



Economic Capacity and Development Strategies for Arfak Tribe Farmers in Manokwari, West Papua

¹ TRIMAN TAPI, ² MIKHAEL, ³ YOHANIS YAN MAKABORI
⁴ ASEP MULYANA

¹ Politeknik Pembangunan Pertanian, Manokwari, Indonesia*, ² Politeknik Pembangunan Pertanian, Manokwari, Indonesia,
³ Fakultas Ekonomi dan Bisnis, Universitas Padjadjaran, Bandung, Indonesia
Correspondance author: 3manstppmkw17@gmail.com*

Article

Article History

Received: 11/30/2023

Reviewed: 06/23/2024

Accepted: 06/25/2024

Published: 06/26/2024

DOI:

[doi.org/10.29313/mimbar.v40i1.3208`](https://doi.org/10.29313/mimbar.v40i1.3208)

[This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#)

Volume : 40

No. : 1

Month : June

Year : 2024

Pages : 108-116

To cite this article (APA Style):

Author, second author. (2023). The article title is sentence case style. Jurnal Mimbar. 0(0), 00-00. <https://doi.org/...>

Abstract

This study was carried out to examine the economic well-being and capacity of Arfak Tribe farmers in Manokwari, West Papua. It focused on investigating the factors influencing economic capacity in the context of the 2011–2016 Manokwari Medium-Term Regional Development Plan (RPJMD), which aimed at poverty reduction. Furthermore, the descriptive analysis, differential tests, and regression analysis were used to compare the economic conditions between Arfak Tribe and non-Papuan farmers. The results showed significant disparities, where non-Papuan farmers enjoyed higher income, skills, capabilities, greater access to agricultural technology, adequate capital and work ethic compared to Arfak Tribe. Cultural factors and social capital had a significant negative impact on the income and savings levels. These results emphasized the importance of targeted assistance to strengthen the knowledge and skills of Arfak farmers. The effective use of financial assistance from the central and regional governments supported the economic development of this indigenous local community. Targeted assistance and financial support improved the situation for Arfak farmers, addressed the systemic issues such as unequal access to resources and opportunities that perpetuated poverty. In conclusion, this study provided valuable insights on policy interventions used to improve well-being and economic empowerment of indigenous local farmers.

Keywords: Arfak Tribe Farmers; Economic Capacity; Well-being.

Copyright © 2024 The Author(s).

Introduction

The primary economic activities of indigenous Papuans living in rural areas are farming, animal husbandry, and fishing, as showed by field observations. Despite the considerable potential of the land, these three activities have traditionally been conducted on a small scale. According to a 2019 statistics released by the Ministry of Agriculture, 70% of the 224,941 agricultural households in Papua and West Papua are situated in the highlands. The majority of these farm households are contributed by indigenous Papuans. Arfak Tribe farmers typically prioritizing profit maximization,..” operate with a focus on survival ethics, and

security priorities, rather than prioritizing profit maximization, and production for consumption to enhance family food security (Bahta et al., 2017; Reincke et al., 2018). Pujiriyani (2022), stated that the methods adopted by farmers significantly hampered the diffusion and adoption of innovations that could potentially improve the outcomes and income.

According to Tapi et al. (2020) social process that evolved through cognitivework of each farmer interpreted the existing reality, in accordance with the robust relational activity of the environment (Tapi et al., 2020). These relational activities are constructed on a knowledge structure of experiences that can be shared or communicated collectively as a society (Karman, 2015; Prayogi & Danial, 2016, Peter L. Berger). In this societal framework, each person provides constructs the understanding based on prior knowledge, experience, and exploration (Rani Pundir & Ajay Surana, 2016).

Residing in the social and cultural milieu influenced the perspectives of indigenous farmers, often resulting in the viewing of innovations from an external viewpoint, while hindering the effortless adoption of new knowledge and practices. A significant inhibiting factors in the innovation adoption process was the inconsistency with the needs, habits, or social and cultural principles of indigenous community. For example, Arfak farmers preferred innovations that produced quicker results, because these were easier to experiment with, in line with the existing agricultural knowledge and experience, and had been practiced in community (Mulyadi et al., 2009). In terms of land ownership, majority of Papua indigenous population possessed more land than the immigrant population (non-Papua). However, well-being of non-Papuan farmers was higher compared to Arfak, specifically in Manokwari Regency. Sianipar et al. (2013) stated that the average income for transmigration farmers was approximately Rs. 24,716,023 per year, higher than what the local farmers earned. This disparity was mainly attributed to internal factors, including constraints in human qualities such as knowledge, education, and skills, farming experience, work perseverance, participation, and access to resources. The internal conditions continued to shape the mindset and performance of Arfak farmers. Furthermore, regional accessibility, the roles of assessment agencies, and stakeholders had a significant impact.

The income disparity significantly impacted the quality food that met the necessary nutritional requirements. Field observations showed that the economic activity of indigenous Papuan in villages remained low (Turua et al., 2014). The majority of the livelihoods relied heavily on agriculture as the primary source of income and employment. However, agricultural enterprise management remained small-scale, using subsistence patterns and accepting multiculturalism. Arfak farmers had adopted a pattern of migratory farming, typically conducted on topographically varied land slopes or hillsides, situated away from settlements. Slopes are cultivating far from settlements to avoid interactions with domestic livestock, such as pigs, chickens, and cows, which were usually left to roam freely (Iyai et al., 2013; Turua et al., 2014).

In improving the stability and success of Arfak farmers' agricultural attempts, it is essential to separate livestock from crop cultivation. This practice prevents crop damage and reduces the risk of animal-transmitted diseases. Additionally, the use of varying land slopes enabled the cultivation of a wide variety of crops, including fruits, vegetables, and other staple foods. This diversification strengthened the economic stability of Arfak community by providing farmers with diverse sources of income to improve food security at the household level. By implementing these combined farming methods, there will be increase in crop yields, improve resilience and achieve greater self sufficiency in the food systems.

The concept of garden rotation depended on the level of soil fertility, believed to decline with continuous cultivation, thereby impacting the yield of the garden. These cultural values were passed down by ancestral peasants who strived to harmonize respective existence with nature, comprising both land and forests, regarded as mother entities providing life-sustaining milk water. Furthermore, individuals with extensive landholdings can convert the land into rotating gardens as a means of asserting legal and traditional rights, safeguarding it from potential exploitation (Asmuruf et al., 2017; Marwa et al., 2020; Tapi & Makabori, 2021).

Well-being of Arfak farmers was ideally better than the current conditions, as the existing economic capacity does not significantly meet essential needs. Therefore, the study determined the economic capacity and influential factors of traditional Papuan farmers, particularly those from Arfak in Manokwari Regency. The results of aimed to assist policymakers to improve the well-being of indigenous farmers.

Research Method

This study was conducted from March to July 2023 and comprised the gathering of both primary and secondary data. It was carried out in Sairo and Saubeba, Ingkwoisi, including Hanghouw and Imhasuma villages in South Manokwari, Prafi, and Tanah Rubuh Districts, under Manokwari Regency Administration. Sampling was conducted in two stages, namely decision-making or purposive and quota-taking (Juanda 2009). Sample selection was intentionally based on several attributes required

to obtain essential information. The attributes included (1) geographical area, (2) socio-economic conditions of the population, which tend to be static, (3) the extent of land resources enabling the development of competitive agriculture and farming, (4) the distance and accessibility of districts reachable by two- and four-wheeled vehicles, and (5) the presence of indigenous Papua villages that depend on agricultural production.

The overall sample comprised 20 households and five households of Arfak and non-Papuan farmers selected from two villages in each district, respectively. Additionally, to address the objectives of this study and examine the identified issues, data analysis included the application of t-tests (differential tests), regression, and descriptive evaluations. In certain instances, comparisons were made between Arfak and non-Papuan farmers. The tests were conducted on interval or ratio data, specifically examining income, assets, and skills.

Regression analysis was used to examine the relationship between two or more variables, focusing on the correlation and cause-and-effect dynamics. This analysis was based on the probability distribution of the variables. Descriptive analysis was adopted to assess the institutional aspects of farmers, including the social and cultural habits of the target community, using the interactive analysis methods (Miles and Huberman 2015). However, a descriptive analysis of Arfak farmers' institutions offered an overview of the institutional conditions and the capacity to support household economy, serving as beneficiaries of development programs.

Results & Discussion

The practical situation showed that the majority of Arfak farmers in Manokwari were mainly oriented towards the potential of the respective living environment. Meanwhile, the income derived from farming was considerably lower than money earned by non-Papuan farmers. This disparity was attributed to various factors, including limited access to market information and resources, as well as challenges in agricultural techniques and technology. Lack of government support and infrastructure in rural areas also contributed to the lower income levels of Arfak farmers.



Figure 1. Arfak farmers in the research site

Analysis of Business Revenue

The regression analysis of farm enterprise income showed that it was influenced by various factors, including formal education level (X1), length of work on agricultural land (X3), frequency of land cultivation in a year (X4), extent of labor input in agricultural cultivation (X5), availability of funds or capital for agricultural activities (X9), size of cultivated farmland (X10), compatibility of non-formal education with agricultural work type (Dksp), and the use of agricultural technology (Dtek). The surveyed farm enterprise income represented the gross monthly income of farmers in managing the enterprise, calculated from agricultural sales in rupees, based on the provided information. The results of field studies showed that the average monthly income was approximately Rs. 6,580,000, with a maximum and minimum of Rs. 14,500,000 and Rs. 300,000, respectively. The regression model generated using SPSS analysis tools, is shown in Table 1.

Table 1. Regression Model Parameter Coefficients for Income

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-85085.975	492164.017		-.173	.863
X1 = Pendidikan formal	12964.672	19458.107	.010	.666	.506
X3 = Lama kerja di lahan pertanian	34450.551	15019.208	.091	2.294	.023*
X4 = Frekuensi olah lahan dlm setahun	-372135.765	118400.761	-.095	-3.143	.002*
X5 = Jumlah tenaga kerja	538850.764	109826.014	.179	4.906	.000*
X7 = Partisipasi dlm kelompok tani	554044.860	205648.477	.071	2.694	.008*
X9 = Ketersediaan dana	6.512	.494	.617	13.180	.000*
X10 = Luas lahan yang diolah	180250.501	97605.348	.031	1.847	.066
DL = Petani lokal	-773916.040	278246.590	-.088	-2.781	.006*
DK = Komoditas	547369.517	156420.236	.060	3.499	.001*
DkSp= Kesesuaian pendidikan nonformal dgn pekerjaan	557270.765	161356.256	.061	3.454	.001*

Source: Primary Data, 2022

* significant at =5%

In Table 1, variables X1, X3, X5, X7, and X9 were presented alongside non-Papuan farmers in Manokwari area. However, variable X4 (frequency of land cultivation in a year) and the local farmer dummy or Arfak Farmer (DL) had a negative correlation with income, illustrating that formal education does not directly impact income. Similarly, a high level of education does not consistently correlate with farmers’ performance, specifically when not effectively applied in agricultural activities. Variables such as the duration of working on agricultural land, number of workers, participation in farmer groups, fund availability, appropriateness of non-formal education for the work, and cultivated land area significantly influenced farmer income. Additionally, the following factors such as the frequency of land cultivation, occurrences of drought, pest threats, and the abundance of natural resources also affected income levels. Arfak farmers typically possessed extensive land areas and engaged in subsistence farming with different land cultivation frequencies compared to non-Papuan farmers.

Indigenous Papuan farmers possessed a tradition of mutual cooperation, facilitating agricultural tasks. Non-Papuan farmers often encountered constraints in accessing land, but used knowledge and skills to optimize production. This difference in access to land has led to the adoption of innovative farming methods among non-Papuan farmers, who often used technology and modern agricultural practices to maximize limited resources. Several indigenous Papuan farmers continued to rely on traditional farming methods that prioritized sustainability and respect for the land. Despite facing challenges such as limited access to modern equipment and agricultural inputs, farmers had developed unique methods of land management and crop production. By incorporating both traditional and modern practices, farmers in Papua were able to adapt to changing environment while preserving the cultural heritage (Radcliffe et al., 2016).

Factors that Influence Farmers Economic Capacity

Factors that showed either positive or negative correlations, as well as exert actual or negligible effects on income and skills, are shown in Table 2.

Table 2. Factors that Influence Farmers Economic Capacity

No	Influencing Factors	Correlation		significant	
		Positive	Negative	Yes	No
A. Income Capacity					
1.	Duration of employment in agricultural fields.	√	-	√	-
2.	The number of laborers working in agricultural fields.	√	-	√	-
3.	Participation in farmer groups.	√	-	√	-
4.	Availability of funds for farm management.	√	-	√	-
5.	Extent of cultivated land.	√	-	-	√
6.	Relevance of non-formal education to the occupation.	√	-	√	-
7.	Frequency of cultivating agricultural land in one year.	-	√	√	-

8.	Commodities: Palm Oil, Cocoa.	√	-	√	-
B. Skill Capacity (Skill)					
1.	Duration of work in agricultural fields.	√	-	√	-
2.	Extent of cultivated agricultural land.	√	-	√	-
3.	Frequency of cultivating agricultural land in one year.	√	-	-	√
4.	Participation in farmer groups.	√	-	-	√
5.	Non-formal education.	√	-	-	√

Source: Primary Data, 2022

The extent or size of cultivated agricultural land does not directly influence income, although maximum processing tends to yield a positive impact. T-test results showed disparities in capacity between indigenous Papuan and non-Papuan farmers, with most variables showing higher levels among non-Papuan farmers. Therefore, stakeholders, particularly Manokwari Regency government, need to concentrate on factors influencing the economic capacity of farmers. An intensive method, and assistance from clan groups in each village, was essential for enhancing the understanding and skills of farmers, leading to substantial improvements in economic conditions. This included providing training programs on modern farming techniques, facilitating access to better quality seeds and fertilizers, and supporting in the marketing of produce. Additionally, efforts should be made to address any fundamental social or cultural barriers hindering the economic progress of indigenous Papuan farmers. By working closely with local community and adopting a comprehensive method to improving the economic capacity of these individuals, Manokwari Regency government can bridge the gap between indigenous Papuan and non-Papuan farmers, fostering a more equitable and prosperous agricultural sector in the area.

Strategic Approach to Farmer Economic Development

The situation of Arfak farmers in Manokwari required attention from both the government and the private sector to foster economic development through the use of Local Resources (SDL). The main focus is on plantation crop commodities, namely cocoa, oil palm, and sago, dominate a significant portion of Manokwari Regency area with cocoa and oil palm occupying 10.1% and 5.21%, respectively. Tribal Chief played a crucial role in preserving and regulating matters related to customary land, serving as a communication intermediary between indigenous community and external entities, including government and non-governmental organizations (NGOs). Although customary land offers economic potential for the families of farmers, there is a need to reduce reliance on natural resources to promote sustainable agricultural cultivation (Pujiriyani, 2022). The community of Manokwari transitioned from traditional lifestyles to industrial crop farming in 2000, further adaptation was required, particularly in the context of a market-oriented farming culture (Wambrauw et al., 2019). Therefore, effective communication and collaboration among the government, NGOs, and indigenous community are increasingly relevant to ensure sustainable development. This helped to ensure that sustainable farming practices were implemented, to maximize the economic potential of customary land, without depleting the natural resources (Shiferaw et al., 2009).

The government assumed a more proactive role in the economic development of Arfak farmers, ensuring careful oversight of fund allocation and the execution of economic development programs. It enabled farmers to strategize for the advancement of agriculture, as well as prevent the misallocation of funds intended for development and community well-being (Marbun et al., 2019). The empowerment of Arfak farmers included transitioning from exploiting ecological potential to becoming the primary source of household income, discerning beneficial social assistance, and fostering innovation in agricultural production. The support from local governments and effective fund management played a significant role in achieving sustainable economic growth for farmers. According to Aminah (2015), a considerable enhancement in farmer capacity was required to enable farmers improve productivity and income for household food security.

Institutions and Farmer Economic Development

The farmer institutions referred to in this context are membership organizations or cooperative groups located in local areas (Raharto, 2016). It comprises a comprehensive understanding, defining farmer organizations, governing patterns of action and social relations, including social unity, which represents a tangible manifestation of these institutions (Duggan, 2008; Hellin et al., 2009). Arfak farmers often do not understand the importance of institutions, and the formation tends to follow conventional patterns. The results of the field study showed that farmers required similar treatment

as non-Papuan farmers due to differing abilities and motivations. For example, providing training on modern agricultural methods and technologies designed to suit specific needs could help increase crop yields and income levels.

The establishment of cooperatives or farmer groups efficiently improve access to market information and resources for Arfak farmers, leading to better economic outcomes. The implementation of the strategies led to a significant improvement in the economic well-being of farmers, by addressing diverse specific needs and providing relevant tools and resources to enhance productivity and increase income levels. It is crucial to recognize and support the unique challenges faced by indigenous farmers, empowering these individuals to thrive in agricultural pursuits. Evaluating the institutional capacity of farmer groups includes determining the role of institutions in supporting the farming businesses of members (Prasetyono, 2019). Meanwhile, Huda et al., (2021) stated that enhancing the capacity of these groups led to transformative changes for members, including increased productivity, income, and well-being of farmers. The institutional activity of farmer groups in each village is shown in Table 3.

Table 3. The capacity of farmer groups in North Manokwari, Prafi, and Tanah Rubuh Districts of Manokwari Regency

No	Assessment Aspects	Farmer group	
		Non-Papuan	Indigenous Papuan/Arfak
1.	Manager	<ul style="list-style-type: none"> Active as a manager; 	<ul style="list-style-type: none"> Active when there is assistance;
2.	Member	<ul style="list-style-type: none"> Active as a member; 	<ul style="list-style-type: none"> Active when there is assistance;
3.	Regular meetings	<ul style="list-style-type: none"> Weekly routine religious study; Monthly social gathering; 	<ul style="list-style-type: none"> No regular meetings
4.	Purpose	<ul style="list-style-type: none"> Collective well-being 	<ul style="list-style-type: none"> Collective well-being
5.	Work Program	<ul style="list-style-type: none"> There are program documents, including technical instructions for the shared use of tools: <ul style="list-style-type: none"> ✓ Land cleaning ✓ Rice field processing ✓ Rice planting 	<ul style="list-style-type: none"> No program documents: <ul style="list-style-type: none"> ✓ No activities.
6.	Ownership of Resources		
	<ul style="list-style-type: none"> Meeting hall 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> Farming funds 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> Shared vehicle 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> Ownership of shared tools 	<ul style="list-style-type: none"> Tractors, water pump machines 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> Business unit 	<ul style="list-style-type: none"> Saprotan and saprodi kiosks 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Land area reserve 	<ul style="list-style-type: none"> <ul style="list-style-type: none"> No land reserve 	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Land reserves are vast
	<ul style="list-style-type: none"> >5 ha 		

Source: Primary Data, 2022

Surveys conducted on-site showed that 81.54% of peasant groups were inactive, with only 18.46% remaining active at the site. The active groups were distributed in Prafi District, and predominantly consisted of non-Papuan farmers, formerly transmigrants. During the identification and exploration of issues in farmer groups at the study site, both members and managers stated that the inactive status of the respective institutions was attributed to:

1. The leadership of these institutions lacked a comprehensive understanding of the economic development of the community.
2. Both the management and members are yet to completely understand the significant roles of the institutions.
3. The formation of farmer groups in each village was driven by the distribution of assistance in the form of funds and agricultural equipment, as well as the policy of purchasing subsidized fertilizer.
4. The community in farmer groups occasionally make inappropriate decisions, neglecting kinship ties.

5. Several farmers tend to collaborate without being part of a specific group.
6. Farmer group administrators show a lack of proactivity in engaging with members.

Arfak farmers in Manokwari adopted a distinctive method to advancing agricultural related issues. In contrast to non-Papuan farmers and those in areas beyond Papua, an applicable method included sustained or intensive mentoring for a duration of one to two years. This allowed mentors to show the success of the ventures, providing tangible proof that inspired farmers, and instilling confidence. Nainggolan et al., (2022) and Yaku et al., (2019) stated that Arfak farmers showed a greater propensity to adopt innovative agricultural practices when provided with concrete evidence of the benefits. Several fundamental factors contributed to the observed trend, firstly, the practical utility and immediate benefits of new innovations, such as increased crop yields, or labor efficiency were prioritized. This pragmatic orientation reflects the need to maximize productivity and resilience of distinct agricultural endeavors. Secondly, empirical evidence and experiential knowledge were valued with the community inclined to accept innovations through field trials or real-world implementation in the local context. This culture of evidence-based decision-making influenced the distinct receptiveness to novel agricultural practices.

Arfak farmers possessed a deep-rooted understanding of the local environment and traditional farming methods. These individuals adopted innovations that effortlessly integrated existing knowledge and practices, ensuring compatibility and minimizing the disruptive effects of change. Additionally, as a traditional agrarian society, Arfak farmers tend to have a relatively low tolerance for risk. Farmers were willing to adopt innovative methods when provided with tangible proof of success, which helps to reduce potential risks and uncertainties associated with untested practices. Recognizing these nuanced factors influencing innovation adoption among aids policymakers in designing more effective interventions and extension programs that cater to the specific needs and cultural preferences of community.

Analysis of Supporting Factors and Challenges

Area of Agricultural Land Cultivated:

1. There was a positive correlation between the extent of cultivated agricultural land and the income of Arfak farmers.
2. The factor does not significantly impact income since farmers failed to directly cultivate the plantation land, instead leased to third parties. This led to reduced income due to the absence of contributions from the plantation land.
3. A considerable potential for income augmentation was realized through the optimal cultivation of agricultural land.

Communication between Stakeholders and Indigenous Community:

1. The significance of establishing mutually beneficial communication among stakeholders, including institutions such as Local Management Authority (LMA) in Manokwari Regency, is important.
2. LMA served as a link between the interests of indigenous community and the government, while considering the divergent perspectives of various indigenous tribes.
3. The existence of LMA was anticipated to effectively address the needs and aspirations of indigenous community, including overcoming social barriers that prevented the economic advancement of farmers.

The Role of Tribal Chiefs in Local Economic Development:

1. Tribal heads played a significant role in preserving and overseeing customary land matters, functioning as representatives for communication with the government, NGOs, and other stakeholders.
2. The division of roles in traditional structures, enabled effective communication and engagement with community and external parties.

Conclusions

In conclusion, the factors that positively influenced the economic capacity of indigenous Papuan farmers comprised two main factors, namely income and skills capacities. An examination of the institutional aspects aimed at improving the economic capacity of farmers showed a pronounced weakness, particularly among groups, with majority being inactive approximately 81.54%. It was crucial to attentively consider the institutional roles of the government, customary rights owners or

tribal heads, and other stakeholders in fostering the agricultural economy and supporting potential resources, namely land, ecology, and farmer culture.

References

- Asmuruf, M. A., Purwanto, R. H., & Faida, L. R. W. (2017). Rehabilitasi Hutan Dan Lahan Berdasarkan Kearifan Lokal Suku Moile Dan Suku Meyah Di Kabupaten Manokwari Provinsi Papua Barat. *Jurnal Manusia Dan Lingkungan*, 24(3), 141. <https://doi.org/10.22146/jml.23043>
- Bahta, S., Wanyoike, F., Katjuongua, H., & Marumo, D. (2017). Characterisation of food security and consumption patterns among smallholder livestock farmers in Botswana. *Agriculture and Food Security*, 6(1), 1–11. <https://doi.org/10.1186/s40066-017-0145-1>
- Duggan, R. A. (2008). A Model for International Border Management Systems. Sandia National Laboratories, September, 1–29. <http://www.osti.gov/bridge%0Ahttp://www.ntis.gov/help/ordermethods.asp?loc=7-4-0#online>
- Hellin, J., Lundy, M., & Meijer, M. (2009). Farmer organization, collective action and market access in Meso-America. *Food Policy*, 34(1), 16–22. <https://doi.org/10.1016/j.foodpol.2008.10.003>
- Huda, N., Wibowo, A., & Winarno, J. (2021). Pengembangan Kapasitas Kelompok Tani dalam Penerapan Pertanian Terpadu di Nglebak, Karanganyar. *AgriHumanis: Journal of Agriculture and Human Resource Development Studies*, 2(2), 143–154. <https://doi.org/10.46575/agrihumanis.v2i2.102>
- Iyai, D. A., Marani, O., Marjen, T., & Usior, L. (2013). Pig farming performances of three papuan tribes: Case study of byak, onate and arfak tribes in Papua Barat. *Journal of the Indonesian Tropical Animal Agriculture*, 38(1), 55–64. <https://doi.org/10.14710/jitaa.38.1.55-64>
- Juanda, B. (2009). *Ekonometrika Pemodelan dan Pendugaan*. IPB Press.
- Karman. (2015). Konstruksi realitas sosial sebagai gerakan pemikiran (sebuah telaah teoritis terhadap konstruksi realitas Peter L. Berger). *Jurnal Penelitian Dan Pengembangan Komunikasi Dan Informatika*, 5(3), 11–23.
- Marbun, D. N. V.D., Satmoko, S., & Siwi Gayatri. (2019). Peran Penyuluh Pertanian dalam Pengembangan Kelompok Tani Tanaman Hortikultura di Kecamatan Siborongborong, Kabupaten Tapanuli. *Jurnal Ekonomi Pertanian Dan Agribisnis*, 3(3), 537–546. <https://doi.org/10.21776/ub.jepa.2019.003.03.9>
- Marwa, J., Sineri, A. S., & Hematang, F. (2020). Biocological Carrying Capacity of Forest and Land in Manokwari Regency, West Papua Province. *Jurnal Sylva Lestari*, 8(2), 197. <https://doi.org/10.23960/jsl28197-206>
- Miles, M. B., & Huberman, A. M. (2015). *Qualitative Data Analysis (terjemahan)*. UI Press.
- Nainggolan, D. I., Dampa, D., & Palinggi, Y. (2022). *Jurnal Sosio Agri Papua Vol 11 No 1 Juni 2022*. 11(1), 7. [files/806/228786408.pdf%0Afiles/792/Nainggolan et al. - 2022 - Jurnal Sosio Agri Papua Vol 11 No 1 Juni 2022.pdf](files/806/228786408.pdf%0Afiles/792/Nainggolan%20et%20al.%20-%202022%20-%20Jurnal%20Sosio%20Agri%20Papua%20Vol%2011%20No%201%20Juni%202022.pdf)
- Prasetyono, D. W. (2019). Pengembangan Kapasitas Kelembagaan Kelompok Tani Sebagai Pilar Pemberdayaan Petani. *Prosiding Konferensi Nasional Pengabdian Kepada Masyarakat Dan Corporate Social Responsibility (PKM-CSR)*, 2, 1285–1293. <https://doi.org/10.37695/pkmcsr.v2i0.458>
- Prayogi, R., & Danial, E. (2016). Pergeseran Nilai-Nilai Budaya Pada Suku Bonai Sebagai Civic Culture Di Kecamatan Bonai Darussalam Kabupaten Rokan Hulu Provinsi Riau. *Humanika*, 23(1), 61. <https://doi.org/10.14710/humanika.23.1.61-79>
- Pujiriyani, D. W. (2022). Deagrarianization Problem and The Implications on Agricultural Policy in Indonesia. *MIMBAR: Jurnal Sosial Dan Pembangunan*, 10, 275–284. <https://doi.org/10.29313/mimbar.v0i0.9415>
- Radcliffe, C., Parissi, C., & Raman, A. (2016). Valuing Indigenous Knowledge in the Highlands of Papua New Guinea: A Model for Agricultural and Environmental Education. *Australian Journal of Environmental Education*, 32(3), 243–259. <https://doi.org/10.1017/ae.2016.19>
- Raharto, S. (2016). Institutional Development Model Cocoa Farmers in East Java Province District Blitar. *Agriculture and Agricultural Science Procedia*, 9, 95–102. <https://doi.org/10.1016/j.aaspro.2016.02.131>
- Rani Pundir, & Ajay Surana. (2016). Constructivism Learning: A Way to Make Knowledge Construction. *International Journal of Indian Psychology*, 3(2). <https://doi.org/10.25215/0302.190>
- Reincke, K., Vilvert, E., Fasse, A., Graef, F., Sieber, S., & Lana, M. A. (2018). Key factors influencing food security of smallholder farmers in Tanzania and the role of cassava as a strategic crop. *Food Security*, 10(4), 911–924. <https://doi.org/10.1007/s12571-018-0814-3>

- Shiferaw, B. A., Okello, J., & Reddy, R. V. (2009). Adoption and adaptation of natural resource management innovations in smallholder agriculture: reflections on key lessons and best practices. *Environ Dev Sustain*, 11, 601–619.
- Sianipar, J. E., Hartono, S., Hutapea, R. T., Badan, S., Pertanian, L., Ekonomi, S. P., Ugm, P., Balitka, P., & Litbang Pertanian, B. (2013). Analisis Ketahanan Pangan Rumah Tangga Tani di Kabupaten Manokwari. *Sepa*, 8(2), 68–74. <http://agribisnis.fp.uns.ac.id/wp-content/uploads/2013/10/03-Jeffry-E-Sianipar-Slamet-H.-Ronal-Tp-Hutapea-Analisis-Ketahanan-Pangan-Rumah-Tangga-Tani-Di-Kabupaten-Manokwari.pdf>
- Tapi, T., Kurnia, G., Setiawan, I., & Sumule, A. (2020). Shifting Cultivation of Arfak Farmer in Somi and Indisey Villages. *MIMBAR: Jurnal Sosial Dan Pembangunan*, 36(1), 175–185. <https://doi.org/10.29313/mimbar.v36i1.5610>
- Tapi, T., & Makabori, Y. Y. (2021). Program Pembangunan Kampung: Perspektif Fungsional dan Konflik dalam Konstruksi Sosial Masyarakat Suku Arfak di Kabupaten Manokwari. *Jurnal Triton*, 12(2), 27–37. <http://jurnal.polbangtanmanokwari.ac.id/index.php/jt/article/view/204%0Ahttps://jurnal.polbangtanmanokwari.ac.id/index.php/jt/article/download/204/177>
- Turua, U., Hadi, S., Juanda, B., & Murniningtyas, E. (2014). Ekologi Dan Budaya Petani Asli Papua Dalam Usahatani Di Kabupaten Keerom. *Sosiohumaniora*, 16(3), 234. <https://doi.org/10.24198/sosiohumaniora.v16i3.5762>
- Wambrauw, L. T., Martin, S., & Addison, R. (2019). The Nature of Papuan Women Indigenous Entrepreneurship in Informal Agricultural Sector (A Case of Papuan Women Traders in Manokwari and Surrounding Areas of West Papua- Indonesia). *Salasika*, 2(1), 77–94. <https://doi.org/10.36625/sj.v2i1.26>
- Yaku, A., Trirbo, D., Siahaenena, A., Taberima, S., Iyai, D. A., & Monim, H. (2019). Sustainable gardening management in the Arfak farmer tribe at Kabupaten Pegunungan Arfak, Province of Papua Barat. *Agrika*, 13(2), 101–115. <https://publishing-widyagama.ac.id/ejournal-v2/index.php/agrika/article/view/993/984>.