

From Narrow and Elongated to Proportional: Enhancing Cultivation through Shape Optimization in Rural Landscapes

Latifah Nur Milati^{1*}, Dwi Wulan Pujiriyani², Sugiasih³

¹Land Office of Barito Kuala Regency, South Kalimantan, Indonesia

^{2,3}Sekolah Tinggi Pertanahan Nasional, Yogyakarta, Indonesia

*Corresponding Author: nurmilatilatifah@gmail.com

Received: May 23, 2025; Reviewed: May 27, 2025; Accepted: August 22, 2025

Abstract: This research aims to examine the transformation of narrow, elongated land in Triharjo Village into a more proportional shape through agricultural land consolidation activities. In the 1990s, the community self-organized, leading to a mismatch between the physical and legal conditions of the land. The government's initiative to accelerate systematic land registration through the Land Management and Policy Development Program in 2006-2007 also proved unable to accommodate this issue. The research method used is a qualitative approach with a case study. Data was collected through observation, document study, and in-depth interviews. Data analysis was conducted using the Miles and Huberman analysis method with 3 stages: data reduction, data presentation, and conclusion drawing. The research results show that the majority of agricultural land in Triharjo is less than 200 m² in size, with an unfavorable length-to-width ratio for cultivation. This condition stems from past inheritance processes that adhere to the principle of justice and the saying 'kabeh mangku dalan.' The implementation of the agricultural land consolidation program in 2019-2020 was able to achieve consistency between physical and legal conditions, provide proportional land parcel shapes for cultivation, and supply agricultural support infrastructure in the form of farm roads and irrigation channels.

Keywords: Agricultural land consolidation, Disproportionate land, Inheritance, Land fragmentation.

INTRODUCTION

The agricultural sector in Indonesia still plays a significant role in supporting the economy and meeting the basic needs of society (Ayun et al., 2020). During the period 2019-2022, the agricultural sector contributed an average of 13.02% to the national Gross Domestic Product (GDP), making it the second largest contributor after the processing industry (Central Bureau of Statistics, 2023). Not only did the agricultural sector contribute positively to national GDP, but it also served as a buffer for the country's economy during the global crisis caused by the Covid-19 pandemic, with agricultural commodity exports increasing by 25.19% compared to the previous year (Bachtiar et al., 2023).

Despite its strategic role in the national economy, the agricultural sector in Indonesia faces serious challenges. The results of the 2018 Intercensal Agricultural Survey (SUTAS) show that 59.07% of farmer households in Indonesia only own agricultural land less than

0.5 hectares (Directorate General of Agricultural Infrastructure and Facilities, Ministry of Agriculture, 2022). With limited agricultural land ownership, the scale of farmers' income returns tends to be suboptimal, which impacts their ability to access agricultural production inputs (Fitriani et al., 2017). It's not surprising that more than half of poor households in Indonesia (51.33%) come from farming backgrounds (Annur, 2022). In fact, on the other hand, through Government Regulation in Lieu of Law (Perpu) Number 56 of 1960 concerning the Determination of Agricultural Land Area, the government has set a minimum limit for agricultural land ownership per farmer household at 2 hectares with the aim of ensuring that farmers receive sufficient income for a decent living (Suprastyo, 2018).

The fragmentation of agricultural land is one of the driving factors behind the limited land ownership by farmers. Fragmentation of agricultural land is the division caused by buying and selling activities, the inheritance system, and the social dynamics of marriage (Susanti & Sabariman, 2021). Land fragmentation in agriculture is common in developing countries and is often viewed negatively by various parties because it impacts crop yields, productivity, income potential, and the loss of agricultural land (Barati et al., 2021). These negative impacts arise because land fragmentation makes the land area smaller and its shape less favorable, leading to an increase in farmers' working hours (Janus et al., 2023).

Experiences from other countries, such as Denmark, show that the concept of rearranging agricultural land through land consolidation began to be introduced as an effort to increase productivity and reduce the negative impacts of agricultural land fragmentation (Ntuhinyurwa & Vries, 2021). Through land consolidation, land shapes that are less advantageous due to fragmentation can be rearranged to be more organized, accompanied by the provision of supporting agricultural infrastructure, thereby impacting efficiency, optimization, and increased productivity (Hasni, 2016). Consolidation of agricultural land is also considered one of the strategic efforts to create effective land use, given that some agricultural areas still lack adequate infrastructure, leading to inefficiencies in agricultural management (Sitorus, 2015).

Land consolidation in Indonesia is legally protected by the Regulation of the Minister of Agrarian Affairs and Spatial Planning / National Land Agency Number 12 of 2019 concerning Land Consolidation. This regulation defines agricultural land consolidation as the consolidation of land carried out on agricultural lands in rural areas (Rosita & Susilowati, 2023). As for one of the rural areas in Indonesia targeted for agricultural land consolidation, it is Triharjo Village, Pandak District, Bantul Regency, D.I. Yogyakarta Province. The implementation of agricultural land consolidation at this location is based on Bantul Regent's Decree Number 496 of 2019 concerning the Determination of Land Consolidation Locations in Triharjo Village and Gilangharjo Village, Pandak District, Bantul Regency. Referring to this regulation, the government has designated a 3-hectare agricultural land consolidation site in Triharjo Village. Triharjo Village faces the problem

of agricultural land fragmentation, resulting in the majority of farmers having land that is not ideal, making it less than optimal for agricultural management (Directorate of Land Consolidation and Land Development, 2022).

The agricultural land in Triharjo, specifically in the Juwono Hamlet, has a unique condition: it is narrow and elongated like a tunnel, running from east to west. Ironically, the majority of this land (64%) is less than 200 m² in size, with an unfavorable length-to-width ratio, making rice cultivation less efficient. Eighty point forty-five percent of the land at this location has a length between 80.1 and 120 meters, while on the other hand, 51% of the land has a width between 0 and 2 meters. The creation of this disproportionate land is rooted in past inheritance processes that adhered to the principles of justice and the saying 'kabeah mangku dalan' (everyone faces the road, everyone has access to the road). With this principle, land division is done by dividing the width of the land facing the road among the heirs, without considering the physical condition of the land or whether it is effective for use or not.

The implementation of this agricultural land consolidation helps smallholder farmers to have slightly larger landholdings with better shapes, thereby making agricultural production more competitive (Gedefaw et al., 2019). Furthermore, consolidating agricultural land in Triharjo Village facilitates farmers' mobilization by providing access roads to their farms (Bantul District Land Office, 2022). The implementation of the agricultural land consolidation program in Triharjo Village is considered the right step to organize and optimize agricultural land in this location. The increasingly fragmented reality of land ownership and the urgency of maintaining the use of paddy fields are the background for the importance of implementing agricultural land consolidation (Arnowo, 2022). Moreover, the majority of rural areas—including Triharjo Village—tend to experience problems of inefficient agricultural land use due to limited agricultural infrastructure (Putraningtyas et al., 2024). Through agricultural land consolidation, farmers in Triharjo are finding it easier to cultivate their land because of the change in land shape, which is no longer narrow and elongated—in Javanese, the change is called "njlirit"—and is accompanied by the addition of agricultural infrastructure in the form of farm roads that facilitate farmer mobility (Bantul District Land Office, 2022). This research is important to conduct in order to provide an empirical overview that agricultural land consolidation can be a solution to address the negative impacts of land fragmentation.

Research on land consolidation has been conducted extensively in the past. However, existing studies tend to focus on the implementation challenges of agricultural land consolidation activities. There is almost no research on agricultural land consolidation that examines the impact of land consolidation, particularly on the impact on farm income and the achievement of the minimum agricultural land area to meet the standards of a Decent Standard of Living (KHL). Research on farm income was only found in studies on

agricultural land consolidation, which is not a program of the Ministry of ATR/BPN but rather a program of the Directorate General of Agricultural Infrastructure and Facilities (Ditjen PSP), as can be seen in the research by Fauziah (2019) in Sukoharjo Regency, which found that land consolidation had increased rice farm production, rice farm income, and rice farm income. The average farmer production before land consolidation was 14,424.49 kg/ha, while after land consolidation it was 14,829.40 kg/ha. The average rice farm income before land consolidation was Rp41,654,356/ha/year, while after land consolidation it became Rp44,516,782/ha/year. Meanwhile, the risk of rice farm income before land consolidation was 73.02%, and after land consolidation it became 74.42%. This increase in farm income occurred in line with the increase in farm income.

Findings regarding constraints can be seen in the research by Rosita & Susilowati (2023) in Ngawi Regency. This research shows that the implementation of land consolidation in Ngawi Regency has faced rejection from the majority of the community who disagree with the location selection, those who have not yet divided their inheritance rights, and those who disagree when the consolidated land is registered and certified. Similar findings were also observed in research (Ishak et al., 2011) on the land consolidation program in Gedebage District. The community feels that the land they occupy is in a comfortable enough condition that land consolidation is not necessary.

Another finding regarding constraints can be observed in the study by Nastiandi (2019) in Giri Sasak Village, Buntage Hamlet, Kuripan District, West Lombok. This study shows that land consolidation activities involving 24 hectares of land with 80 land parcels are still facing challenges. Generally, the process of implementing land consolidation activities in Giri Sasak Village consists of a preparation stage (counseling, guidance to the community, exploring agreements, approval, data collection of subjects and objects, and perimeter measurement) and an implementation stage (team formation, measurement and mapping, topographic activities, preparation of land consolidation spatial planning designs, construction, and certification activities). As for the obstacles faced in the agricultural land consolidation activities in Giri Sasak Village, they include some landowners being unable to attend the extension activities, so the extension was carried out several times; landowners not having their population administration in order (National Identity Card, Family Card, etc.), which hindered the fulfillment of administrative requirements; and the boundary markers of the landowners being lost because the stakes installed by the land office surveyors of West Lombok were removed.

In line with Nastiandi (2019), Hanun's (2021) findings regarding the development of agritourism potential in Mulyo Sari Village, Pesawaran Regency, indicate that its implementation is not yet optimal. This is because some stages have not yet been completed. In addition, there are several aspects that hinder this activity, such as inadequate regulations governing land consolidation, limited public understanding of land

consolidation, failure to reach an agreement on the amount of land contribution because 30% of landowners disagree, and insufficient funds held by land consolidation participants, which hinders the financing of land consolidation. Hidayati (2022), in her research in Jembatan Kembar Village, Lembar District, West Lombok Regency, explained the obstacles faced during land consolidation activities: some landowners did not agree with the land consolidation program, some landowners were outside the area, land consolidation participants expected compensation, and there was land conversion after the agricultural land consolidation activity.

This research will fill the gap in previous studies, specifically regarding the optimization of its use as agricultural land or for farming after land consolidation. The question to be answered is: what is the history of cultivation difficulties faced by farmers due to the physical characteristics of their agricultural land? How do farmers carry out interventions through agricultural land consolidation? How does landform change after agricultural land consolidation affect farming practices?

METHODS

This research was conducted in Triharjo Village, Pandak District, Bantul Regency, D.I. Yogyakarta Province, more specifically in Juwono Hamlet, which is one of the targets for implementing agricultural land consolidation. The research method used is a qualitative research method. This method was chosen by the author because it was considered the most appropriate way to explore the transformation of agricultural landforms in Triharjo Village through the land consolidation program. This aligns with the opinion of Moleong (2008) which states that qualitative research is research aimed at understanding events/phenomena related to the experiences of research subjects through description in a specific natural context.

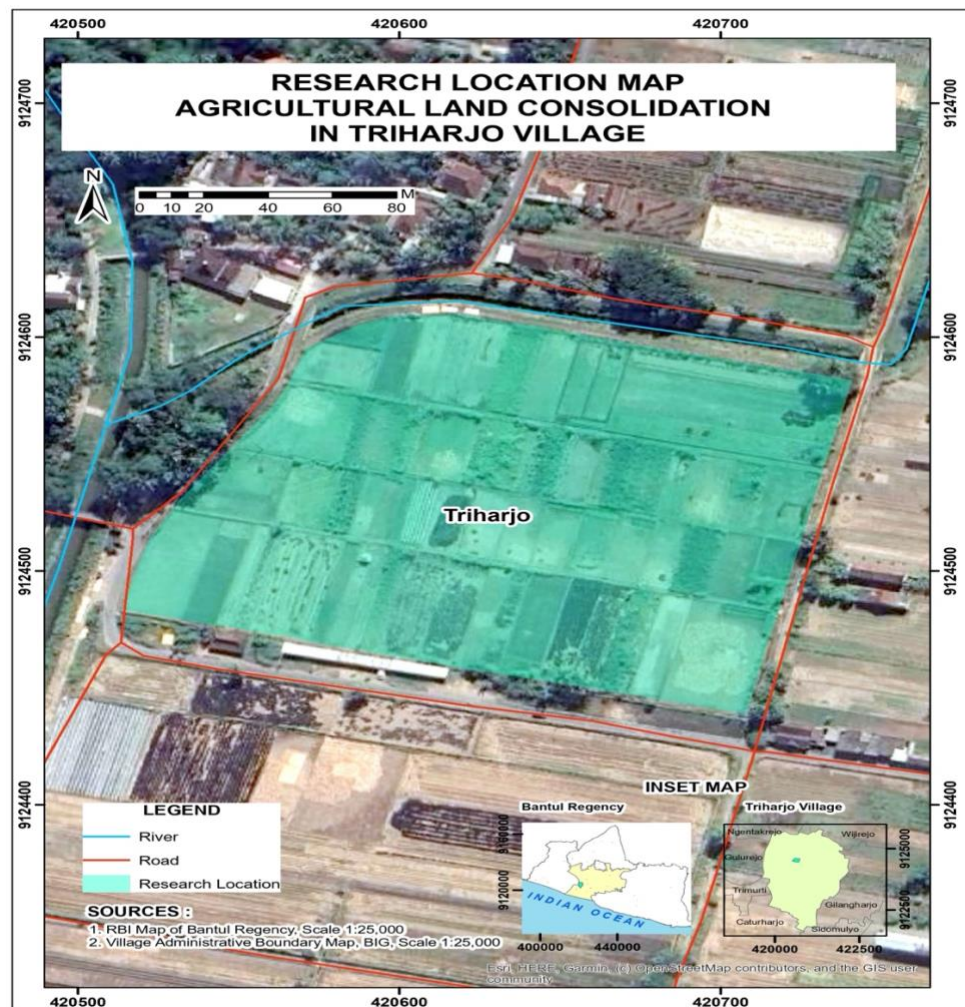


Figure 1. Research Location Map
Source: Processed by the Researcher, 2025.

This study collected data using observation techniques, document analysis, and in-depth interviews. Observations in this study were conducted by watching the existing conditions of agricultural land and supporting infrastructure after restructuring. We conducted the document study by scrutinizing the land consolidation documents in Triharjo. As for data collection through in-depth interviews, it was conducted with purposively selected informants, including the team planning land consolidation for agricultural use (Regional Office of the National Land Agency of the Special Region of Yogyakarta Province), the team implementing land consolidation for agricultural use (Land Office of Bantul Regency), the Triharjo Village officials, the Head of Juwono Hamlet, and representatives of several land consolidation participants. The collected data is then analyzed in three stages: data reduction, data presentation, and verification/conclusion drawing (Creswell, 1997) in (Ridlo, 2023). Through a case study approach, an in-depth exploration of the transformation

of agricultural landforms in Triharjo Village through the land consolidation program can be conducted by examining information from various parties involved in it.

Data collection in this study used observation techniques, document study, and in-depth interviews. Observations in this study were conducted by observing the existing conditions of agricultural land and supporting infrastructure after restructuring. Meanwhile, the document study was conducted through an examination of land consolidation documents in Triharjo. As for data collection through in-depth interviews, it was conducted with purposively selected informants, including the team planning land consolidation for agricultural use (Regional Office of the National Land Agency of the Special Region of Yogyakarta Province), the team implementing land consolidation for agricultural use (Land Office of Bantul Regency), the Triharjo Village officials, the Head of Juwono Hamlet, and representatives of several land consolidation participants. The collected data is then analyzed in three stages: data reduction, data presentation, and verification/conclusion drawing (Sugiyono, 2013).

RESULTS AND DISCUSSION

A Retrospective on Pre-Consolidation of Agricultural Land in Triharjo

Agricultural land in Triharjo Village, especially in Juwono Hamlet, has a unique condition: it is narrow and elongated like a tunnel, running from east to west (Figure 1). With this condition, the local community often uses the Javanese term 'njlirit,' meaning land that appears to have small, elongated lines. This narrow, elongated shape presents a unique challenge for farmers because agricultural land, particularly narrow rice paddies, tends to limit the mobilization of agricultural tools and machinery (alsintan), which can hinder farming activities. However, the use of alsintan can increase rice production, productivity, and cropping index (Hantoro et al., 2020).

The narrow, elongated condition of the land in Triharjo is influenced by the limited land area. Referring to the results of physical and legal data collection by the Bantul District Land Office, more than half (64%) of the land consolidation objects in Triharjo have an area of less than 200 m² (Figure 2). Ironically, of the 64% of land consolidation objects with an area of less than 200 m², 58% of them are land with an area of less than 100 m². The largest land parcel at this location is the one with NUB (Field Serial Number) 121, which is 969 m². Additionally, other agricultural lands are distributed across the ranges of 201-400 m² (30 plots), 401-600 m² (16 plots), and 601-800 m² (1 plot). With such a small area of agricultural land ownership, it's quite difficult for farmers to increase productivity and income from their farming operations (Ilyas, 2022).

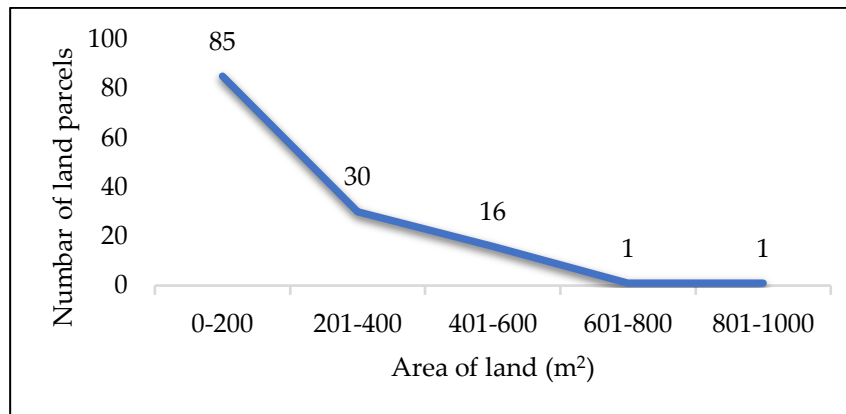


Figure 2. Land Area in Triharjo Pre-Agricultural Land Consolidation Source: Processed by the Researcher, 2024.

Not only is it influenced by the narrow width, but the appearance of *njlirit* land in Triharjo is also caused by the less-than-ideal length-to-width ratio of the land. Eighty point forty-five percent of the land at this location has a length between 80.1 and 120 meters, while on the other hand, 51% of the land has a width between 0 and 2 meters (Table 1). This condition describes a very unfavorable and disproportionate comparison of the width and length of the land area. With the narrow, elongated soil conditions, plowing the rice fields becomes more difficult because agricultural machinery, even a two-wheeled tractor, has a working width of 0.4 meters for plowing and 1.2 meters for harrowing (Karimah et al., 2020), so that paddy fields with a width below them cannot be worked using a two-wheeled tractor.

Table 1. Land Length and Width in Triharjo Pre-Land Consolidation

Length (m)	Number	Persentase	Width (m)	Number	Persentase
0-40	4	3,01%	0-2	68	51%
40,1-80	15	11,28%	2,1-4	40	30%
80,1-120	107	80,45%	4,1-6	24	18%
120,1-160	0	0,00%	6,1-8	0	0%
160,1-200	7	5,26%	>8,1	1	1%

Source: Processed by the Researcher, 2024.

The disproportionate distribution of agricultural land in Triharjo is the result of inheritance processes in the past. Based on information from the Head of Welfare of Triharjo Village, in the past, the people of Triharjo generally owned land in several different locations, not all of which were strategically located. Therefore, in the inheritance process, the people of Triharjo highly uphold the principle of justice and the principle of '*kabeh mangku dalan*' (everyone faces the road, everyone has access to the road). Guided by these principles, each piece of land owned by the parents was divided equally among their heirs. The division process is carried out by dividing the width of the land facing the road among the heirs, without considering the physical condition of the land or whether it is effective for use or not (see illustration in Figure 3). This division process is applied to all land owned

by the testator so that each heir can benefit from the land at each location. This is the type of inheritance method that gave rise to the narrow, elongated (njlirit) agricultural lands in Triharjo.



Figure 3. Illustration of Land Inheritance Results in Triharjo in the Past, Dividing Inherited Land Based on Land Width

Source: Processed by the Researcher, 2024

Farmers' Self-Arrangement: The Genesis of Physical-Legal Discrepancies in Agricultural Land in Triharjo

For rural communities, land is not just a place to live but also the main source of livelihood because it plays an important role as a means of production in agricultural activities (Angkoso et al., 2020). Therefore, the condition of agricultural land greatly affects the livelihoods of rural farmers. As previously explained, the condition of the agricultural land in the Triharjo community is very concerning, with an unfavorable and ineffective width-to-length ratio for agricultural cultivation. Ironically, in the past, there was only one main irrigation channel, located on the east side, which, being narrow and elongated, made the irrigation process time-consuming. Facing similar difficulties and constraints, the

farmers of Triharjo finally discussed and agreed to independently manage their land to make it more effective for farming. This arrangement process is based on mutual agreement and is not subject to intervention from any party. This is as explained by the Head of Juwono Hamlet thru the following interview excerpt.

"Well, that area used to consist of rice paddies that stretched from west to east." That was after it was planted with sugarcane, with the residents themselves being so harmonious that its shape was changed (lengthwise) from north to south. It ended up short. The issue is that the length of the west-east neck measures approximately 196 meters. So, the person has rice fields that are 45 cm wide. Yes, it can't be worked on. Therefore, in the past, sugarcane plants were transformed directly into different shapes by family members. "I don't know whether the calculations are correct or not; the important thing is that we agree." (S, Head of Juwono Hamlet, November 2023)

According to community information, the self-arrangement process in Triharjo took place around the 1990s. At that time, agricultural land was still narrow and elongated, running east-west, and was owned by the community with proof of ownership in the form of a letter. This arrangement process begins with a historical search of the land. Referring to the information provided by the Head of Juwono Hamlet, the rice fields in this location initially consisted of 33 glebakan (a term often used by the residents of Juwono Hamlet to refer to one complete plot of land owned by the original owner). Each of these ponds was originally owned by a single owner with varying sizes. Nine ponds are owned by the owner, each with an area of $\pm 1,000 \text{ m}^2$, while the remaining ponds are owned by the owner, each with an area of $\pm 900 \text{ m}^2$. During this self-management period, the majority of the original owners of the 33 glebakan had passed away, so the land at this location had been fragmented due to the inheritance process. Therefore, after obtaining the initial owner data and the area of land owned, the historical land tracing process was continued by identifying the current number of landowners and the area of land they own.

The latest data on the number of landowners and their land area is used as a reference for re-measuring the land layout, changing it from east-west orientation to north-south orientation. This change in land shape from east-west to north-south is done to reduce the length of the rice fields and increase their width, making the length-to-width ratio more optimal for cultivation. An exception is made for those willing to occupy the ayom land (rice fields located near residential areas) in the westernmost part, where the area of land to be cultivated by farmers will be increased compared to the original land area. The increase in cultivated areas comes from an agreement among the residents, and the change is limited to physical changes in the field, not legal ones. The addition of cultivated land for those occupying the ayom land was done because of its proximity to residential areas, which was considered to result in lower production yields. With this agreement to increase

the area, the non-ayom lands are automatically reduced because they are used to increase the area of the ayom lands.

The order of land parcel placement is determined through deliberation. Initially, all landowners were offered the opportunity to occupy the ayom land, and if they were willing, the area of their cultivated land would be increased. Subsequently, after obtaining data on farmers willing to occupy the ayom land, the order of land plot placement continued with the landowners who were originally located furthest south. Based on the results of this self-arrangement, the land is broadly divided into four blocks, each separated by a ditch (Figure 4). The 4 blocks resulting from self-arrangement have the following details: (a) the southernmost block is reoriented lengthwise from north to south, consisting of 9 glebakan, each with an area of $\pm 1,000 \text{ m}^2$; (b) 2 central blocks, each consisting of 8 glebakan, with 1 glebakan having an area of $\pm 900 \text{ m}^2$; (c) the northernmost block, which, by agreement of the owners, remains oriented east-west, consisting of 8 glebakan, with 1 glebakan having an area of $\pm 900 \text{ m}^2$. It was with this self-arrangement that the initial discrepancy between the physical form in the field and the legal evidence in the letter C was created.



Figure 4. Image of Triharjo Agricultural Land After Self-Management in 2019.
Source: Processed by the Researcher, 2024.

Following self-management in the 1990s, the people of Triharjo have consistently adhered to the agreement, resulting in no land issues or disputes. Around 2006-2007, the people of Triharjo received an offer of a free asset legalization program, known as the

LMPDP program, a few years after their self-organization. LMPDP, or the Land Management and Policy Development Project, is a program for mass and systematic land rights registration without fees, as the registration costs are covered by the central government using funds from a World Bank loan assistance grant (Suyuthi, 2011).

According to the head of Juwono Hamlet, around 90% of the landowners in the self-managed development area are participating in the LMPDP program. Unfortunately, the asset legalization in that year was not yet able to accommodate the shape and area of land resulting from self-management. The land certificates issued still depict narrow, elongated land ownership, running east-west, as it was before the self-management arrangement. This is because, according to the Triharjo Village administration, the land at that location is divided into two parcels: parcel b and parcel c. Parcel B covers the eastern area, while parcel C covers the western area. These items must stand alone and cannot be combined. In fact, with the initial east-west orientation of the land, the majority of land parcels would automatically consist of two lots. However, as a result of self-rearrangement, the land was reshaped to run north-south, so the majority of land parcels now consist of only one lot. Considering this, the land registration process was still carried out in the east-west orientation, even though the community had agreed to change it to north-south for farming purposes. Based on this provision, as a result, many landowners have more than 1 certificate for a single piece of land (see illustration in Figure 5).



Figure 5. Illustration 1 Land Parcel Consisting of 2 Plots, Resulting in the Issuance of 2 Certificates

Source: Processed by the Researcher, 2024.

Implementation of Agricultural Land Consolidation in Triharjo

For years, the people of Triharjo have persevered with agricultural land that has varying physical and legal conditions. Although there have never been any land issues or disputes, these differences in conditions have sometimes hindered the land sale process. Based on past events, buyers often feel confused when intending to purchase land in this location because the images on the land certificates are not found in the field. Meanwhile, on the other hand, the sellers are often heirs who are unaware of the land's history, so they assume the land they own is as it appears on the ground, which has been self-managed. Therefore, the village head often serves as an intermediary, explaining the history of the land. Additionally, the discrepancy between the physical soil conditions and those recorded in the land certificate hinders the inheritance process because the land division must comply with the certificate's specifications (which indicate a west-east orientation), while the actual shape of the land parcel has changed to a north-south orientation.

Unlike the findings from the research Ishak et al., (2011) and Rosita & Susilowati (2023) despite public rejection of the previous land consolidation program, the launch of the agricultural land consolidation program received a warm welcome from the Triharjo Village community. The community of Triharjo Village, especially the residents of Juwono Hamlet, felt that this was a way to overcome the problem of their land conditions not being suitable. Since the initial socialization regarding agricultural land consolidation, landowners have already expressed their support for this program. The landowners didn't even mind even though the size of their land would be reduced for the provision of farm road infrastructure and irrigation channels. The owners also did not demand compensation for the loss of a portion of the land used for the provision of infrastructure. In addition, the owners did not dispute among themselves over specific positions for their land.

Land consolidation in Triharjo took place in 2019-2020. The basis for implementing this program is Bantul Regent's Decree Number 496 of 2019 concerning the Determination of Land Consolidation Locations in Triharjo Village and Gilangharjo Village, Pandak District, Bantul Regency. This program is implemented by involving 133 land parcels with an area of approximately 26,532 m² from 82 landowners. Broadly speaking, the implementation of agricultural land consolidation at this location is divided into two phases: planning activities in 2019 and implementation activities in 2020. The planning activities carried out in 2019 include team formation and initial data preparation, spatial planning and sectoral policy studies, social mapping and regional potential analysis, initial design map creation and agreement, and location determination. Meanwhile, the implementation activities in 2020 include team formation, collection of physical and legal data, land consolidation object assessment, preparation of land consolidation design and action plan, land rights release and confirmation of land as a land consolidation object,

implementation of the design (land consolidation) in the field (staking out), and issuance of rights grant decisions and land ownership certificates.

The implementation of agricultural land consolidation in Triharjo began with the planning phase. Referring to the Regulation of the Minister of Agrarian Affairs and Spatial Planning/National Land Agency Number 12 of 2019 concerning Land Consolidation, the land consolidation plan is outlined in the Land Consolidation Planning Document, which contains 5 stages, namely spatial planning and sectoral policy studies, social mapping and area mapping analysis, initial land consolidation design sketch, Minutes of Agreement of Land Consolidation Participants, and determination of the land consolidation location. From these five stages, overall, all land consolidation planning activities in Triharjo have complied with applicable regulatory provisions. As for the products produced, only the SK of the planning team is not yet in accordance with the applicable regulations. With a total area of $\pm 26,532 \text{ m}^2$, land consolidation in Triharjo is classified as small-scale land consolidation, so the formation of the land consolidation planning team is determined by the Head of the Land Office. Meanwhile, in this program, the planning team was formed using the regional office head's decree. This is due to budget constraints. Referring to the information provided by the Head of the Land Arrangement and Empowerment Section of the Bantul District Land Office, the budget for land consolidation planning is included in the Budget Implementation List (DIPA) of the DIY BPN Regional Office, so the implementation of land consolidation activities is carried out by the DIY BPN Regional Office.

After the planning activities concluded with the product being a decree establishing the location, the land consolidation activities in Triharjo were followed by the implementation phase. Referring to Article 21 paragraph (2) of the Minister of Agrarian Affairs and Spatial Planning/National Land Agency Regulation Number 12 of 2019 concerning Land Consolidation, the implementation of land consolidation includes the following activities: (1) collecting physical, legal, and valuation data of land consolidation objects; (2) preparing land consolidation designs and action plans; (3) releasing land rights and confirming land consolidation objects; (4) implementing land consolidation designs (staking out); and (5) issuing land ownership certificates and delivering the results of land consolidation. In general, the implementation of agricultural land consolidation activities in Triharjo is in accordance with applicable regulations, except during the preparation of the land consolidation design and action plan.

Referring to the Technical Guidelines for Land Consolidation Implementation in 2020, the preparation of the land consolidation design begins with the implementing team and is then discussed with the land consolidation participants. However, the community itself, not the planning team, created the proposed design at this location. The gap between the applicable regulations and on-the-ground implementation is caused by: (1) the physical

condition of the land before consolidation differs from its legal condition; (2) the community's desire for the land consolidation design to be adjusted to the current existing conditions; (3) the community already has its own plans regarding the agricultural support infrastructure needed; (4) the community knows the history and condition of the land consolidation object with certainty; (5) the limited time for land consolidation (1 fiscal year), making drastic changes to the land consolidation object impossible. Additionally, at this stage, the product produced, which is an action plan, is not fully compliant with the technical guidelines because it does not yet include the stages and schedule for construction implementation.

To facilitate the implementation of land consolidation in Triharjo, the coordination team and the implementing team formed an association of land consolidation participants. This gathering was named "Margo Rukun Juwono" and was formed with the agreement of the prospective land consolidation participants, who were attended by 90 people at that time. Later, the managers of this gathering of participants became better known as "Pokmas," or Community Groups. It was the Pokmas party that also helped in the collection of physical and legal data. Furthermore, in collecting this data, the Physical Task Force (Satgas) found it difficult due to differences in the shape of the land parcels resulting from self-arrangement. On the other hand, the majority of landowners no longer remember the position of their land according to the land ownership documents they possess. This condition is further exacerbated by the loss of some of the land ownership markers belonging to the community. Therefore, the Physical Task Force approached and coordinated with the Pokmas, particularly the village heads and the heads of the farmer groups who knew and understood the conditions in the area. The Physical Task Force determined the condition of the land parcels according to the community's land ownership documents by coordinating and tracking land parcel locations using the survey certificate's survey letter numbers, which allowed the parcels to be mapped on the perimeter map and detailed map. Here is an excerpt from an interview with the Physical Task Force regarding the challenges encountered during the collection of physical data.

"Of course. It's very difficult. Because of what? Even the owner doesn't know, as he doesn't know where my certificate is. So, he's holding the certificate; he doesn't know, but my weakness is like this—his certificate is like this. It's all in one block, all like this. (EEP, Land Consolidation Physical Task Force, Bantul Land Office, April 4, 2024).

Another obstacle encountered during the implementation of agricultural land consolidation in Triharjo is the existence of 5 land parcels whose land certificates are currently being used as collateral for bank loans, group motor raffles, and savings and loan cooperatives, making it impossible to release the land rights for these parcels. However, if

these five land parcels cannot be released, it could alter the agreed-upon land consolidation design. Basically, during the collection of legal data, the implementing team had notified the participants to provide information to the team if their land ownership documents were used as collateral. But the land consolidation participants had not heeded the notification and only informed the team when the land rights were about to be released. Observing this issue, representatives of the implementing team, the head of the community group, and the owners of the relevant land visited the creditor's office to negotiate the release of the land certificates. Referring to the information provided by the head of the community group, during the negotiations, a request for a land swap was made to the lending institution. However, the negotiation process has not yielded success. Observing this situation, with high enthusiasm for the land consolidation program, all land consolidation participants whose certificates were used as collateral at banks or other savings and loan institutions finally repaid the loans they had taken out. Thus, all land consolidation objects can be released before the Head of the Bantul Regency Land Office.

Through agricultural land consolidation activities, the land in Triharjo is not only harmonized between its physical and legal conditions, but it is also being rearranged according to the area stated in the land ownership documents. This is because the cultivated land area resulting from self-arrangement is not yet accurate, as there has been an increase in the area of ayom land and a decrease in the area of non-ayom land. "Ayom land" is a term often used by the people of Triharjo (especially Juwono Hamlet) to refer to rice fields located near residential areas. This land is often considered to produce a less favorable harvest compared to rice fields located away from residential areas. Some land parcels adjacent to the same owner also had their certificates merged, considering that during the legalization of LMPDP assets, one land parcel could have more than one certificate due to differences in land parcel boundaries. As a result of this arrangement, the number of land parcels changed from the original 133 parcels with 82 owners to 86 parcels with 82 owners. There was a total reduction in area, from an initial $\pm 26,532 \text{ m}^2$ to $\pm 25,326 \text{ m}^2$, due to the addition of agricultural support infrastructure such as farm roads and irrigation channels.

The follow-up plan after land consolidation is outlined in the land consolidation action plan, which is prepared and approved by the coordination team and stakeholders. As for the follow-up plan, it includes: (1) construction of 2 farm access roads, 170 meters and 192 meters long with a width of 2 meters, proposed thru the Kecamatan Indicative Ceiling (PIK) at the Musrenbangdes (Village Development Planning Meeting); (2) rehabilitation of 180.5 meters of tertiary irrigation network, proposed by the Farmer Groups to the Bantul Regency Department of Agriculture, Food, Marine Affairs, and Fisheries; (3) improvement of village main road quality, proposed with the Kecamatan Indicative Ceiling (PIK) at the Musrenbangdes (Village Development Planning Meeting); (4) accompaniment of farmer group agricultural activities by the Bantul Regency Department of Agriculture,

Food, Marine Affairs, and Fisheries; and (5) provision of rice and corn seed assistance to farmer groups by the Bantul Regency Department of Agriculture, Food, Marine Affairs, and Fisheries.

In the preparation of the land consolidation follow-up plan, particularly regarding the construction of two farm access roads, the Bantul Regency Department of Agriculture, Food, Marine Affairs, and Fisheries (DPPKP) reiterated the importance of caution in building these farm access roads. This is because carelessness in building farm access roads can create new mobility conveniences that can accelerate the conversion of agricultural land. We must ensure the use of these farm access roads for agricultural activities, including the transportation of seedlings and harvests, among others. The Bantul District DPPKP emphasized the need to limit the width of farm access roads to a maximum of 2 meters in order to maintain the function of agricultural land at this land consolidation site. Additionally, the DPPKP also requested the willingness of the land consolidation participants to make a statement letter stating their willingness not to change the function of agricultural land into non-agricultural land.

The DPPKP's caution initially caused concern among the community group leaders who were present at the meeting to formulate this action plan. This concern is in the form of fear that the ongoing land consolidation program will be canceled, while on the other hand, the community has expressed its approval for land consolidation and has stated its willingness to donate a portion of their land for the development of public facilities. The following excerpt from the interview articulates this concern:

"The discussion there was a bit tough. The Department of Agriculture is worried that if a road is built, agricultural land will be lost in the future, it will be converted to other uses, and if huts are built like that, they will be given a road. I was already worried even though the community's agreement was unanimous, but the department didn't approve it. The individuals who have suffered are sincere. Finally, there was a somewhat difficult discussion there, but thankfully, Agriculture agreed. There's a catch, but please, the maximum width of the path is 2 meters, no more. In fact, the farmers wanted at least 2.5, and they still needed a statement from the farmers if they wouldn't change the function." (S, Community Group Leader, March 20, 2024).

Triharjo Village's land consolidation ended in 2020, but the post-land consolidation action plan has yet to fully materialize. The distribution of seed assistance was carried out after land consolidation by the Bantul District DPPKP. This seed assistance is also provided regularly every year to farmers in each hamlet, but due to the limited amount of seeds given, the assistance is rotated each year among the agricultural land blocks in the hamlet. Farmer assistance through farmer groups has also been ongoing, even before land consolidation was implemented. This farmer assistance involves the Pandak District Agricultural Extension Center (BPP) assisting farmers in their farming endeavors. Unfortunately, according to the coordinator of the BPP Kapanewon Pandak, farmers'

activity in farming groups tends to be low. Farmers in farming groups tend to hold regular meetings infrequently, even though good communication among farmers can be established through these regular meetings, allowing problems or obstacles to be discussed together. Meanwhile, the plan for the physical development of farm access roads and irrigation channels has been proposed through the Kecamatan Indicative Ceiling (PIK) at the Musrenbangdes. Unfortunately, this physical development has not been implemented to date.

Toward Proportionality: Post-Agricultural Land Consolidation Conditions in Triharjo

Legally speaking, the implementation of agricultural land consolidation in Triharjo has brought about very significant changes. Before land consolidation was implemented, legally, there were 133 narrow, elongated land parcels, running east-west, owned by 82 people with proof of ownership in the form of land certificates (96%) and letter C (4%). The majority of these land parcels were small in area (0-200 m²) with a high proportion of non-ideal shapes (80.1-120 m² long and 0-2 m² wide).



Figure 6. Image Display Before and After Soil Consolidation
Source: Processed by the Researcher, 2024

After the rearrangement, the shape of the land parcel changed to run north-south and appeared more proportional (Figure 7). The number of land parcels decreased to 86, while the number of owners remained the same. The reduction in the number of these parcels occurred because several adjacent parcels of land with the same owner were merged after previously being separated during the issuance of certificates through the LMPDP program

due to differences in land parcels. This merger resulted in an increase in the area of several land parcels. After land consolidation, the most common land area range is occupied by the 201-400 m² group, with a percentage of 44%. This is followed by the 0-200 m² group with 33%, the 401-600 m² group with 15%, the 601-800 m² group with 7%, and the 801-1000 m² group with 1% (Figure 7).

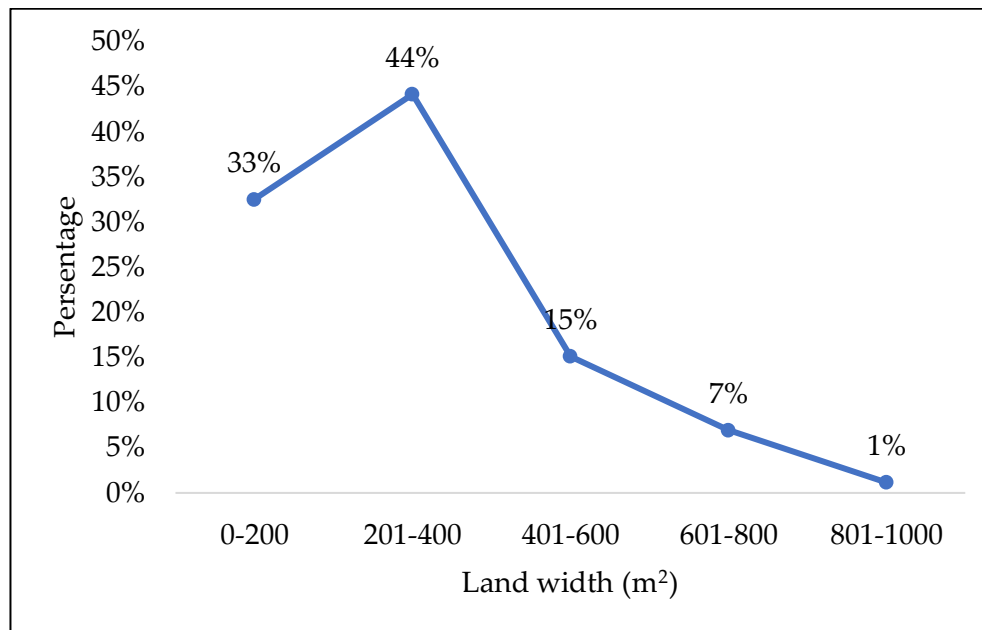


Figure 7. The area of Triharjo Land after land consolidation.

Source: Processed by the researcher, 2024.

Through rearrangement, the farmers of Triharjo no longer recognize land plots that stretch for hundreds of meters with a width of only a few centimeters. Currently, over half of the land parcels (58%) have a length of 15.1-30 meters. On the other hand, 36% of the land parcels are between 5.1 and 10 meters wide, and 30% are between 10.1 and 15 meters wide (Table 2). Only 5% of the land parcels still have a length exceeding 60 meters, namely: land parcel with NUB 11 with a length of 69.88 meters; land parcel with NUB 12 with a length of 69.74 meters; land parcel with NUB 13 with a length of 69.65 meters; and land parcel with NUB 16 with a length of 69.64 meters. These four plots of land still have a length of over 60 meters because they are all still elongated from west to east, as requested by the landowner. Nevertheless, the four plots of land are now wider than they were originally. As for the land with the narrowest width, it is the parcel of land with NUB 48, which has a width of 1.54 meters. This land parcel still has a less-than-ideal width because it is adjusted to its tiny area, which is 44 m².

Table 2. Length and Width of Land Parcels After Land Consolidation

Length of Land (m ²)	Number	Persentase	Width of Land (m ²)	Number	Persentase
0-15	4	5%	0-5	20	23%
15,1-30	50	58%	5,1-10	31	36%
30,1-45	10	12%	10,1-15	26	30%
45,1-60	18	21%	15,1-20	7	8%
>60	4	5%	20,1-25	2	2%

Source: Processed by the Researcher, 2024.

As agreed upon in the land consolidation design and action plan, the rearrangement in Triharjo is also accompanied by efforts to provide agricultural support infrastructure, namely farm roads and irrigation channels. As a result of this land consolidation, two farm access roads have been successfully built, although they have not yet been paved. Meanwhile, the irrigation canals have also been expanded, specifically on the middle and westernmost sides. These two irrigation channels are also still simple, still made of earth, and have not yet been hardened. The proposal for hardening farm access roads and irrigation channels was actually submitted through the Kecamatan Indicative Ceiling (PIK) at the Musrenbangdes (Village Development Planning Meeting). Unfortunately, this physical development has not been implemented to date. Nevertheless, the construction of farm roads and the addition of irrigation channels have improved community access to roads and irrigation channels. After land consolidation, at least 97% of the land parcels have direct access to roads, either from the new farm roads or existing village roads. Furthermore, 94% of the land parcels have direct access to irrigation channels. Here is the view of the farm access road and irrigation channel resulting from land consolidation.

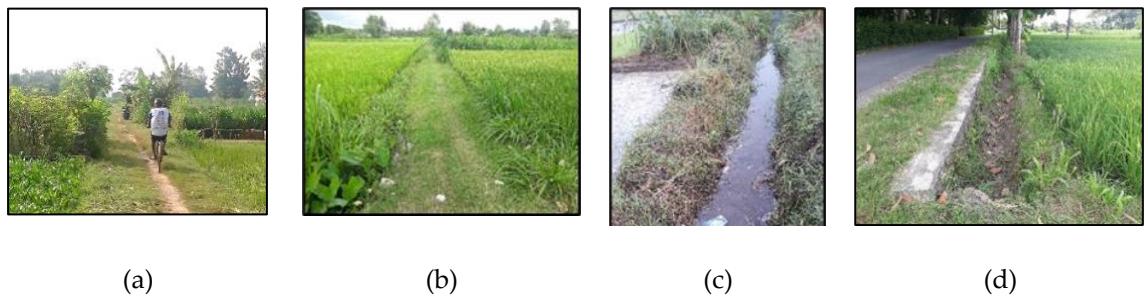


Figure 8. Farm Road I (a); Farm Road II (b); Central Side Irrigation Canal (c); West Side Irrigation Canal (d)

Source: Researcher Documentation, 2024

CONCLUSION

Facing difficulties in cultivation due to the narrow, elongated land, the farmers of Triharjo finally discussed and agreed to independently rearrange their land to make it more effective for farming. Self-arrangement was carried out in the 1990s, referring to the historical tracing of the land. Through this arrangement, the land's shape changed from east-west to north-south. With this change in shape, the land's length-to-width ratio became more ideal for cultivation. This self-arrangement is also what led to the discrepancy between the physical form on the ground and the land ownership documents (letter C). Following the self-arrangement, in 2006-2007, Triharjo received an offer for a free asset legalization program through the LMPDP program. The majority of the population in the arrangement area participates in this program; however, the certifications primarily emphasize the importance of having a single, elongated piece of land as the basis for a self-arrangement. This is because, according to the village authorities, the pre-self-arranged land consists of two different parcels. These parcels cannot be combined and must stand alone. Meanwhile, the majority of the self-arranged land only contains 1 parcel. Therefore, the issuance of certificates still refers to the letter C document.

The launch of the land consolidation program received a positive response from the Triharjo community. This program includes a planning phase in 2019 and an implementation phase in 2020. This program involves 133 land parcels with an area of approximately $\pm 26,532 \text{ m}^2$ from 82 landowners. The implementation of land consolidation at this location has largely complied with the applicable regulations, except for the stages of forming the planning team and the coordination team for the planning stage and for the stage of preparing the design and action plan for land consolidation. During the land consolidation process, the implementing team is assisted by the association of land consolidation participants, or Pokmas. During the implementation phase, the challenges encountered included the difficulty of collecting physical data due to differences in physical and legal conditions resulting from self-settlement and the fact that some land is used as collateral, making it impossible to release the rights. As a result of this arrangement, the number of land parcels changed from the original 133 parcels with 82 owners to 86 parcels with 82 owners. There was a total reduction in area, from the original $\pm 26,532 \text{ m}^2$ to $\pm 25,326 \text{ m}^2$, due to the addition of agricultural support infrastructure such as farm roads and irrigation channels.

After land consolidation in Triharjo, farmers no longer recognize land parcels that stretch for hundreds of meters with a width of only a few centimeters. More than half of the land parcels (58%) are 15.1-30 meters long, and on the other hand, 30% of the land parcels are already 10.1-15 meters wide. The ratio of length to width of this land after soil consolidation tends to be more proportional for cultivation. In this activity, several adjacent land parcels with the same owner were also consolidated, resulting in the post-land

consolidation dominance in land area changing to 201-400 m² after previously being dominated by areas under 200 m². After land consolidation, farm roads and irrigation channels have been successfully built, although they have not yet been paved. Nevertheless, through infrastructure provision, at least 97% of land parcels have direct access to roads, and 94% have direct access to irrigation channels.

RECOMMENDATIONS

The implementation of the post-land consolidation action plan is one of the important indicators of the success of the land consolidation program. In addition, the implementation of this action plan also has a positive impact on the participants, especially since they have given up part of their land for the common good. However, in the land consolidation program in Triharjo Village, the implementation of the post-consolidation action plan has not been fully realized. One of the main obstacles is the lack of a detailed schedule and activity stages, which leads to less commitment from stakeholders to implement the plan. In response to this situation, the researcher recommends that the Bantul District Land Office develop a concept for access management for farmers as an effort to realize the post-land consolidation action plan. Through this access arrangement, the stakeholders involved tend to be more consistent because of a sense of attachment to the program being implemented.

ACKNOWLEDGEMENT

The author expresses gratitude to the Land Arrangement and Empowerment Division of the DIY Regional Office of the National Land Agency (BPN) and the Land Arrangement and Empowerment Section of the Bantul District Land Office for the data and information provided regarding agricultural land consolidation in Triharjo Village. Appreciation is also extended to the Triharjo Village Government for granting permission to conduct research and access information and data about the Triharjo area and the implementation of the land consolidation program. Not to be forgotten, the author expresses sincere gratitude to the community of Juwono Hamlet, especially to Mr. Sukijan as the Hamlet Head, for their willingness to provide detailed information and data that were very advantageous in compiling this journal.

REFERENCES

- Andriani, H. S. (2020). *Evaluasi Kegiatan Konsolidasi Tanah dalam Penyelesaian Sengketa Pertanahan di Desa Bejen Kecamatan Bejen Kabupaten Temanggung*. Sekolah Tinggi Pertanahan Nasional.
- Angkoso, J. B., Luthfi, A. N., & Sudibyanung. (2020). Distribusi Penguasaan dan Pemilikan Tanah Pertanian di Desa Nglegok, Kabupaten Karanganyar. *Jurnal Tunas Agraria*, 3(2), 101–121. <https://doi.org/10.31292/jta.v3i2.111>
- Annur, C. M. (2022). *Mayoritas Rumah Tangga Miskin Indonesia Hidup dari Sektor Pertanian*.

Databoks.

- Arnowo, H. (2022). Konsolidasi Tanah Untuk Optimalisasi Tanah Pertanian Berskala Kecil (Studi Kasus Di Kota Salatiga). *Jurnal Tunas Agraria*, 5(1), 1–16. <https://doi.org/10.31292/jta.v5i1.165>
- Ayun, Q., Kurniawan, S., & Saputro, W. A. (2020). Perkembangan Konversi Lahan Pertanian Di Bagian Negara Agraris. *Vigor: Jurnal Ilmu Pertanian Tropika Dan Subtropika*, 5(2), 38–44. <https://doi.org/10.31002/vigor.v5i2.3040>
- Bachtiar, B. A., Haq, F. S., Janah, M., Amalia, N. R., Novaldi, J., & Budiasih. (2023). Penyerapan Tenaga Kerja Sektor Pertanian Tanaman Pangan pada Generasi Z (Studi Kasus : 34 Provinsi di Indonesia Hasil Sakernas Tahun 2020). *Seminar Nasional Official Statistics*, 491–502. <https://doi.org/10.34123/semnasoffstat.v2023i1.1706>
- Badan Pusat Statistik. (2023). Produk Domestik Bruto Indonesia Triwulanan 2019-2023. In *Badan Pusat Statistik*. Badan Pusat Statistik.
- Barati, A. A., Azadi, H., & Scheffran, J. (2021). Agricultural Land Fragmentation in Iran: Application of Game Theory. *Land Use Policy*, 100(105049). <https://doi.org/10.1016/j.landusepol.2020.105049>
- Direktorat Jenderal Prasarana dan Sarana Pertanian Kementerian Pertanian. (2022). *Roadmap Pembangunan Prasarana dan Sarana Pertanian Menuju Pertanian Maju, Mandiri dan Modern*. Penerbit Agro Indo Mandiri (AIM PRESS).
- Directorate of Land Consolidation and Land Development. (2022). *Diseminasi dan Dokumentasi Konsolidasi Tanah Wilayah I*. www.instagram.com.
- Fitriani, Sutarni, Haryono, D., Ismono, H., & Lestari, D. A. H. (2017). Pertanian Perdesaan Lampung: Peluang dan Tantangan. *Journal of Food System and Agribusiness (JoFSA)*, 1(2), 43–52.
- Gedefaw, A. A., Atzberger, C., Seher, W., & Mansberger, R. (2019). Farmers Willingness to Participate In Voluntary Land Consolidation in Gozamin District, Ethiopia. *Land*, 8(148), 1–21.
- Hantoro, F. R. P., Prasetyo, E., & Hermawan, A. (2020). Dampak Penggunaan Alat dan Mesin Pertanian terhadap Produksi Padi di Kabupaten Tegal. *Pangan*, 29(3), 171–180.
- Hanun, S. H. (2021). *Konsolidasi Tanah dalam Rangka Pengembangan Potensi Agrowisata di Desa Mulyo Sari Kabupaten Pesawaran*. Universitas Lampung.
- Hasni. (2016). *Hukum Penataan Ruang dan Penatagunaan Tanah dalam Konteks UUPA-UUPR-UUPPLH Edisi Ketiga*. Rajagrafindo Persada.
- Hidayati, A. (2022). *Peran Kantor Pertanahan dalam Konsolidasi Tanah Pertanian di Desa Jembatan Kembar Kecamatan Lembar Kabupaten Lombok Barat*. Universitas Muhammadiyah Mataram.
- Ilyas. (2022). Optimalisasi Peran Petani Milenial dan Digitalisasi Pertanian dalam Pengembangan Pertanian di Indonesia. *Forum Ekonomi*, 24(2), 259–266. <https://doi.org/10.30872/jfor.v24i2.10364>
- Indrawan, M. Y., & Utami, W. (2022). Strategi Konsolidasi Tanah Subak Sanggulan Bali. *Mediasosian: Jurnal Ilmu Sosial Dan Ilmu Administrasi Negara*, 6(1), 17–34.
- Ishak, M., Nurlinda, I., & Pujiwati, Y. (2011). Konsolidasi Tanah : Studi Kasus Kecamatan Gedebage . *Mimbar*, XXVII(1), 87–96.
- Janus, J., Ertunç, E., Muchová, Z., & Tomić, H. (2023). Impact of Selected Land Fragmentation Parameters and Spatial Rural Settlement Patterns on the Competitiveness of Agriculture: Examples of Selected European and Asian Countries.

- Habitat International*, 140(102911). <https://doi.org/10.1016/j.habitatint.2023.102911>
- Kantor Pertanahan Kabupaten Bantul. (2022). *Penyerahan Sertipikat Konsolidasi Tanah di Kalurahan Triharjo, Kabupaten Bantul*. www.youtube.com.
- Karimah, N., Sugandi, W. K., Thoriq, A., & Yusuf, A. (2020). Analisis Efisiensi Kinerja pada Aktivitas Pengolahan Tanah Sawah Secara Manual dan Mekanis. *Jurnal Keteknikan Pertanian Tropis Dan Biosistem*, 8(1), 1–13.
- Kurniawan, H., & Manaf, A. (2023). Skema Konsolidasi Tanah Dalam Penerapan Pembangunan Perumahan Di Indonesia. *Jurnal Pengembangan Kota*, 11(1), 92–102. <https://doi.org/10.14710/jpk.11.1.92-102>
- Moleong, L. J. (2008). *Metodologi Penelitian Kualitatif Edisi Revisi*. PT Remaja Rosdakarya Offset.
- Nastiandi, G. (2019). *Pelaksanaan Konsolidasi Tanah Pertanian (Studi di Desa Giri Sasak Dusun Buntage Kecamatan Kuripan Lombok Barat)* (Vol. 3). Universitas Mataram.
- Ntihinyurwa, P. D., & Vries, W. T. de. (2021). Farmland Fragmentation, Farmland Consolidation and Food Security: Relationship, Research Lapses and Future Perspectives. *Land*, 10(129), 1–39.
- Nursulianto, Fuad, F., & Lutfi, A. (2022). Penerapan Peraturan Menteri Agraria dan Tata Ruang/Kepala Badan Pertanahan Nasional Republik Indonesia Nomor 12 Tahun 2019 Tentang Konsolidasi Tanah Terhadap Pelaksanaan Konsolidasi Tanah di Subak Sanggulan, Desa Banjar Anyar, Kec. Kediri, Kab. Tabanan, P. *Jurnal Hukum Dan Kesejahteraan Universitas Al Azhar Indonesia*, 7(2), 44–65.
- Putraningtyas, M. E. L., Martini, S., & Rohayati, T. (2024). Konsolidasi Tanah untuk Penyelesaian Konflik di Tutupan Jepang dalam Kerangka Reforma Agraria: Studi Kasus Kalurahan Parangtritis, Bantul. *Tunas Agraria*, 7(3), 343–367. <https://doi.org/10.31292/jta.v7i3.350>
- Ridlo, U. (2023). Metode Penelitian Studi Kasus: Teori dan Praktik. In *Uinjkt.Ac.Id*.
- Rosita, T. D., & Susilowati, I. F. (2023). Konsolidasi Tanah Pertanian di Desa Jatirejo dan Desa Mangunharjo Kabupaten Ngawi. *Novum: Jurnal Hukum*, 104–118.
- Sitorus, O. (2015). *Konsolidasi Tanah, Tata Ruang, dan Ketahanan Nasional*. STPN Press.
- Sugiyono. (2013). Metode Penelitian Kuantitatif Kualitatif dan R&D. In *Penerbit Alfabeta*. Penerbit Alfabeta.
- Suprastyo, D. (2018). Analisis Distribusi Pemilikan Lahan Pertanian dan Pendapatan Usahatani di Kabupaten Karawang [Institut Pertanian Bogor]. In *Sekolah Pascasarjana Institut Pertanian Bogor*. <https://doi.org/10.14710/tataloka.22.1.61-69>
- Susanti, A., & Sabariman, H. (2021). Strategi Petani Gurem dalam Meningkatkan Kesejahteraan Sosial: Tinjauan dari Suku Tengger di Pegunungan Bromo. *Jurnal Penelitian Kesejahteraan Sosial*, 20(3), 205–216.
- Yahya, M. T. (2017). *Pelaksanaan Konsolidasi Tanah Pertanian di Desa Umbulharjo Kecamatan Cangkringan Kabupaten Sleman Ditinjau dari Hukum Perdata*. Universitas Islam Negeri Sunan Kalijaga.