and persevere to manage their farming land even though physically it looks like dry and rocky land. These processing efforts are motivated by a belief that all will produce results according to their sacrifices.

Islamic values are so embedded in people's souls that they are applied in their actions to diligently carry out all the routines of life, including in managing agricultural land. Historically, the people of Binongko have long been known to have a high religious spirit. These religious values have been instilled by the ancestors of the Binongko community, especially since Islam entered the region. It is said that he said, many Sufis and scholars in the Buton Kingdom went to Binongko Island, especially when they experienced differences of opinion with the royal leader. For this reason, on Binongko Island Islam is growing rapidly, and many religious generations have been created. Several great scholars from Binongko succeeded in broadcasting religion to the archipelago, for example K.H. Asyari who broadcast Islam in Southeast Sulawesi and the Maluku Islands [18].

One of the implications of understanding Islamic religious values is that there are some people who think that being a farmer is a profession that is blessed by Allah SWT. La Halib (60 years old) said that “becoming a farmer is clean” (Interview, Juni 18, 2018). It is means that being a farmer related to self-purity. Being a farmer is believed to be the cheapest, honest and closer job to fellow human beings, to the natural surroundings and to the creator. The cheapest because it only requires the will and energy to open agricultural land, while the land, seeds, water and other necessities have been prepared by nature. Honestly, because we can no lie to nature, how we treat nature is how nature will produce results, which means that nature will only provide agricultural products according to our efforts. If we only manage 10
square meters of land, then we will get a result of 10 square meters as well. Furthermore, being a farmer is considered to be closer to fellow humans because the results can be enjoyed by many people, closer to the natural surroundings because nature is the object of farming, and closer to the creator because only by His pleasure all agricultural businesses can produce results. On the other hand, the survival of farmers on Binongko Island is also based on the choice to work as farmers rather than work in other business sectors. One of the informants of this research said that “Being a farmer is different from being a fisherman, don’t go to the farm every day when it’s time for the plants to be harvested, but if you don’t go to the sea then no results will be obtained” (La Halibu, Interview, September 20, 2018). The statement explains the advantages of being a farmer in terms of the availability of household food. A farmer is still able to obtain food even though he does not need to go to his farm every day because of the grace period between planting and harvesting. Meanwhile, a fisherman can only get food when he goes to sea. However, in general, the people of Binongko carry out both professions and livelihoods. A family head can be a farmer as well as a fisherman. When he does not go to his farm, he goes to sea, for example in the morning to the garden and in the evening to the sea or today to the garden and tomorrow to the sea. The grace period for farming provides space for farmers to go to sea. This situation is also triggered by the complementary nature of seafood and farm products. Food sources of carbohydrates are produced from agricultural land while food sources of protein are produced from the sea, so that activities as farmers and fishermen need to be carried out by a family head to obtain complete food.

The habit of carrying out routines as farmers and fishermen or sailors (land and sea) has become a pattern of motivation that is invested in the form of a desire to stay on Binongko Island. This is supported by the idea that Binongko Island is their homeland. In this area, every member of the community is born, grows and develops and forms social ties that are institutionalized as a community on Binongko Island. Every member of the community has family ties that underlie them to relate to one another, love each other, respect each other, and help each other and maintain the integrity of their relationship. Love for the homeland makes it difficult for every member of the community to move to another area, although there are some people who choose to move to another place for various reasons. This research informant said that “Binongko is my homeland, and I am comfortable living here with all my family members (Ibrahim, Interview, November 15, 2018). Others said that “We chose to stay in Binongko because many families live near us and we live helping each other” (Wa Aniru, Interview, June 23, 2018). These two statements are only a small part of the community’s expressions that show their reasons for staying on Binongko Island. Living together with all family members in a place is a life choice by most people so that they remain in the area. They have the belief that living in the midst of a family will provide a sense of security because of the ease of communication and in obtaining protection or help when needed.

Specifically related to community resilience in agriculture, there were statements by several informants who expressed their desire to prefer to persist in carrying out agricultural activities on Binongko Island. One of the statements stated, “In land areas like Lasalimu (Buton Island) we initially produce a lot of farming results because we use fertilizers and chemical drugs, but over time the production has decreased. In Binongko, the cassava harvest is always the same and even increases and we don’t need to build fences to deal with pest attacks” (La Madi, Interview, December 8, 2018). The same thing was conveyed by an informant that “I farmed cloves, coconut and cocoa in Maluku and had time to plant cassava and corn but did not survive because there were a lot of pigs. These plants are only harvested once a year while daily needs need to be met (Interview, 21 December 2018). This statement shows the people’s reasons for still choosing Binongko as a place for farming even though the land is rocky. They think that farming in Binongko is easier and cheaper. It is easy because the farming system has become part of the way of life of the local community which is marked by the application of farming rituals such as bhelai, phitado, bhija-bhija/bhatata, honowu/katambhari, pajare’a, phidawu-phidongka and tompe’a. This is where the social benefits obtained by the Binongko community by implementing agriculture based on their intrinsic motivation. This farming ritual has become local wisdom that describes the identity or character of the Binongko community, namely hard workers and always wanting to be winners (hopotallo) in conquering natural challenges.
The farming system is relatively cheap because it doesn’t cost money to buy fertilizers, insecticides or weeds, even to build a barrier for pigs. The provision of organic fertilizer through the honowu or katambhari system has become a routine in the community farming system [19]. This does not require financial costs because it only utilizes household organic materials and those around the farm location. This practice has proven to be ecologically beneficial because the use of organic matter can maintain microclimate stability such as solar radiation intensity, soil temperature, and air humidity as well as localization of soil nutrient recycling [20].

Economically, agricultural culture based on the intrinsic motivation of the Binongko community can be beneficial in supporting family food security [4]. In terms of farm production, it is known that crop yields in this area tend to stagnate (fixed) and even increase, so that it is different from other places which tend to decrease due to the use of chemicals. Farmers on Binongko Island on average earn IDR 860,116.68 per planting season on their cassava farming [21]. However, this income is obtained on a subsistence basis and can be sustained because they develop mixed farming systems with rotating planting times. One family head can own more than one farmland, which is managed with certain arrangements, for example, different times of land clearing and types of crops. Every time they harvest, farmers immediately replant farming land, so that when one land has been harvested, the other land is also ready to be harvested [22]. Based on this condition, it is known that the availability of these agricultural products contributes to household food security in a sustainable manner.

4. Conclusions

Based on the results of this study, it can be concluded that the Binongko community is intrinsically motivated by the desire to be a ‘winner’ (hoppotallo) in conquering natural challenges on land (rocks rock) and sea (steep waves). This desire is based on spiritual beliefs about God’s power and awareness to work hard as expressed in the ancient philosophy of society, namely "Wale menturu wale bhila, mayi wale mangare wale mo’aro". This motivation drives them to cultivate plants with rituals such as bhelai, phitado, honowu/katambhari, bhija-bhija/bhatata, pajare’a, phidawu-phidongka and tompe’a.

This agricultural system, which is based on the intrinsic motivation of the Binongko community, has beneficial implications socially, economically and ecologically so as to support sustainable agricultural development. Socially, this agricultural culture can become local wisdom that describes the identity and character of the Binongko community. The character in question is a hard worker and always wants to be a winner (hoppotallo) in conquering the challenges of nature. Economically, this agricultural culture can contribute to meeting the family's food needs. Even though it has a subsistence pattern, this agricultural production has proven to be available and supports family food security in a sustainable manner. Ecologically, this agricultural culture accommodates the application of environmentally friendly cultivation techniques because of the plant maintenance system that uses organic materials.

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