

Traditional Farmers of Wamena Tribes in Jayapura-Indonesia

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Abstract

Traditional agriculture has a relationship with the culture of the local community that is the norms agreed upon by the ancestors related to the use of natural resources to meet the needs of daily life. This article aims to describe the traditional agricultural process of the Wamena people in Jayapura, Indonesia. The perspective used in analyzing traditional agricultural processes was the perspective of sustainable livelihoods of traditional communities in a development context. This research was done in a descriptive-qualitative manner by using primary and secondary data. The primary data was obtained from in-depth interviews. Meanwhile, the secondary data was obtained from observations and document studies. The results indicate that the traditional agricultural process of the Wamena Tribe in Jayapura was able to maintain the livelihoods of traditional communities based on the principles of sustainable development. This could be seen from several stages, such as access to land resources, land ownership, agrarian social relations, and gender issues in the division of traditional agricultural work of the Wamena people in Jayapura. This shows that the local wisdom in the cultural norms of the Wamena people could be used in environmentally friendly agricultural activities that did not have a conflict with the perspective of sustainable development.

Keywords: traditional agriculture, Wamena women, sustainable livelihoods, sustainable development

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Introduction

Ecotourism Traditional agriculture is such an interesting study in Indonesia that is related to the sustainability of the livelihoods of farmer communities. The sustainable livelihood perspective explained by Chambers and Conway (1991) on the survival strategy of rural communities is interesting to relate it to the context of Indonesian culture. Singgalen et al. (2019), in the context of sustainable livelihoods, expressed a view on the mobility of additional people's access to resources. This shows that the capability of the community's access to capital is inseparable from the influence of cultural values as a stimulus as well as a guide to the livelihoods of local communities. The development of researches in the context of traditional agriculture is not only related to community livelihoods but environmentally friendly agricultural processes based on sustainable development perspectives. Therefore, this article aims to identify the traditional agricultural process of the Wamena Tribes in Jayapura in the perspective of sustainable livelihoods and principles of sustainable development.

Previous researches on sustainable livelihoods in Indonesia are interesting, considering the availability of resources in each region that has diverse cultural values. Wijayanti et al. (2016) investigated sustainable livelihood strategies in Solo and showed the use of local resources

without ignoring the economic, social, and cultural conditions of the local community. On the other hand, Sadono (2008) emphasized the importance of empowering farmers as a new paradigm of agricultural training in Indonesia. The role of the agricultural sector in the national economy is very strategic, especially for increasing employment in rural areas and maintaining the availability of food for the community. Meanwhile, Pitana and Setiawan (2005) emphasized that agriculture in Indonesia must be supported by strong institutions based on traditional values. This shows that traditional agriculture is a community activity in the village to maintain the sustainability of livelihoods while also maintaining the sustainability of the surrounding natural environment as part of the community's livelihoods.

Several previous researchers have linked the social mechanisms of society with nature that worked together to maintain the sustainability of the natural environment. They found that the traditions or culture of the people in the village did not conflict with the principles of sustainable development (Martin et al., 2016). In fact, Nopiansyah et al. (2016) showed that the communal nature of the community could be an appropriate strategy for optimizing natural resources for the sustainability of the local people's livelihoods. Furthermore, Purnomo (2000) argued that the

integration of traditional with scientific knowledge could optimize the management of natural resources. This shows that the process of utilizing natural resources for the environment can be integrated with the local wisdom of the customary people to achieve environmental sustainability as the principles of sustainable development.

In 1987, The World Commission on Environment and Development held a conference in London to discuss environmental issues in development known as the Brundtland Commission Report. The idea offered was such an effort to pay attention to environmental sustainability in its management at the local, national, to the international level (Keeble, 2007). In the context of agricultural development, Redclift (1989) pointed out a number of consequences of agricultural development in Latin America based on the view of sustainable development in the Brundtland Commission Report. This shows that the development principles had been set on the international agenda as a development guide that balances economic, social, and environmental aspects (Sneddon et al., 2006). Thus, it can be seen that sustainable development in agriculture can be integrated with the local wisdom of traditional communities in Indonesia through an environmentally friendly agricultural process.

The issue of sustainable development in developing countries is interesting to study, especially in Indonesia. In the context of the Papua Region, collective action is the characteristic of tribal-based customary people in managing natural resources as capital to maintain their livelihoods. Innah et al. (2013) showed that the characteristics of local culture influenced the regional development process, such as leadership, dedication, legitimacy, and an agricultural basis. Each of them had a typology of collective action with different stimuli. In addition, Sagrim (2011) explained that there were institutions and structures of a culture-based agrarian society that supported the efforts to conserve natural resources to achieve sustainability. This indicates that the customary people include their local wisdom in terms of maintaining the natural resources to achieve sustainability.

For these reasons, this study aims to describe the traditional agricultural process of the Wamena Tribes in Jayapura in the perspective of sustainable livelihoods and

principles of sustainable development. There are several previous scientific studies that become the basis of this study; for example, studies on the importance of local wisdom in the use of natural resources (Kurniasari et al., 2018). Handayani (2016) showed that traditional farming could be used as agricultural education material that supported the people's livelihoods in the economic field. Although the sustainability of natural resources is very dependent on people's understanding of the agricultural process that adheres to the principles of sustainable development, habitus – in the cultural norms of society in Indonesia, especially Papua – is contextual (Mulyadi et al., 2009). Furthermore, Mulyadi and Iyai (2016) studied the influence of local cultural values on the motivation to farm each tribe in Papua. Sibirian (2018) found that the agricultural process of the Papuan people in the Manokwari Regency was dominated by cultural elements so that the pattern of natural resource utilization was carried out communally based on education within the cultural group (indigenous science). In addition, Turua et al. (2014) had described the traditional agricultural process of the Papuan people in Kerom Regency and found that local wisdom was the agricultural character of the Papuan people integrated with the perspective of sustainable development. This shows that Indonesia, especially Papua, is an interesting research context to be studied scientifically concerning the traditional agricultural process of the Wamena people in Jayapura.

This article aims to describe the livelihoods of migrants from Wamena in accessing and utilizing capital to maintain their livelihoods in Jayapura. Thus, the perspective of sustainable livelihoods can collaborate with the migration theory as a novelty of the concept of sustainable livelihoods of migrants in the case of migrants from Wamena in Jayapura. Since 1999, the Department for International Development (DFID) has been paying attention to the capabilities, assets, and activities of people in developing countries. Therefore, researchers such as Chambers dan Conway (1991), who emphasized that the availability and capability of access to capital influenced the sustainability of rural livelihoods. It is described in the following framework as shown in Figure 1.

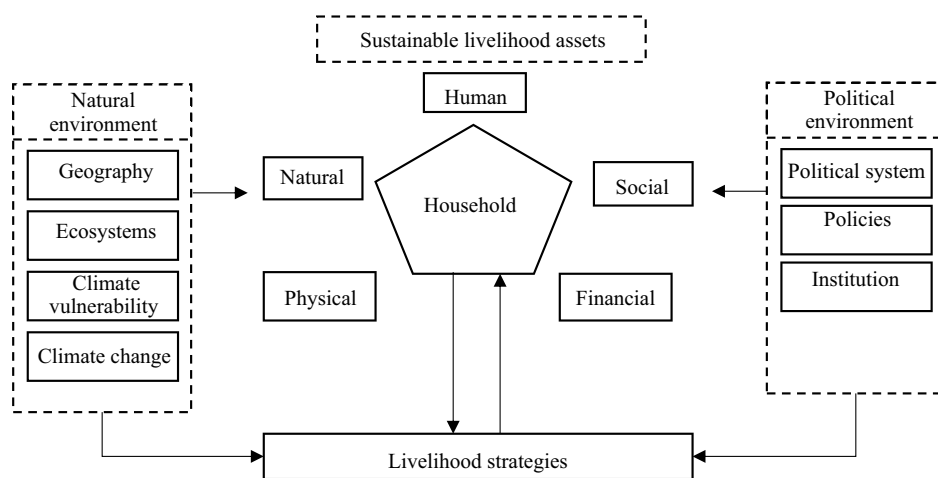


Figure 1 Chambers and Conway (1991).

Figure 1 is a conceptual framework of factors influencing the livelihood sustainability of the community in developing countries by Robert John Haylock Chambers and Gordon Richard Conway (1991). Specifically, Carney (1999) and Ellis (1999) also supported that community livelihoods, in the context of rural area development in developing countries, were highly dependent on capital ownership such as human capital, natural capital, social capital, financial capital, and physical capital. Carney (1999) emphasized things that were highly vulnerable to affect the capability of community access to capital, for example, policies, institutions, and the local political system. Meanwhile, Ellis (1999) showed that the geographical condition of rural community settlements, especially the availability of resources, was essential in determining the process of capital utilization to achieve intensification, extensification, and diversification of capital so as to achieve sustainable livelihoods. Furthermore, Scoones (2009) argued that each regional context had different dynamics, especially on local cultural values.

The livelihoods of migrants in the destination area can be collaborated with population theory and analyzed using the sustainable livelihoods approach by Chambers dan Conway (1991). Mantra (1992) argued that migration occurred due to various factors, including economic, social, environmental, and political factors. In the context of Papua, Wibowo dan Tukiran (2003) concluded that the migration of the people of Wamena might occur due to factors influencing their welfare. Nevertheless, studies on the migration of Wamena Tribes to Jayapura are still limited to describing the driving and pulling factors of Wamena migration. In addition, the concept of sustainable livelihoods, specifically examining the traditional agriculture of Wamena migrants in Jayapura, is still very limited. Several previous researchers mostly discussed the institutional context within the framework of sustainable livelihoods of rural communities (Hidayat et al., 2015), as a comparison to the cultural context that encouraged sustainable livelihoods for rural communities. For this reason, the present researchers are interested in studying the factors driving and attracting migration and the dynamics of the livelihoods of migrants from Wamena in Jayapura.

Methods

This study was done in a descriptive-qualitative manner to describe the traditional agricultural process of the Wamena Tribes in Jayapura based on the perspective of sustainable livelihoods and principles of sustainable development. The primary data was obtained from in-depth interviews. The key informants involved are as follows: Aby, Rory, David Siahaya, Frans Uhi, Darius Kogoya, Ondius Kogoya, Yosepus Mosip, Kogoya, Paul Murip, Julius Daby, Maklaben, Ubentina, and Lina. Key informants involved in this study had a standard understanding of the history of migration and ritual sacred of the Wamena Tribe, including *honai* and *silimo*. In addition, they were selectively chosen based on their experience in implementing the farming traditions in the Wamena Tribes in hilly areas and watersheds (*Daerah Aliran Sungai/DAS*) and understanding of governance especially concerning agriculture and

community economic development. Thus, based on these background qualifications, the key informants consisted of farmers, chiefs (*ondoafi*), religious leaders, and regional officials.

The interview process took quite a long time, as most of them could not be open to strangers easily. In addition, it was also done while chewing betel nut-based on their local customs or traditions and distributing groceries. The researchers were accompanied by a colleague named Mr. Nasarudin and Mr. Yobo so that the communication process using the local language could be translated and understood as accurate and valid information. The interview process was conducted regularly to obtain complete information related to things that were considered sacred, especially on the farming traditions of the migrant community from Wamena. The researchers also considered the key informants' work, so the interview was conducted only when they were available. Based on the interviews, it could be concluded that there were sacred and privacy issues in the process of communication with migrants from Wamena in Jayapura. Therefore, the information could only be obtained as a whole by implementing a close fraternal approach and intense meetings.

The research took place in Kotaraja, Apo, Angkasa, Dok 5, Dok 9, and Waena areas where the key informants lived. The locations mentioned were hilly areas and watersheds (DAS). This showed that the settlements of migrants from Wamena had the same contour of their hometown (Wamena) before migrating to Jayapura. Meanwhile, the secondary data was obtained from observations and document studies such as the geodata of research locations for mapping research sites using the Quantum GIS application (QGIS 2.18.4), described in Figure 2.

After obtaining empirical data, the researchers examined the validation and credibility of the data using a triangulation approach to obtain complete information about the livelihoods of migrants from Wamena in Jayapura, particularly the driving and pulling factors of migration as well as the traditional farming process of the Wamena Tribe. This article links the perspectives of Robert John Haylock Chambers and Gordon Richard Conway on the conceptual framework of sustainable livelihoods (Chambers & Conway, 1991) and the principles of sustainable development with the traditional agricultural process of the Wamena Tribes in Jayapura. The data was analyzed by using life history techniques to describe experiences in the traditional agricultural process in Jayapura. Thus, this article could link the migration theory with the approach of sustainable livelihoods through a case study of the livelihoods of migrants from Wamena, specifically in the traditional agriculture in Jayapura.

Results and Discussion

In an effort to link the concept of migration with sustainable livelihoods, the results of this study indicate that the migration process of the Wamena Tribe to Jayapura was influenced by both driving and pulling factors. The drivers of migration consisted of three parts, including limited infrastructure, poor education quality, and vulnerability of

tribal conflicts. Meanwhile, the pulling factors of migration consisted of two parts, such as economic opportunities in the destination area and the existence of tribal community security in the migration destination. Institutionally, the migration process was mobilized by the church, *ondoafi*, and government. Thus, the Wamena community could access the natural resources as a form of capital to be developed into other forms of capital so as to encourage the achievement of sustainable livelihoods. Therefore, in relation to the perspective of Chambers dan Conway (1991), the theoretical

contribution of this research to the novelty of a sustainable livelihood approach in the context of migrants can be described as shown in Figure 3.

Figure 3 illustrates the migration process of the Wamena Tribe, starting with the driving and pulling factors, followed by the livelihood strategies in the migration destination, mobilized institutionally and using policy by *ondoafi*, religious institutions, and the government. The institutional mobilization was able to encourage the capability of the Wamena community to access land resources as natural

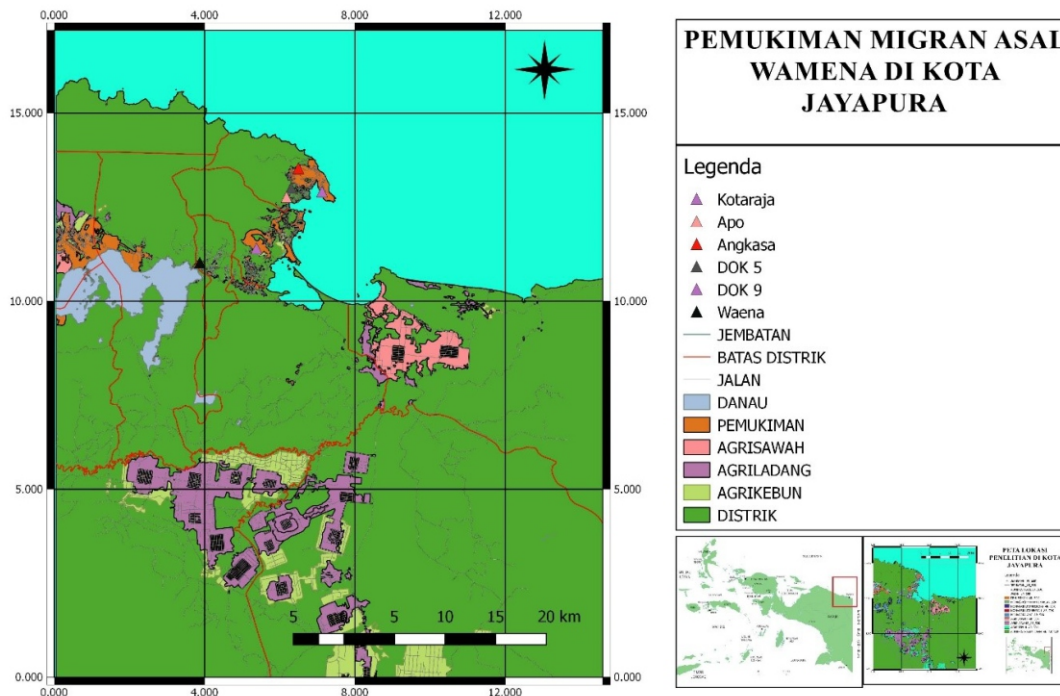


Figure 2 Research location (Based on geospatial data, digitized by QGIS 2.18.4).

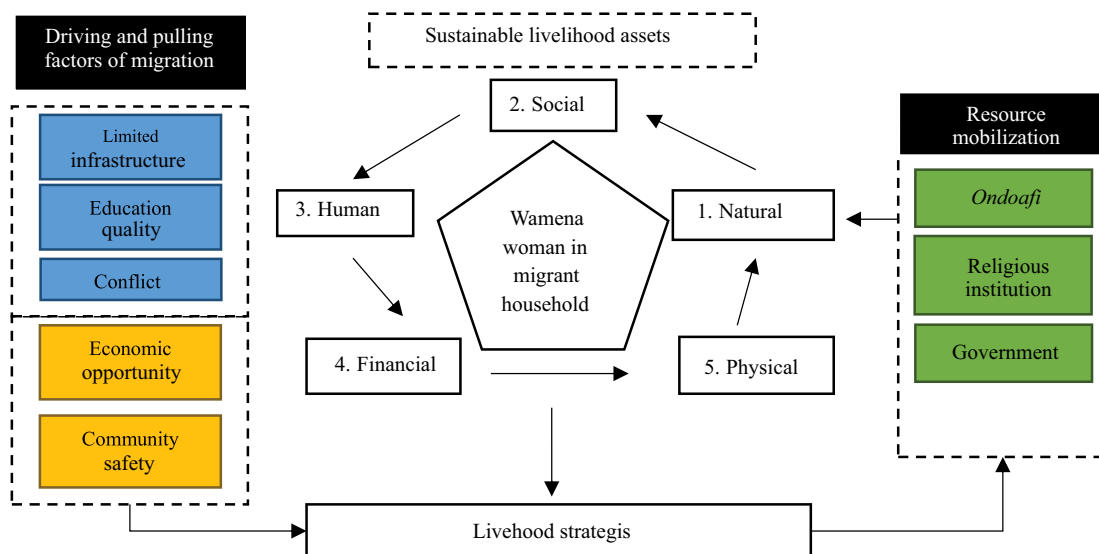


Figure 3 Traditional farmers of Wamena Tribe.

capital for settling and farming. The traditional farming pattern of the Wamena Tribe was based on the *honai* and *silimo* culture, placing women as a major part of the survival process, especially in the household. The dominant role of women in the traditional farming process manifested the intensification and diversification of forms of natural capital into social capital, human capital, financial capital, and physical capital. The acquisition and utilization of this capital in the perspective of Chambers and Conway (1991) reflected the capability of the Wamena Tribe to access capital forms to achieve sustainable livelihoods. Thus, the cultural aspect (of *honai* and *silimo*) becomes an essential part of the survival and coping strategy to maintain livelihood sustainability.

In addition to the theoretical contributions to the framework of sustainable livelihoods by Chambers dan Conway (1991), this article analyzes the context of the livelihoods of migrants from Wamena in Jayapura in relation to *access to land resources*—describing the capability of the Wamena Tribe community to acquire land in the migration destination as a place of migration destination settlements and farming areas for the sustainability of livelihoods; *land ownership and agricultural social relations*—describing the cultural efforts to utilize natural capital and social capital so that there were an intensification and diversification of forms of capital to access other forms of capital (Chambers & Conway, 1991); *women involvement in the farming tradition of Wamena Tribe in Jayapura*—describing the authenticity of cultural values (local wisdom) of migrants from Wamena in the traditional farming process which involved and placed the position and role of women as pillars of livelihoods and the continuation of the sacred values of ethnic groups known as *honai* and *silimo*. Each topic reflects the uniqueness of research on migrants from Wamena in Jayapura.

Access to land resources Each region in Indonesia had a different traditional agricultural culture. Aras (2017) stated that Indonesia was such a free country, similar to traditional farmers. Traditional agriculture in Indonesia was very diverse, where each region had a different structure and meaning of traditional agriculture. The current challenge was to shift employment to the industrial sector so that it impacted on the people's behavior patterns on the environment and eroded knowledge and skills in the traditional farming practices. Yasin et al. (2017) showed that in the context of traditional Indonesian agriculture, there were symbolic interactions in the local culture integrated with the community agricultural activities. Mulyadi and Iyai (2016) confirmed that in the context of Arfak, Manokwari, West Papua, Indonesia, there was still a traditional pattern of food security. Their findings show that there were cultural values that motivated farming for the Arfak Tribe to protect and preserve the environment through intercropping and garden rotation. In the context of the Wamena Tribes in Jayapura, traditional farming processes were highly related to the local cultural values known as *honai* and *silimo*. The role and position of the Wamena Tribes in Jayapura were categorized as local migrants, leaving behind the mountainous and hill areas (Wamena) to the destination areas in the watershed and urban areas (Jayapura) to build settlements and maintain livelihoods. Wamena Tribes gained access to land resources

through social approaches to the tribal kinship established based on cultural norms between the tribal leaders (*ondoafi*) and customary local communities. The established kinship ties were understood as a form of devotion and appreciation to the local tribal leaders (Jayapura) so that they gave ownership access to land resources to be optimized as a source of livelihood for the Wamena Tribes in Jayapura.

The result of an in-depth interview with key informants illustrated that the capability of access to land resources was mediated by the social values of the Wamena and Mano people and the Ormu Tribe in Jayapura. From the perspective of sustainable livelihoods, Chambers and Conway (1991) emphasized the availability of resources in the form of capital, including natural, human, social, financial, and physical capital. When compared with the access capability of the Wamena Tribes, it could be seen that the social capital was the mobility of access to natural capital for the sustainable livelihood of the Wamena Tribes in Jayapura. Thus, it could be seen that in the early stages of the traditional agricultural process of the Wamena Tribes in Jayapura, the tribal leaders (*ondoafi*) had an essential role in efforts to provide space for the Wamena Tribes to achieve livelihood sustainability. Dharmawan (2007) illustrated that a suitable survival mechanism was established at the level of individuals, households, and groups. An analysis of the livelihood system in the context of the transformation of agrarian and rural structures produced a unique perspective on the livelihood system in relation to the dynamics of rural social change. However, this could not be seen as a general description of rural sociology in Indonesia, but it needed to be studied contextually. The context of the Wamena Tribe showed the existence of a conservative behavior that maintained a survival mechanism as a group, starting from the stage of access to land resources. Cultural-based universal values that formed networks, norms, and inter-ethnic beliefs formed social capital, making it easier for the Wamena Tribes to access the land resources in Jayapura. Several previous research results that showed the relevance of social capital to sustainable livelihoods emphasized the cultural norms as the social glue in Indonesia (Belda & Christanto, 2012; Abdurrahim et al., 2014; Febriharjati & Setyono, 2015). This showed that social capital played an important role in the mobility of access to land resources.

Land ownership and agrarian social relations The approach to agricultural modernization in Indonesia was known as the Green Revolution. Mardiyarningsih et al. (2010) showed that, in the past, the source of community income was very limited in the agricultural sector and then changed and increased a lot outside the agricultural sector and could be done outside the village (factories and services). Thus, the source of livelihood increased, and alternative livelihood strategies become the choice of every household in rural communities. One form of agricultural modernization in Indonesia was the Green Revolution program implemented in the 1970s to the 1990s, driving a social change in rural farmer societies.

Furthermore, changes in the socio-cultural system of the farming community could be seen from various changes in aspects of social infrastructure, social structure, and supra

social structure. In the context of the Wamena Tribes in Jayapura, after accessing the agricultural land resources through social capital, the land ownership was done traditionally through customary release letters by the tribal leaders (*ondoafi*) and witnessed by all the Wamena Tribe people (recipients of ownership or land rights) and Jayapura Tribe people (grantor or of land rights). After that, the land had officially become the property of the recipient of the ownership that could be followed up by making a land certificate as per the local government bureaucracy.

The Wamena Tribes in Jayapura needed support and synergy of various stakeholders, both institutionally and in policies to optimize food productivity in traditional ways. Fadjar et al. (2008) showed that the transformation of agricultural production systems and agrarian structures had implications for social differentiation in the farming community. This indicated that the development of technology and uneven use of food technology had the potential to cause social segregation for farmer groups who were unable to optimize food productivity. Thus, the potential for conflict between farmer groups became such an aspect of vulnerability that should be anticipated. Annisa et al. (2009) illustrated that unequal resource management caused social inequality due to limited access due to changes in agrarian structure and differentiation of the welfare of farmer communities. In contrast to previous findings, the context of the Wamena Tribes in the traditional agricultural process was communal and conservative so that the internal agrarian social relations of the Wamena Tribes remained well established within the cultural norms of *honai*, as a social glue. This showed that the land use and internal agrarian social relations of the Wamena Tribes had differences with the cultural context of the community in other regions, even though it was still in the Indonesian context.

The process of land ownership and agrarian social relations between fellow Wamena Tribes in Jayapura was starting from the agricultural instruments, that was environmentally friendly. Sihaloho et al. (2016) classified production methods based on the type of agrarian structure existed in a society such as naturalism, feudalism, capitalism, socialism, and populism or neo-populism. The Wamena Tribes showed that the traditional method they used was more of naturalism where the agrarian resources were controlled by local communities, including the customary communities collectively. In relation to the perspective of Chambers and Conway (1991), it could be seen that after owning the land, the agricultural process reflected the strengthening of internal agrarian social relations based on family communities. This illustrated the capability of the Wamena Tribes to optimize networking, norms, and trust (social capital) in the agricultural land expansion (intensification of natural capital) to increase food production to access financial capital. Thus, it could be seen that the Wamena Tribes maintained the livelihood of the household by clan-based groups.

Culturally, the livelihoods of the Wamena migrant households were influenced by cultural norms known as *honai* as the internal social glue of the Wamena Tribes. These cultural norms affected the traditional agricultural process, thus involving all household members in working to

maintain their livelihoods. The process of traditional agriculture had become the habitus of the Wamena Tribes, including the pattern of agriculture that considered the sustainability of land resources as the principles of sustainable development. This finding was in contrast with the findings by Sihaloho et al. (2009), which illustrated the social relations pattern of production of two parties, which caused the landowners to become stronger and the tenants who were getting weaker. The implementation of *honai* cultural values emphasized the division of tasks of customary people in farming so that the results obtained strengthened both the landowners and tenants.

Several research results on traditional agriculture on the issues of land ownership and socio-economic differentiation of farmers in rural areas illustrated a number of development problems in the form of poverty and social segregation issues due to economic inequality (Sihaloho et al., 2010; Indarti et al., 2016). Therefore, the political system (through policies and institutions) was essential in supporting the agricultural problems in Indonesia (Syahyuti, 2001). Rivai and Anugerah (2011) described that sustainable agricultural development in Indonesia could be achieved by optimizing their culture: local wisdom. However, the obstacle in implementing sustainable agricultural development programs was that the sectoral egos, which were causing the implementation program to be insulated. This showed that sustainable development could be achieved if there was a synergy between various stakeholders who were able to alleviate all development problems, including poverty and social segregation.

Women involvement in traditional agriculture of the Wamena Tribes in Jayapura

In the context of sustainable livelihoods, the optimization of resources to achieve sustainable livelihoods could be done individually or in groups. In the context of traditional agriculture, women's involvement in meeting household economic needs was important to be investigated based on the perspective of ecofeminism. This research is in line with a view by Darmastuti and Wijaya (2018) on the relationship of gender power in developing forest management planning and water use, which emphasized the women's interests, skills, and participation. The Wamena Tribe context showed a similar picture as depicted by Darmastuti and Wijaya (2018). However, the complexity of the *honai* and *silimo* traditional values was the differentiator between the livelihood of women in Lampung and as migrants from the Wamena Tribe in Jayapura. Several previous researchers put different emphasis on gender studies. For example, Hutajulu (2015) observed the role of women in meeting household needs from a gender perspective. Socially and culturally, gender was not a difference in sex in a biological dimension. However, it could be seen from the social dimension, which included the roles of men and women in the context of sociology. Khotimah (2009) examined gender discrimination against women in the work sector as a severe problem affecting household livelihoods. Yuwono (2013) emphasized that women made a huge contribution to the community's economy and in family life. The dominance of women in the agricultural sector had been going on for a long

time and was considered as something natural. Considering the central role of women in agricultural activities, women farmers must be given the same opportunities as men to gain access to land and other resources such as credit, technology, and knowledge to increase the effectiveness and efficiency of the use of agricultural resources in accelerating the improvement of farmers' welfare.

In the context of the Wamena Tribes in Jayapura, the role of women in the traditional agricultural process followed the cultural norms of *honai* and *silimo*. In the culture of the Wamena Tribes, women had a responsibility to meet the family's food needs. *Honai* and *silimo* cultural values continued to be applied, although they were already in Jayapura. The men played a role in the process of preparing forests to be ready for planting, maintaining the security of the residential and agricultural environment from various threats, and playing an active role in the activities of local customs. The agricultural process was carried out traditionally without any modern technology by relying on the customs and traditions of the Wamena Tribes as well as local wisdom that guided the process of fertilizing plants using weeds, forest humus, burnt wood dust, and rotted wood. This showed that the traditional farming process of the Wamena Tribes was very environmentally friendly because it did not use chemicals in the agricultural process, which could endanger the environment.

The traditional farming process of the Wamena Tribes in Jayapura strengthened the social capital. This could be seen from the harvest process carried out collectively and the product distribution process to meet the needs of households and tribal-based groups, before being sold to access financial capital. From the perspective of Chambers and Conway (1991), it could be seen that the livelihoods of the Wamena Tribes in Jayapura were supported by the social and natural capital to access the financial capital. Meanwhile, the physical and human capital did not become such advantages in the mobility of access to other capital for sustainable livelihoods. On the other hand, the local wisdom in the farming process was integrated with the principles of sustainable development that emphasized on the environmentally friendly use of environmental resources by considering the interests of the next generation (Muhlis, 2009). Although in the cultural context, the women had a more dominant role in meeting the household needs.

From a gender perspective, Arsanti (2013) emphasized that women played an essential role in the development of the agricultural sector. Increasing the capacity of women as an important part of the agricultural sector in human resources had not optimally explored. Efforts had been made to improve access to information as a means of acquiring the knowledge of farmers that still did not involve many women in it. The local culture that placed the women below men was a particular obstacle in increasing knowledge by the women farmers in the sector. The role of women in agriculture was very big, for example, in some of the agricultural activities starting from the stages of the nursery, planting, and growing to harvest time. When compared with the traditional agricultural context of the Wamena Tribes in Jayapura, the women also had a significant contribution but was limited to the access to information on capacity building for human

resources. The culture limited the role of Wamena women in accessing human capital to optimize their role in agriculture. This showed that contextually, the Wamena women had limited access to human capital as the perspective of Chambers and Conway (1991) considered the dominance of men in the realm of local custom. Nevertheless, opportunities for women to increase their capacity and knowledge through formal education remained available. In addition, the role of women outside the local customary space could be maximized, so that it was still equal to men. This showed that gender issues only existed in cultural space, not in structural space.

The women's limitations, in terms of access to human capital, had implications for the lack of an equitable understanding of household financial management, especially for education and health purposes. Nevertheless, education and health issues in the cultural context were solved collectively based on the universal values of the Wamena Tribes. This illustrated the strengthening of networks, norms, and beliefs known as the intensification of the social capital of the Wamena Tribes in resolving educational and health issues. In relation to the perspective of sustainable livelihoods by Chambers and Conway (1991), the capability of the Wamena people in Jayapura was able to utilize the social capital in the local cultural space as mobility of access to natural, financial and human capital. Meanwhile, the availability of infrastructure supporting the traditional agricultural activities to the distribution of agricultural products was the responsibility of local governments.

As an effort to optimize the facilities and infrastructure to support the livelihoods of the Wamena Tribes in Jayapura, participation, and involvement in the political system was such a force to channel the aspirations of the Wamena Tribes in Jayapura. The existence of the Wamena community as migrants in Jayapura was strengthened by the expansion of social networks, building trust, and upholding the cultural norms of the Wamena Tribes. Thus, involvement in local politics could realize the aspirations of the Wamena Tribes, especially in expanding access to resources (capital) that supported a sustainable life the Wamena Tribes in Jayapura. The strengthening of internal social capital of the Wamena Tribes was conservative so that the process of adaptation to global changes was carried out by strengthening the internal social relations of the tribe and then discussed the central issues that became the opportunities and threats of the Wamena Tribes (the next generation) from time to time.

Conclusion

The results of this study indicated that the traditional agricultural process of the Wamena Tribes in Jayapura was inseparable from the capability of access to resources, mobility of resource management, and resource management. This shows that the traditional agricultural process of the Wamena people could be seen from the perspective of sustainable livelihoods and gender and sustainable development principles. From the perspective of sustainable livelihoods, the Wamena Tribes had a traditional pattern of farming in groups, and the agricultural products were used for their own food needs before being sold. Meanwhile, social capital became the mobility of access to

agricultural land resources in Jayapura in the context of culture (Papuan culture). From a gender perspective, the Wamena women had a very dominant role in the traditional agricultural process but had limited access capabilities to increase the capacity of formal education or knowledge within the *honai* cultural space. From the perspective of sustainable development, the traditional agricultural process of the Wamena people was based on local customs to avoid the potential damage to the environment due to chemical use. Thus, the traditional agricultural process of the Wamena Tribes in Jayapura showed that there were three important components that need to be optimized through policies and institutions: livelihoods, gender, and sustainable development.

Recommendation

This study suggests the importance of increasing the capability of the Wamena people to access land resources and simultaneously increase the agricultural productivity that supports the economy in Jayapura. There is a need for policies supporting equality of education for women outside the cultural space to achieve gender equality for culture-based sustainable development. The policies and institutions are needed to achieve sustainable development by considering the social, economic, and environmental aspects.

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