

## **The Consequences of Sago Planting Hamlet Program on Socio-Cultural Changes of The Kamoro in Mimika Papua**

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**Abstract:** This study examines the consequences of various agrarian policies and development programs on the Kamoro community in Mimika Regency, Papua Province. As a result of FI Mining activities, the Kamoro people, who were originally nomads on their customary lands, were relocated to permanent settlement where they were introduced to intensive farming systems, one of which was the Sago Planting Hamlet (SPH/DST) Program that brought modern sago farming management. There was a contradiction because the Kamoro people have been accustomed to rice as their staple for decades due to the national food policy during the New Order era and the damage to their ecological environment, especially wild sago forests. This study tries to see how the socio-cultural consequences in the community since the implementation of intensive agricultural programs are relatively new to them. Research question were answered through a descriptive qualitative approach, with primary data from in-depth interviews and participatory observations, supported by secondary data from the archive and document searches, also spatial data from Landsat imagery. The results showed that the implementation of the DST Program brought the consequences of socio-cultural changes to the Kamoro people, which included adjustments to social organization, livelihoods, and natural resource management. What happened to the Kamoro: the collapse of the production, reproduction, and consumption systems of society due to the alienation of traditional living cultures that rely on the availability of natural sources of livelihood, has made the Kamoro undeveloped.

**Keywords:** Intensive agriculture, Kamoro, sago plantations, socio-cultural changes.

### **INTRODUCTION**

Papua is Indonesia's sago centrum since the area of sago plants in Indonesia reaches 5.5 million hectares and about 90 percent of that area is in Papua (Djoefrie et al., 2014), where sago grows naturally in sago forests better known as *dusun sagu* (Jong & Widjono, 2007). Ecologically, sago is one of Papua's most widely distributed staple sources, making it a plant with high social, cultural, and economic value (Jong, 2018; Pouwer, 2010; Sidiq et al., 2021). In the socio-cultural aspect, sago becomes important in everyday life because it is used in various rituals, from birth rituals, traditional parties, coming-of-age rituals, to funeral ceremonies (Hisa et al., 2019). Meanwhile, economically, sago plays an important role because it has been one of the staple foods for many local communities in Papua for hundreds of years. Sago can be consumed alone, a commodity exchange, and generate profits by selling them in the market.

Many writings note during the last half-century, the consumption of staple foods in Papua has shifted from mainly sago and tubers to rice (Bantacut, 2011; Powell-Davies, 2021; Sidiq et al., 2021; Wardis, 2014). Historically, what is believed to be the main cause of the shift in the staple food of Papuans from sago to rice was the government's policy of food self-sufficiency in rice (McCulloch & Timmer, 2008; Neilson & Wright, 2017; Suryana, 2008). Dependence on rice has increased because rice has become a staple food even in most rural areas of Papua. The Indonesia Central Statistics Agency (BPS, 2015, 2019) results show that the highest calorie intake of the Papua Province and West Papua Province population as much as 37.1 percent (in 2015) and 37.1 percent (in 2019) comes from rice. Meanwhile, local food made from sago and tubers turned out to have only 18.8 percent (in 2015) and 14.1 percent (in 2019) of the calorie intake. The Merauke Integrated Food and Energy Estate (MIFEE) megaproject exacerbates this condition, increasingly crushing local food crops (Ito et al., 2014; McDonnell, 2021; Simanjuntak & Erwinsyah, 2020; Tohari, 2013).

The decline in sago consumption in Papua is also due to environmental damage factors that affect sago production, especially in Mimika Regency (Banks, 2002). The mining activities of FI Mining in the Mimika have caused ecological changes in the lowland area due to the disposal of tailings waste or mining residue in the Ajkwa River (Brunskill et al., 2004; Rifai-Hasan, 2009). The tailings waste flowing in the rivers pollutes small rivers and surrounding swamps. As a result, the fish and other fauna population in the river decreased drastically while many sago palms withered.

The damage to the ecological environment of rivers and swamps in the Mimika lowlands has caused the Kamoro, who depend on hunting and gathering for their livelihood, to lose their food source (Hidayat & Yamamoto, 2014). The Kamoro, who lived nomadic lives on the banks of the Ajkwa River, was then relocated to a new settlement (Panggabean, 2002; Rifai-Hasan, 2009; Soares, 2004; Tebay, 2003). For decades they have become dependent on rice as a new staple food (Viartasiwi et al., 2018), and have to buy it at the market or supports from the government and private sector.

Responding to the discourse of food diversification and restoring sago as the staple food of the indigenous community, in the mid-2000s, various policy makers began to initiate intensive sago planting programs, including through the Sago Planting Hamlet (SPH/DST) Program (IFACS, 2014; PTFI, n.d.; YPMAK, 2018). The involvement of many parties, be it private companies, non-governmental organizations, educational, religious institutions, or the central and regional governments in the narrative, is expected to oversee a program intervention in the community. FI Mining initiated the DST Program through the Amungme and Kamoro Community Development Foundation (LPMAK/YPMAK) in collaboration with the State University of Papua (UNIPA) and the Timika Diocese. LPMAK/YPMAK is a formal institution for the Amungme and Kamoro in Mimika that serves as a liaison institution between indigenous community and outside parties such as the government and companies (Kusumaryati, 2020).

This paper used several studies on the intensification of sago in Maluku and Papua as references. Townsend (2003) states that there is a specific form of intensification among local communities in the Sepik River, Papua New Guinea. That intensification does not always talk about sago cultivation which is planted, maintained, and harvested with strict rules. Still, the Saniyo community already has its own knowledge system about agroforestry thus the results obtained can be referred as optimal. According to the research results conducted by Ellen (2004a, 2004b, 2006) in the Nuaulu community in Seram, sago has a vital role in the community. They create its economic logic, where the community devotes a lot of time to sago cultivation as a food crop that is managed communally along with market commodity crops such as cocoa, copra, and nutmeg. Here, community's food security is maintained because of the sago plantations; the economic revenue flows as well because of the production of commercial crops for market demand.

Meanwhile, Abdulgani (2020) sees that the discourse on sago industrialization launched by the government in West Papua has caused social disruption. By analyzing the class, Abdulgani saw that the echoing logic of “with the industrialization of sago, it will open job opportunities so the indigenous community will flourish” is a premature logic. Indigenous community who has depended on hunting and gathering for hundreds of years have lost access to the ecological environment. They are inevitably forced into the new economic system becoming wage labors, which gradually leads to the alienation between the people and sago. Also, on the same paradigm, Larastiti (2020) argues that the industrialization of sago in South Sorong has consequences on the material and cultural dimensions of the Kaiso people. With the demands of strict wage work, Kaiso people will lose time to carry out social reproduction to support their lives. Larastiti sees this phenomenon through the analysis of social reproduction, in which the malnutrition that occurs in the Kaiso people is not solely due to a lack of education but is the result of agrarian changes alienating the local community.

Slightly different from the two previous articles, Firdaus & Wibowo (2020) offer the idea that sago's intensification and industrialization must be controlled and managed by indigenous community. According to them, the idea of the indigenous community as “stupid, poor, and primitive”—hence the government needs to intervene with various development programs and welfare projects—have never had a positive consequences on the indigenous community. These various top-down intervention programs pave the way for the capitalistic economic system to enter and marginalize the local community.

The Kamoro people's intensive sago farming program is different from what the Saniyo people in Papua New Guinea and the Nuaulu people do on Seram Island (Erwinsyah, 2020). As a development program through empowerment, the DST Program in Mimika Regency is somewhat different from the sago industrialization in South Sorong Regency. In the five examples above (Abdulgani, 2020; Ellen, 2006; Firdaus & Wibowo,

2020; Larastiti, 2020; Townsend, 2003), the community still has close relations with the sago forests; they still consume sago as a staple food. Meanwhile, what happened to the Kamoro people in Mimika was that they had been accustomed to eating rice for decades due to diminishing access to the sago forests following the environmental damage.

The DST Program requires the community to play an active role in the sago production cycle from planting to harvesting. For centuries the Kamoro people have never known sago as a plant that is cultivated intensively but rather harvested from the sago forest that grows naturally in their customary lands (Pouwer, 2010). Meanwhile, the image of sago as a staple food has also faded in the minds of the Kamoro due to a shift in consumption patterns where they have been accustomed to eating rice for decades (Viartasiwi et al., 2018).

A development and/or empowerment program as an intentional activity of course has unintended consequences, as the results of a deliberate action that were not intended or anticipated (Merton, 1936). The consequences of the introduction of this program can be seen in terms of adverse incorporation and social exclusion (Hickey & du Toit, 2013). From this point of view, program involvement does not always lead to prosperity, but if the program is executed with the logic of capitalism, then what happens is that people are increasingly trapped in a state of adversity. Adverse incorporation conditions the community to inevitably be involved in a system when in the end, they are structurally disadvantaged due to inequality of power. This adverse incorporation goes hand in hand with social exclusion, where people are excluded from aspects of their social life so that it is difficult to carry out the process of social reproduction (McCarthy, 2010). These two conditions that go hand in hand have caused people involved in programs with the jargon of prosperity to be trapped in situations of adversity and chronic poverty.

These contradictions, challenges, and involvement of many parties in the sago intensification program in the Kamoro people are the basis for asking one big question: what are the socio-cultural consequences that occur in the local community due to the introduction of a new concept of intensive sago farming?

## METHODS

The approach used in this research is a qualitative approach, with a descriptive type that presents a detailed description of a specific situation, social setting or social relations (Neuman, 2006). Historical ethnographic narratives construct this description of the social situation to understand the social background of the studied community (Fenske & Bendix, 2007). This approach was chosen to discern objects by studying various social phenomena in their natural environment and understanding these phenomena based on the interpretations of the people who live or experience them first-hand (Denzin & Lincoln, 2005).

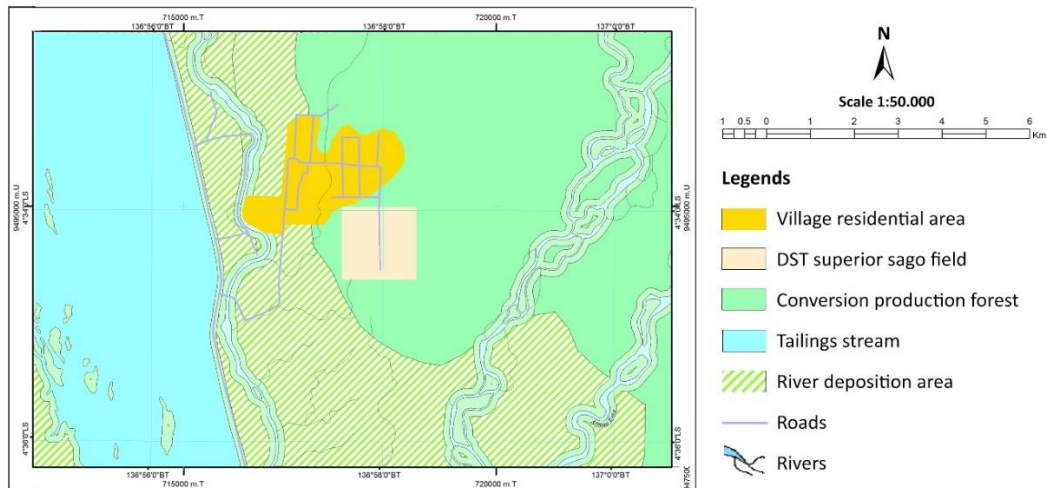


Figure 1. Map of research site

*Source: Data processed from Mimika Regency's spatial pattern plan map*

The fieldwork was conducted in Mimika Regency, Papua Province. The research site is Baru Village (a pseudonym) in the Mimika Baru District, as the location of the DST Program, as seen in Figure 2. The selection of informants was based on social mapping conducted at the beginning of arrival, then continued with snowballing to expand the network of informants at the research site. There were 10 key informants and dozens of other informants included members of the Kamoro people in the village, consisting of village elders, village officials, and regular villagers. In addition, there are additional informants from companies, non-governmental organizations, and governments. The scope of the research analysis includes social, economic, and political dynamics of the community and the aspects of sago cultivation.

Primary data were collected through participatory observation methods, in-depth interviews, and unstructured interviews to evaluate the information collected during the study. The fieldwork was conducted for five months in 2016, then continued through telephone correspondence interviews in 2017 to 2020. Secondary data is collected by accessing documents from relevant stakeholders, such as village governments, district and provincial governments, non-governmental organizations, companies, state institutions, and in the form of news in the mass media related to the program. Simple spatial data in the form of Landsat historical images from Google Earth is also added, which shows historical spatial temporal land use changes (Wibowo et al., 2016) at the research site.

## RESULTS AND DISCUSSION

### The Kamoro Custom on Management of Natural Resources

The Kamoro are known as *orang pantai* or coastal people because they depend on natural resources in the lowlands of Timika in the form of rivers, swamps, wetlands, peatlands,

*mange-mange* (mangroves), *ombak pica* (sea estuary). They *mencari* (the local term for hunting-gathering) in streams and forests. The Kamoro people's relationship with nature is reflected in the 3S philosophy they often echo, namely *sampan*, *sagu*, *sungai* (canoe, sago, river). Sago which grows naturally in peat and mangrove areas is the primary food source for the Kamoro people. Besides that, they also catch fish as proteins. They have to go down a small to large river in a canoe to find food. Therefore, the 3S aspects that are interrelated with each other are so closely related to the lives of the Kamoro people.

In managing their natural resources, the Kamoro are divided into clans called *taparu*. *Taparu* is kinship groups that live in a territorial genealogical system; they come from the same lineage and form a particular village community (Pouwer, 2010; Suparlan, 2001). Each *taparu* reflects a specific hereditary kinship system and has its customary territory. *Taparu* is constructed from family ties that are still one descendant as the basis for managing natural resources, economic access and providing social security. These clans live in their respective customary territories, generally moving from one semi-permanent hamlet location to another. The moving of this hamlet is due to adjusting to fishing and *dusun sagu* area to cut down. In addition, this move is also to legitimize their customary territory while at the same time keeping other parties from usurping the clan's territory.

Prior to the acculturation with outsiders, the Kamoro had a traditional system of government. A clan or *taparu* will be led by a clan head called *utumueyau* or *weyaiku*. *Weiyaku* is a leader chosen based on his strength and power, a kind of "big man" in Melanesian culture (Sahlins, 1963). The head of this clan oversees the rights of the people, declares war, resolves disputes. *Weyaiku* will be assisted by *wakeera* (in charge of war affairs) and *piama* (economic affairs). Then there are *wekamore*, namely experts in society, such as art experts, ritual experts, hunting experts, gardening experts, and others. The rest are called *weperaeko* or the regular people.

The contact of the Kamoro community with foreign influences such as Catholic missions, the Dutch East Indies government, the Indonesian government, and trade relations with other ethnic groups caused this traditional government system to change. The *weyaiku* leadership system is no longer exist but is still visible in traditional activities, such as traditional and religious parties. The Indonesian government introduced a system of formal village administration in which several co-existing *taparu* were combined into one village. One influential clan head was then appointed as village head so that one person could be both a traditional leader and a formal leader.

The Kamoro people have two classifications of land: *tapare aiku* (customary land) and *tapare amako* (private land). In the past almost all the land of the Kamoro was customary land. The land, including the natural *dusun sagu*, is managed communally, with the proceeds divided among the members of the *taparu*. Private land management began with introducing the village system in which the community owned its plot of land for farming.

The clan head carries out the determination and distribution of *tapare amako* to avoid land disputes. Not all *tapare aiku* is converted to *tapare amako*. Only a small part is for household subsistence purposes. Most of it is still in the form of customary land maintained for the sustainability of resources.

The natural resources of the Kamoro people are divided into *kampung* (settlement), *kintal* (yard), *dusun* (former settlement), *dusun sago* (sago forest), *mbuiaku* or *yuu* (river), and forest areas for hunting and gathering. All of them are owned and managed by the *taparu* and are closed in nature, meaning that people outside the *taparu* must seek approval from the owner to utilize the resources. Even the ownership of the river is like land. It has been plotted so people cannot carelessly look for fish in others' *taparu*.

To fulfil the family needs, the main exercises to obtain food ingredients are through *memangkur* (cut down, split, then crush) sago trees in swamps and *mencari* (hunt-gather) fish, snails, shrimp, crabs and sago caterpillar in rivers and forests. Gathering sago and foraging are mainly used for family consumption, a small portion to be exchanged for other commodities. The surplus from hunting and gathering is also sold for cash in the long run.

The livelihood of the Kamoro people is very dependent on natural resources. This makes their domicile pattern nomadic or often move from place to place in groups in their respective *taparu* areas. Their hamlet generally do not recognize permanent housing with permanent houses. Their house is a temporary and provisional bivouac. The bivouac frame is made of mangroves wood and the roof is made of nypa palm leaves.

Natural resource management through *taparu* requires clan members to work together to do heavy work that cannot be done by one person or one household. Building a boat usually requires a workforce of five to eight people; and to pull the boat up to the water, it takes more than ten people to work together. Sago work is usually done by groups of three to five adult women accompanied by two men who keep the canoes and cut down the sago trees. These women then process the sago stalks into sago starch essence. Small children and teenagers usually assist processing by these women. Children typically join this group while playing, swimming, fishing, looking for crabs, shrimp, and shellfish, and collecting sago caterpillars for additional side dishes, such as cooked as *papeda* toppings or eaten with dry sago cake.

This work of *memangkur* sago palm is usually a full day's work, but it can take two to three days for large sago palms. A group of five to seven people will walk along the river until they arrive at the sago village. The men are then tasked with cutting down trees and cleaning the trunks, forming *tual* or clean sago trunks one to two meters long. This material can be processed at the location and washed away to the hamlet. Generally, these *tual* or sago trunks are processed at the place with the work of the women. One trunk of this natural sago tree can produce 100 to 250 kilograms of sago starch.



Sago grows naturally in many *dusun sago*, and people do not need to plant it. These sago palms grow in wetland areas, like peatlands and mangroves in the Mimika lowlands. Due to its nature that grows naturally, people do not need to manage artificial ecosystems to make canals. The people's knowledge of sago is that they come, produce the starch, then take the product back to the village, while the sago tree will always be there, grow on its own, and will never run out.

### The Recognition Project and Sago Planting Hamlet Program

In 1965 a major United States-based mining company, through its subsidiary FI Mining, signed a preliminary agreement with the Indonesian government to commence operations in Timika, Papua (Soares, 2004). The first Contract of Work offered FI Mining very broad powers, which guaranteed the company's right to acquire land and other property in the mining area and relocate local communities from their hamlets. Yet, ironically this contract did not require that the company pay compensation or consult with the locals about their activities. It took 30 years through various demands from various parties on a local, national and international scale until FI Mining finally agreed to recognize the local community's customary rights (Rifai-Hasan, 2009; Soares, 2004).

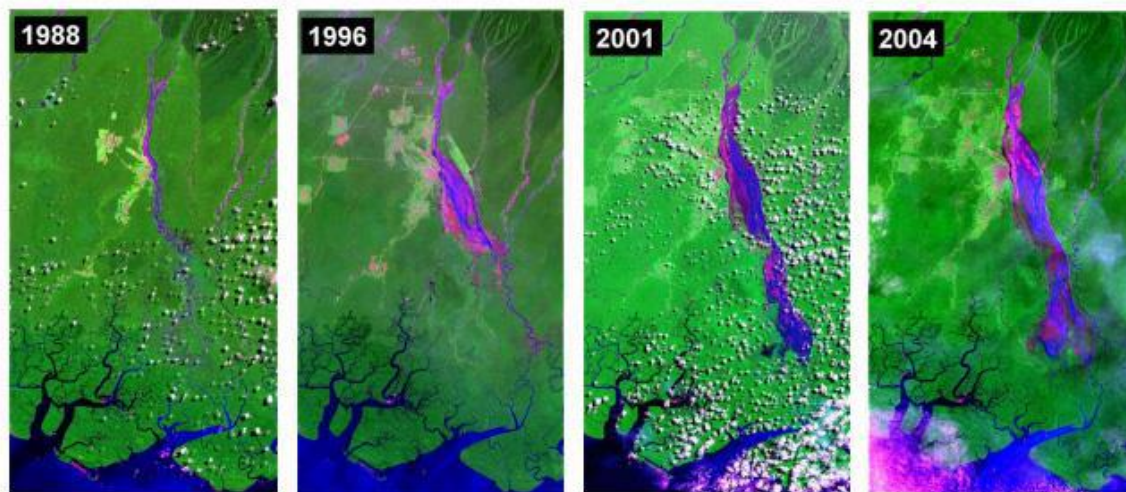


Figure 2. Landsat imagery showing tailing waste in Ajkwa River (1988-2004)

Source: Paull et al., 2006; WALHI, 2006

One of these recognitions is manifested in constructing new settlements for the Kamoro people whose living areas have been affected by environmental damage due to FI Mining activities (Panggabean, 2002). Figure 2 illustrates environmental pollution due to tailings leftover from FI Mining's activities along the Ajkwa River from 1988 to 2004. Based on the document of mutual agreement between the community, the company, and the local government, this program will last for five years, starting in 1998 and ending in 2003. One of the recipients of this Recognition Project is the Kamoro community of the Nawaripi sub-



tribe, whose customary area is around the Ajkwa River, which was damaged due to the flow of mining tailings waste. This project began with constructing a new village east of the Ajkwa River which has now become a tailing approximately two kilometers wide. The Kamoro community of Nawaripi was then relocated to the new permanent settlement. Those who were previously dispersed to many *taparu* were then united in one permanent residence in the form of a village.



Figure 3. Landsat imagery showing ecological change in Kamoro land (1984-2017)

*Source: Data processed from Google Earth*

Figure 3 tells how land-use change occurred due to tailings pollution. Landsat imagery in 1984 and 1990 showed the Ajkwa River still functioning normally as a watershed buffer for the surrounding area, where the Kamoro people of the Nawaripi sub-tribe still live a nomadic life hunting, gathering and harvesting natural sago. Landsat imagery in 1994 shows tailings waste starting to pollute the Ajkwa River and spreading to the surrounding land. At this time, the Kamoro people of the Nawaripi sub-tribe live a nomadic life, building bivouacs around Timika City. They have started having difficulty living nomading life, hunting and gathering in their customary land due to environmental damage. Landsat

imagery in 1999 showed the construction of a new residential area on the east side of the tailings stream. Then starting in 2000, the Kamoro people of the Nawaripi sub-tribe who lived nomadic life began to be relocated to this new village, where they provided private ownership farming area in the yard of their house for their livelihood. Landsat imagery in 2008 and 2017 shows land clearing for the DST sago field on the south side of Baru Village in 2008 and the condition of the private sago field in 2017.

The development blueprint of Baru Village is designed in a modern way with house blocks according to their respective *taparu*, around 141 houses with brick walls and tin roofs with very large yards. It is hoped that these yards will be planted with crops such as vegetables or fruits. Besides that, people can also raise livestock. In addition to building houses, other facilities were built in stages, such as bridges, schools, health centre, village halls, halfway houses for facilitators, army posts, powerhouses, churches, and four water towers for each block.

The village is divided into four settlement blocks according to their respective Taparu groups, namely: Muaowe and Matuaowe (MM), Ne'yeripi and Ame'yeripi (NA), Tumua-mirimo and Iwawaowe (TI), and Aworaowe, Firiaowe, and Firiapuowe (AFF). Among these four Taparu groups, MM and TI claim to be the landlords in this area because they were the first to settle.

In this new permanent settlement, the Kamoro are given a house and land to work on as agricultural land. They are considered capable of relying on agricultural products. In rearranging the settlement environment, the government limits the area of land for each local resident's family, about 0.5 hectare for a house and yard, which is equal to the quota for transmigrants who are used to tend it like the settled farmers.

The sense of confusion in the people felt in the early days of the resettlement. The Kamoro, in their traditional strategic behavior for hunting, gathering, and small gardening, require land at least four times the area of permanent agricultural land, in addition to pigsty and hunting areas. Designating permanent agricultural land means requiring local communities to learn to cultivate agricultural land permanently to meet the daily needs of their families before they can produce excess commodities that can be sold to the market for the money. At the same time, other food sources are no longer available to them in this new environment.

*"Let me tell you, back in Nawaripi; foraging was easy and in abundance. Fish, prawns, crabs, you name it. But after the company came in, there were tailings, and people became homeless there in Timika. It's hard for people in and left with none. The river is damaged, tailings kill all fish, all sago dies, everyone dies, many people die. Back then in Nawaripi, many neighbors moved to the coast there, they have families, fishing, become fishermen, but their catch was so low. But, we went to Timika to build bivouacs. Many also went to Timika. Some are helping people in the market. Work and forage around Timika, we would get almost nothing. It's hard to find food. It was only in 2000, the company built new village houses. Many have moved, but yet they are still upset, lonely, foraging is tough."* (Interview with A001, village elder).

The discourse about crops farming in Nayaro Village as part of the Recognition Project continued to emerge in the mid-2000s. The village head stated that they continue to file demands against FI Mining either through LPMak/YPMak or directly regarding the people's livelihoods in the resettlement area. The community admitted that their fate was still hanging for several years after the resettlement. There was no permanent livelihood in the new village, so they often continued to hunt and gather in the former areas.

Before 2000, when Baru Village had not yet been formed and the Nawaripi sub-tribe still lived a nomadic life, the staple food they consumed was generally sago which came from the natural sago hamlet. However, at the end of the mid-1990s, many families slowly turned to rice as a staple food, because they get cash from the company, and the activity of looking for sago deep inland is considered tiring. After relocating to Baru Village, rice has become the staple food of almost all villagers. The cash aid and disbursement, also the *Raskin* (rice for the poor) government program, has caused them to turn their main consumption into rice.

FI Mining, through LPMak/YPMak, then offered superior sago plantations as a livelihood solution for the people of this new village. Superior sago plantations are considered a solution per the central government's food policy regarding food crop diversification (Makur, 2010). Sago is regarded as the most appropriate because it historically has been a staple food source for the Kamoro people.

The villager responded to this offer with various responses. Some want an economic program that is more economically productive because sago is considered only a staple food, which is not of high value in the market. Others agreed with the offer of superior sago palm plantations as long as FI Mining and LPMak/YPMak were willing to market their products. In the end, FI Mining implemented a superior sago plantation program by the consideration that people did not need to learn much more about its cultivation to shorten the process from beginning until they made money.

Preparation for the DST program began in 2006. Land for this superior sago plantation had been prepared in the southern part of the village, which at that time was still in the form of secondary forest and swamp. After conducting several surveys and deliberation, it was decided that 80 to 120 hectares of land around the village should be planted with superior sago seeds. These superior sago seeds were selected imported from Jayapura and Sentani. According to the people, the imported superior sago seedlings are different from the sago trees growing in their natural *dusun sagu*.

Land clearing began in October 2006 with the blessing of the Bishop of Timika. In this land clearing, most of the workers are the local villagers. They receive daily wages during the land clearing process. The land clearing process took approximately three to four months until it was finally completed in early 2007.

*"In the beginning, it was all good with this superior sago plantation. Everyone in the community got a job. I went to work operating chainsaw with a big salary, a day I could earn 200 to 300 thousand. Easy money. More money for those good at using heavy equipment. But almost no people in this village were good at that. If they do again, I definitely want to join. It's good that the project gives people income, after all."* (Interview with B001, project freelancer)

*"When it comes to this sago plantation experience, I miss the time when I got to do more stuff. When we got none to do, like this, money is short. What I want to do be it's sago, farming, whatever, the important thing is that I got money to provide my family."* (Interview with B002, smallholder farmer).

The sago plantation area is located just south of the village, directly adjacent to the NA Block and TI Block. This plantation stretches from 80 to 100 hectares. There are about 8000 sago trees divided into the ownership of 141 households, where each house has 0.6 hectare, approximately 55 to 60 sago trees. These superior sago seeds imported from Jayapura and Sentani can grow faster than local natural sago seeds (Abbas, 2021; Limbongan, 2007). This superior sago can be harvested at the age of 5 to 8 years, much quicker than wild sago, which takes 10 to 12 years to reach a ready-to-harvest age. The following table compares wild sago and planted sago based on the local people's views.

Table 1. Comparison of wild sago and planted sago according to the villagers

<b>Difference</b>	<b>Wild sago</b>	<b>Planted sago</b>
Land area	Unknown	80-100 hectares
Ownership	Communal by clan	Private
Number of trees	Unknown	60 trees per household
Location	Far from the village	Outskirts of the village
Types of sago	Mostly with thorns	No thorns
Age ready to harvest	10-12 years	5-8 years
Harvest sago flour	150-300 kg per trunk	500-800 kg per trunk
Harvest yield	Unknown	30-50 tons per household
Food security	Unknown	25-30 tons per household
Harvest sale value	Unknown	More than IDR 300 million per household

*Source: Data processed from interviews.*

Unfortunately, the plan for the plantation did not go well. In 2009 there were many shootings by an unidentified person in the East Embankment area and around the village (Somba, 2012). The targets of the shooting included FI Mining employees, FI Mining security forces consisting of private contractors, the army, and the police. From 2009 to 2013, there were 32 shootings recorded around the FI Mining area, including some near villages. This unsafe situation and unstable social and political conditions caused almost all villagers to flee; some rent tenement houses in the city or live in bivouacs on the outskirts of the village. The village was not inhabited until mid-2015. Since this village is deserted, the DST plantations were not maintained and managed so that shrubs grew to cover the sago trees.

People still depend on daily living from *men cari* (foraging, gathering, fishing) around the village even though the results are not much. Wild sago is no longer able to collect because its location is very far from the village. The villagers fulfill their basic food needs by distributing rice rations and buying rice at the market. On several occasions, such as traditional parties, wild sago is cut. But to get sago, they have to go deep into the forest and take days. They do not use the DST plantation at the outskirts of the village at all for farming. The DST area is only entered if the villagers want to set a trap for game animals such as deer or wild boars. However, the game near the village also does not produce much.

*"We people think why would we work hard if corporate ain't paying us. You know, we're on strike. We think we'd be better off foraging in forest, or selling stuffs in Timika. Anything better than doing uncertain jobs. It's flaky. Why I said that, look, this sago plantation ain't different from wild sago no? No need taking care of, they'd still be growing. See it for yourself, them sago grows tall. Why not just leave them be, when needed we can just cut them down."* (Interview with B003, smallholder farmer)

Regarding plantation maintenance, almost all of the interviewed informants admitted that they did not want to take care of it because there was no ongoing program. They acknowledge that if they take care of themselves independently, then time, energy, and money will be spent on it while they have to feed their family. DST plantations will only be maintained if there is a follow-up program from companies, institutions, or local governments.

Without the sago harvest from the DST plantation, the community feels they can still live properly and get "income" from various cash funds from aid programs and compensation for environmental pollution. Let alone wild sago from the natural *dusun sago*, far along the river, from the DST garden close to the village, and people are still reluctant. All of this reflects that the programs implemented for community empowerment are not in line and harmony because they overlap.

### **The Development Program and Socio-Cultural Changes**

In general, the Recognition Project, which moved the Kamoro people who previously lived as nomads to settle in permanent settlements, certainly had consequences on people's lives. Socio-cultural change can include adjustments to social organization, livelihoods, to natural resource management (Leach et al., 1999; Spaargaren & Mol, 1992).

As a large part of the Recognition Project, the DST Program has also brought about socio-cultural changes to the Kamoro community in this new village, especially in adjusting social organization livelihoods, to natural resource management. The most obvious adjustment after the entry of the DST Program was a change in the classification of land and natural resource management from clan-based communal ownership and control to private ownership. In practice, *taparu* manages customary land together with a communal ownership system. In the past, before introducing the formal system of government by the

colonial government, the various *taparu* had their own settlements on their respective customary lands. This *taparu*-style settlement is nomadic and not permanent. *Taparu* moved between settlements but were still in their separate very large customary land areas. The purpose of this nomadic life, among others, is to control their customary land and fulfill food sufficiency by moving cycles (Pouwer, 1970; Suparlan, 2001). After merging several *taparu* into one permanent residential complex, fragmentation between *taparu* can still be seen from the various frictions that arise. Several *taparu* are in opposition to each other because of the violation of lands borders and suspicion of other *taparu* as a result of past hostilities, such as the conflict between the MM and the TI. The two *taparu* oppose each other because of the adjacent customary land boundary dispute, namely the claim to a plot of land between the Munapea River and the Mofopa River.

As a result of this permanent settlement, it is almost impossible for the Kamoro people to maintain their traditional strategic behavior because the environment has changed and disrupted their social functions. In this transitional stage, they experience difficulties maintaining their traditional lifestyle. They often feel that they have lost their way because the new adaptation patterns as a substitute have not matched their strategic behavior.

*"The first time I moved to this new village, I was confused. The corporation gave people a house long distance away. They said that people could garden in the yard. Foraging was also so hard, far from a big river. Want to gather sago, too far away. Had only short rivers. Many people say they are looking for work to Timika, none are willing to accommodate. Honestly, I was confused, Helpless."* (Interview with B004, smallholder farmer).

The Kamoro people who used to manage the communal land of *taparu* were then introduced to the system of private land ownership. The house is built on a large yard to have its own yard. The sago plantations are also divided into ownership based on the nuclear family. Many customary lands have been turned into privately owned land. The wild sago forest is still managed under a joint *taparu* system, but the sago plantations are owned individually.

While waiting for the planted sago to be harvested, the villagers tend to consume rice instead of sago. Most people are reluctant to go to the wild sago forest that are still in the hinterlands because, according to them, the location is very far, and it is more practical to buy rice in the market. They get the financial ability to buy this rice from aid and compensation funds disbursed every year by the government and FI Mining. Since the beginning of DST Program planting, this village receives various development funds every year, such as the Village Fund of approximately up to IDR 1 billion, the Special Autonomy Fund of IDR 100-200 millions, and PNPM/RESPEK Fund of IDR 100-200 millions. There is also social assistance in cash from the central government, such as the Program Keluarga Harapan, plus other local governments' social protection and poverty alleviation programs. In addition, every year, the villagers also receive funds from FI Mining, namely the Recognition

Fund or compensation fund of IDR 1 billion and 1 percent of FI Mining's income, the amount of which is uncertain. If calculated roughly by dividing equally, each family head can get around IDR 20 to 30 million per year in cash. This does not include other assistance such as seeds, boat engines, fuel, electricity, water, necessities, and others. Some families claim they can earn IDR 3 to 4 million a month from financial aid and compensation, while spending just IDR 500 to 750 thousand for buying rice.

*"The thing is, it's hard for the village head to give money. There's no way he'd be dropping on money for free like that. There has got to be reasons for the village funds to be disbursed, or else they would say it's corruption. So, we do community work like that. Besides, this money meant to be for the people. If anyone said the people are greedy they are silly. It's the people's money so if we got money by community work, it's our right. Enough said."* (Interview with A002, village official).

In many places in Indonesia people donate their energy and money voluntarily for the common good, for the community service (Bowen, 1986; Slikkerveer, 2019), then the opposite happens in this new village. The villagers only want to be involved in community service if they are given wages. In general, only a small part of these funds is allocated for village development, most distributed to villagers. Various development funds to the village are generally "distributed" to villagers through community service. Often, villagers work to clean the village for a daily wage. Usually, this daily wage ranges from IDR 200 to 300 thousand just by working for example cutting grass for a few hours. The informants told that usually the village organizes community service activities once or twice a month, attended by about 50 people, and a villager could get IDR 500 to 600 a month.

This cash disbursement from government programs and private companies as compensation for environmental damage has indirectly resulted in the Kamoro people cutting sago less frequently. The existence of "easy money" makes the community prefer to buy rice at the Timika market rather than going to the *dusun sago*. People still choose to forage in the forest and rivers because side dishes such as fish or meat must be fresh and consumed immediately, unlike rice which can be stored for a long time.

*"My plan that later, if the superior sago is cut, maybe I will sell it. For daily meals, my family prefers rice. Getting rice is also easy, I received cash aids then buys them in market. Cooking rice, easy. Cooking sago, too fussy, it will take a long time. I eat sago when got the cravings for it. I make papeda, dry sago cake, only if there are traditional events."* (Interview with B005, smallholder farmer).

Based on the confession of many villagers, they prefer to consume rice because the process of obtaining and cooking it is easier and quicker. Meanwhile, sago is becoming increasingly unpopular as a staple food because it requires a long process and hard work. Planted sago is also considered better sold because the staple food has been fulfilled with rice which is easier to obtain.



### **The Disjointed Will Towards Development**

The pattern of community development so far, which is top-down through various policies that are penetrated by the state and private corporations into the community as an object of development, is believed to have weakened and killed the creativity of the Papuan people, both economically, politically, socially and culturally (Larastiti, 2020; Rifai-Hasan, 2009; Soares, 2004). The design of a tight control mechanism over natural resources provides private corporations space to develop their grip on capital (Barkan, 2013). The consequences of this are the people's access to and control over the rights to manage natural resources is getting weaker and not developing.

For decades the indigenous community in Mimika have not received explicit recognition of their customary rights. During the height of international pressure and the weakening of the repressive New Order regime, FI Mining made this recognition through various community development programs and compensation funds (Soares, 2004). The idea of resettlement is based on a government program through the Department of Social Affairs, which intensively campaigned for a permanent resettlement program for local communities considered "alienated and left behind" (Hoshour, 1997; Li, 2000; Persoon, 1998).

The Recognition Project and the DST Program inherently failed to capture the socio-cultural background of the local community. There was no recognition of local forms of knowledge in natural resource management, which the local community believed to be able to balance the use and conservation of natural resources. These development programs are more concerned with efforts to uniform patterns that are not compatible with the local's culture.

Concerning Li (2005) on changes in the highlands in Indonesia, what happened to the Kamoro: the collapse of the production, reproduction, and consumption systems of society due to the alienation of traditional living cultures that rely on the availability of natural sources of livelihood, has made the Kamoro undeveloped. The Kamoro people's production system, initially based on natural resources like sago, is slowly being abandoned due to the destruction of their natural environment due to FI Mining activities. The domino effect of this is the shift to the life necessities foreign to the Kamoro people, namely rice which eventually becomes their staple food.

The stagnation of the DST Program shows the limitations of the development program when it clashes with the community and also the feedback from the people (Firdaus & Wibowo, 2020). In this case, in line with the political-economic approach (Li, 2007), the subject of the Kamoro people is not an empty entity that can be steered to all sorts of programs. The reality of the Kamoro people who used to eat sago as a staple food did not just become FI Mining's steppingstone to carry out a local food diversification program by reviving sago in the community with an intensive sago farming program. There is a historical experience of the Kamoro people being driven from their ecological environment

due to FI Mining's activities which caused them to change their staple consumption pattern to rice.

In the adverse incorporation process, the Kamoro people from the beginning were faced with a condition where they could not help but accept FI Mining's offer to resettle and continue to cultivate superior sago plantations. The historical and factual integration of the Kamoro people in this regard has not released them from the snare of adversity. In terms of resettlement, they are conditioned to a new ecological environment that is foreign, making it difficult to meet their needs. Furthermore, the DST Program's offers faltered them because they had to deal with intensive food crop cultivation, which they had never done before.

Besides adverse incorporation, the Kamoro also experience social exclusion. They are kept away from cultural roots closely related to the environment, such as wild sago palms, chances of gathering, foraging, and fishing in big rivers and others. The resettlement through the Recognition Project limits their access to natural resources on their customary lands. The concept of private ownership brought about by the DST Program is starting to fade the sense of commonality. In the end, they are still in a slump due to the long process of adverse incorporation and social exclusion.

## CONCLUSIONS

The DST program, which is a large part of the Recognition Project, has resulted in reclassification of land in the Kamoro community, from almost all of them being communal ownership to lands with private ownership. Similar adjustments were made to natural resource governance from clan-based communal ownership and management to private ones, where many *tapare aiku* or customary lands were turned into *tapare amako* or land owned by individuals. Another consequence that followed was the people's livelihoods, which initially *mencari* or foraging, hunting, gathering, fishing, and small gardening turned into looking for "easy money" expecting aid funds and day labor projects in various development programs.

Hereof, it can be seen that the community development program considered to have good design and intentions does not always end well. Instead of bringing prosperity, people are trapped in adverse incorporation and social exclusion that make them seem to be "going nowhere". There are limitations to development programs when they collide with socio-cultural realities for decades. The indigenous community are not empty entity that can be easily steered around. They are a subject with historical, social, cultural, and economic backgrounds that are always intertwined and dialectical.

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