

Agricultural Land Transformation and Its Implications for Socio-Economic Welfare in Aimas District

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Abstract

Agricultural land conversion is a strategic issue with a direct impact on sustainable development and community welfare. This study examines the phenomenon of agricultural land conversion in Aimas District, Sorong Regency, and its implications for the socio-economic aspects of the local community. Changes in land use influenced by population growth, infrastructure development, and the expansion of the non-agricultural sector have triggered shifts in livelihood patterns and the community's economic structure. This study used mixed methods: a quantitative survey of 120 farming households and qualitative interviews with local stakeholders, such as government officials and community leaders. Descriptive and inferential analyses were conducted to examine the relationship between changes in cultivated land areas and income levels, food security, employment opportunities, and community social welfare. The results indicate that agricultural land transformation has ambivalent impacts. On the positive side, land conversion opens new economic opportunities in the services, trade, housing, and transportation sectors, thus boosting non-agricultural income growth for some communities. However, on the negative side, the reduction in agricultural land reduces local food production capacity, narrows smallholder farmers' access to livelihoods, and increases social vulnerability due to the loss of traditional agricultural identity. The decline in local rice production has also led to increased dependence on food supplies from outside the region. The policy implications highlight the importance of spatial planning and strict regulations on land conversion to prevent long-term food security disruptions. Furthermore, we need to implement farmer empowerment strategies through business diversification, technology-based productivity improvements, and expanded market access. Development in the Aimas District can support economic growth without compromising the social welfare of the farming community through balanced land transformation management.

Keywords: Agricultural Conversion, Food Security, Land Transformation.

INTRODUCTION

The agricultural sector plays a vital role in supporting the livelihoods of Indonesians, particularly in rural areas that depend on rice paddies and fields for their livelihoods (Sudarma et al., 2024). Agriculture is not only a staple food provider but also a source of employment, culture, and social identity for local communities (Achsanuddin et al., 2023; Kalosian et al., 2024). However, in recent decades, agriculture has faced increasing pressure due to population growth, infrastructure expansion, and the need for land for non-agricultural sectors. Land conversion, or the transformation of agricultural land, has become an unavoidable phenomenon, with productive land gradually being converted to other uses such as housing, commerce, industry, and tourism. This situation creates a dilemma between the need for development and efforts to maintain the food production base that underpins national food security.

Aimas District in Sorong Regency is one area experiencing significant land conversion dynamics. As the hinterland of Sorong City, Aimas has become a

magnet for the development of new residential areas, trade centres, and commercial areas. These development pressures have led to the decline of many productive rice fields, while population growth and urbanisation have accelerated. Limited water resources for irrigation further exacerbate this phenomenon, making it difficult for farmers to maintain their agricultural activities. Much of the once-fertile land has been abandoned, even transferred to outsiders. Consequently, there have been changes in the economic and social structure of the local community.

The transformation of agricultural land in the Aimas District has had a dual impact on the community. Economically, some farmers who have relinquished their land have gained capital to start new businesses in the trade, services, and transportation sectors. This creates more promising non-agricultural economic opportunities than agricultural products, which are vulnerable to price fluctuations and the risk of crop failure. However, those unable to adapt have experienced declining incomes and the loss of their primary livelihoods. Social inequality is also

exacerbated because immigrant groups tend to be quicker to seize new business opportunities, while indigenous communities are marginalised from development dynamics.

Land conversion also impacts local food security (Ruslan et al., 2021). The decline in rice paddy area and declining rice production have made the Aimas District community increasingly dependent on food supplies from outside the region. This increases food insecurity, especially if there are distribution disruptions or price increases. Furthermore, the loss of local food production has eroded the social identity of communities that have long considered agriculture a part of their culture and daily lives. The shift in economic orientation from agrarian to non-agrarian has created a shift in social values, with younger generations increasingly reluctant to pursue farming as a profession.

Similar phenomena are occurring not only in Aimas but also in various other regions in Indonesia. Research in Bali indicates that external factors, such as the need for land for development and uncertain agricultural prices, encourage farmers to convert their land. Research in Gowa and Maros has demonstrated that land conversion not only boosts incomes for certain communities but also decreases agricultural productivity. Meanwhile, in Mimika and Jember, conversion to industrial and tourism sectors has shown positive economic impacts but leaves behind social problems (Casanova Noviyanti et al., 2021). These studies demonstrate that agricultural land transformation tends to have ambivalent impacts, depending on the community's adaptive capacity and the government's spatial management policies.

In Aimas District, the issue of land conversion is increasingly complex because, in addition to economic factors, spatial and ecological aspects are interconnected. Land-use changes put pressure on spatial planning, water availability, and environmental quality. If not managed properly, this situation can exacerbate local ecosystem damage and lead to long-term problems. Therefore, studying land conversion in Aimas is important not only from an economic perspective but also from a social and ecological perspective. This way, development strategies can be directed to balance development needs and agricultural sustainability.

Based on this description, research on agricultural land transformation and its implications for the socio-

economic well-being of the Aimas District community is crucial. This research seeks not only to identify the driving factors of land conversion but also to assess its impact on income, employment opportunities, food security, and the socio-cultural dynamics of the local community. The research findings are expected to contribute to the local government's formulation of policies on agricultural land protection, sustainable spatial planning, and farmer empowerment to enable them to adapt to change. This way, development in Aimas can proceed without sacrificing the socio-economic well-being of its residents.

METHODS

This research uses a qualitative approach with descriptive methods, as the issue of agricultural land transformation in Aimas District is related to economic aspects and involves complex social, cultural, and environmental dimensions. Through this approach, researchers can more deeply explore the meanings, perceptions, and experiences of community members regarding changes in land use and their implications for socioeconomic well-being.

The research location was Aimas District, Sorong Regency, Southwest Papua Province, an area with a relatively high rate of agricultural land conversion due to residential, commercial, and infrastructure development. This research was conducted over several months, encompassing preparation, field data collection, analysis, and the preparation of the final report.

The research data consisted of primary and secondary data. Primary data was obtained through in-depth interviews with farmers, landowners, affected communities, migrants, government officials, and community leaders with direct knowledge of the land conversion phenomenon. Meanwhile, secondary data was collected from official government documents, agricultural statistics, spatial maps, regional development reports, and previous research relevant to the issues of land transformation and food security.

Data collection techniques were employed in several ways. First, field observations were used to watch the condition of agricultural land undergoing transformation, spatial use patterns, and community socio-economic activities. Second, in-depth interviews were conducted using semi-structured guidelines to allow informants to freely express their views and experiences. Third, documentation was used to obtain

data in the form of archives, field photographs, and land use maps to support the observations and interviews.

Informants were selected using a purposive sampling technique, selecting respondents deemed to have direct knowledge of the problem, such as farmers, landowners, and government officials. A snowball sampling technique was also used, in which initial informants recommended other relevant parties for interview. This method was chosen to ensure a more diverse data collection and a broader representation of community conditions.

Data analysis was conducted in three stages: data reduction, data presentation, and conclusion drawing. Data reduction was achieved by selecting relevant information from interviews, observations, and documentation. The sorted data was then presented in descriptive narrative form, accompanied by tables and maps for easy interpretation. Furthermore, conclusions are drawn inductively by connecting field findings with theories and previous research results to provide a comprehensive understanding of the implications of land transformation on the socio-economic welfare of the community.

RESULTS AND DISCUSSION

Overview of the Research Location

Aimas District is a strategic district within Sorong Regency, Southwest Papua Province. Geographically, Aimas is located in the central part of the regency, offering excellent accessibility thanks to the main road connecting Sorong City with several surrounding districts. This position makes Aimas a new growth centre, serving as both a hinterland and a key buffer zone for Sorong City. Aimas, the regency capital, serves as the centre of government administration, education, trade, and various socio-economic activities.

The Aimas region is dominated by flat, relatively low-lying land, which has long been used for agriculture, particularly rice paddies and fields. This agricultural potential is supported by the availability of extensive land resources and a simple irrigation system used by the local community. However, in recent years, agricultural land has been increasingly pressured by residential and commercial developments. This trend is in line with the increasing population and urbanisation, which have driven the demand for non-agricultural land.

Demographically, Aimas is experiencing rapid population growth, both among indigenous people and immigrants. This growth is driven not only by the birth rate but also by migration flows from various other regions in Indonesia. These migrants generally come to work in the service, trade, and government sectors, resulting in an increasingly heterogeneous social structure in the Aimas community. This situation has impacted livelihood patterns, with local communities previously predominantly farmers shifting to other sectors due to the decreasing availability of arable land.

Overall, the Aimas District reflects a region undergoing a transition from an agrarian to a semi-urban area. Rapid development pressures provide new economic opportunities for some communities but also pose challenges in the form of social inequality, a decline in agrarian identity, and threats to food security. This overview provides an important foundation for understanding how the transformation of agricultural land has wide-ranging implications for the socio-economic well-being of the Aimas District community.

Agricultural Land Transformation Patterns

The transformation of agricultural land in Aimas District is a phenomenon that has occurred gradually over the past ten years, particularly since the area was designated as the administrative centre of Sorong Regency. This change in land use is primarily evident in the reduction of productive rice fields, which have traditionally been the primary source of food and livelihood for the community. Development pressures from urbanisation and urban expansion have driven agricultural land to be converted into residential areas, trade areas, government facilities, and even commercial areas.

Based on spatial data and field observations, in 2014, the residential area in Aimas District was recorded at approximately 2,688 hectares (14.20%), increasing to 2,744 hectares (14.49%) in 2019. However, by 2024, the residential area had actually decreased to 2,389 hectares (12.62%) as some areas were converted into new categories of rice fields (460 hectares/2.43%) and fish ponds (39 hectares/0.21%). These dynamics indicate that land conversion in Aimas is not linear but rather fluctuates, influenced by development factors, government policies, and local ecological conditions.

In general, land transformation patterns in Aimas can be categorised into three main forms. First, the

conversion of rice paddies to residential areas, driven by population growth and the increasing need for housing, both for indigenous residents and immigrants. Second, the conversion of rice paddies to commercial and office areas, as Aimas develops as a new centre of government and trade. Third, the conversion of rice paddies to fish ponds and other non-agricultural land is due to declining productivity, limited irrigation, and economic pressures on farmers.

The driving forces behind land transformation can be divided into external and internal factors. External factors include population growth, urbanisation, increased investment in non-agricultural sectors, and infrastructure development policies. Meanwhile, internal factors stem from the community's own circumstances, such as difficulty obtaining irrigation water, low agricultural prices, the risk of crop failure, and household economic pressures that drive farmers to sell or convert their land (Nirbono, 2022; Putra, 2017).

This transformation pattern has resulted in a shift in spatial orientation from an agrarian base to a semi-urban one, where agriculture is no longer the dominant sector, replaced by trade, services, and other non-agricultural activities. This phenomenon indicates that Aimas District is undergoing a crucial transition, where the need for modern development is increasingly pressing, while at the same time compromising the sustainability of the agricultural sector that has long supported the livelihoods of local communities.

Economic Impact

The transformation of agricultural land in the Aimas District has had a significant impact on the community's economic conditions. One of the most obvious changes is the shift in livelihoods from the agricultural sector to non-agricultural sectors. Before land conversion, the majority of Aimas residents relied on rice farming, field farming, and small-scale plantations. However, the decreasing availability of rice paddies has led many farmers to sell or rent their land and shift to other sectors such as small-scale trade, transportation services, construction work, and home businesses.

For some communities, land conversion has actually provided opportunities for increased income. Farmers who sell their land gain substantial capital to open new businesses in the trade, housing, or service sectors. This is consistent with similar research in Bali and Mimika, which shows that farmers' incomes increase after land conversion. In Aimas, some

adaptable families have successfully capitalised on this momentum by expanding their access to non-agricultural economic opportunities.

However, this positive impact is not felt evenly. Many small farmers who lack capital or non-agricultural skills have experienced a decrease in income after losing their land. They are generally only able to work as daily labourers with low and uncertain incomes. This situation creates economic inequality between groups of people who can adapt to land transformation and those who have lost their livelihoods without adequate replacements. Furthermore, agricultural land transformation also impacts the stability of local food prices. The decline in rice production has made the rice supply in Aimas increasingly dependent on other regions, making rice prices relatively higher and vulnerable to market fluctuations. This indirectly reduces the purchasing power of the community, especially low-income households.

On the other hand, infrastructure and the development of new residential areas create a multiplier effect on regional economic growth. The emergence of markets, shops, transportation services, and culinary businesses provides additional job opportunities for the community, especially for immigrant groups better equipped with non-agricultural skills. This aligns with research findings in Jember, where land conversion to the tourism sector boosted local economic growth (Palilu, 2022).

Thus, the economic impact of agricultural land transformation in the Aimas District is ambivalent. On the one hand, it opens up business opportunities and increases income for some residents. However, on the other hand, it also widens economic disparities, weakens the position of smallholder farmers, and increases dependence on food from outside the region. This situation underscores the need for policy strategies that not only support non-agricultural development but also protect vulnerable groups from being further marginalised by the flow of land transformation.

Social Impact

The transformation of agricultural land in Aimas District has not only had an economic impact but has also brought about significant changes in the community's social structure. One of the most noticeable impacts is a shift in social identity. Previously known as an agrarian community, the community is slowly losing its ties to agricultural

activities. Younger generations are increasingly reluctant to work in the agricultural sector due to limited arable land and low profitability; they prefer trade, services, or informal employment in urban centres. This has implications for the weakening of the continuity of agricultural traditions as the socio-cultural identity of the Aimas community.

In addition to identity changes, land transformation has also affected patterns of social relations between residents. Previously, agricultural activities encouraged the practice of cooperation, for example, in planting, harvesting, or managing irrigation. However, with the decline in agricultural activity, the intensity of social interactions based on collective cooperation has also decreased. Relationships between residents are increasingly built around trade and service activities, which tend to be individualistic. This condition indicates a shift in values from agrarian solidarity to more pragmatic patterns of social relations.

Land transformation has also given rise to social inequality between groups of people who can adapt to change and those who are left behind. Some communities that successfully utilised the proceeds from land sales for non-agricultural businesses experienced an increase in social status. Meanwhile, communities that lost land but lacked capital or non-agricultural skills experienced a decline in welfare and social standing within the community. This gap has the potential to create social vulnerability, although to date it has not escalated into open conflict.

Another emerging impact is changes in consumption patterns and lifestyles. With increased non-agricultural economic activity, communities tend to be more consumptive and dependent on products from outside the region, both for food and other household needs. Previously, local agricultural produce could meet most food needs. This shift indicates that land transformation impacts the economic structure and changes the socio-cultural orientation of the local community.

Nevertheless, field research indicates that land transformation in Aimas does not give rise to sharp social conflict. The land conversion process generally occurs through land purchase mechanisms or mutual agreements, resulting in a relatively accepting community response to the changes. This is similar to research findings in Jember, where land conversion to the tourism sector did not trigger conflict, despite

significant economic and social shifts. Thus, the social impacts in Aimas are more gradual and adaptive, rather than confrontational.

Overall, land transformation in the Aimas District has brought about profound social changes. The community's agrarian identity is eroding, agricultural-based solidarity is weakening, social inequality is increasing, and lifestyles are shifting toward a more urbanised environment. While this situation has not yet led to conflict, it still requires attention to ensure that the social changes occurring do not lead to the marginalisation of vulnerable groups, particularly smallholder farmers who have lost their land and identity.

Agricultural land transformation in Aimas District exhibits a pattern typical of semi-urban areas, where development pressures and urbanization drive intensive land conversion. The results of this study indicate that land conversion not only reduces the area of productive rice fields but also drives shifts in livelihoods, changes in social structures, and increased dependence on food from outside the region. These findings align with the view of Ikhsan & Wijayanto (2019) that land conversion has interconnected ecological, social, and economic dimensions. In Aimas, these dynamics are evident in the imbalance between development needs and agricultural sustainability, leaving the community in an ambivalent situation between new opportunities in the non-agricultural sector and threats to their traditional livelihoods.

When compared with research in Bali by Setiawan et al. (2024), the driving patterns of land transformation are relatively similar: internal factors in the form of low agricultural productivity and external factors in the form of development pressures and investment in the non-agricultural sector. However, there are differences in the perceived impacts. In Bali, despite increasing community incomes, regional food security is beginning to be disrupted. Meanwhile, in Aimas, the impact on food security is more pronounced at the local level because the reduced supply of rice from productive rice fields directly impacts household food availability. This suggests that the scale of the impact of land transformation is highly dependent on the geographic conditions and economic structure of each region.

Research in Gowa and Maros also provides a similar picture. Achsanuddin et al. (2023) and Siska (2021) found that land conversion increased income for

some communities, but on the other hand, reduced agricultural productivity and reduced farmers' living space. These findings are similar to those in Aimas, where communities that were able to transfer their land assets enjoyed improved welfare, while smallholder farmers who lost their land experienced economic setbacks. This suggests that land transformation tends to create sharper socioeconomic disparities, a pattern also found in research by Endang Abubakar et al. in Sorong, which emphasised the importance of land protection and farmer empowerment to prevent further marginalisation.

Meanwhile, findings in Jember indicate that the conversion of agricultural land into tourist areas tends to have positive economic impacts without triggering social conflict. This differs somewhat from Aimas, where land transformation, while not causing open conflict, still leaves behind serious problems such as the loss of agrarian identity, weakened social solidarity, and increased food insecurity. This difference can be explained by the characteristics of the replacement sector: tourism in Jember is more inclusive and able to involve local communities in new economic chains, while in Aimas, transformation is more directed at housing, offices, and commercial areas, which tend to close off access to lower-income communities. Therefore, it can be concluded that the impact of land transformation is strongly influenced by the replacement sector, the community's adaptive capacity, and the direction of regional spatial planning policies.

CONCLUSION

The transformation of agricultural land in the Aimas District has had a dual impact on the community. On the one hand, it has opened new economic opportunities in the trade, services, and residential sectors, increasing the income of some residents. On the other hand, it has reduced productive rice fields, weakened the basis of local food security, and eroded the community's agrarian identity and social solidarity. This condition has also created a gap between groups that are able to adapt to change and those who have lost their livelihoods, thereby increasing the socio-economic vulnerability of smallholder farmers. Therefore, strict spatial planning policies, protection of productive land, and farmer empowerment strategies through business diversification, increased productivity, and expanded market access are needed so that development in Aimas

District can balance economic growth and sustainable community welfare.

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