

Implementation of the Land Consolidation Program in Slum Areas in Penawangan Village, Pringapus District, Semarang Regency

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ARTICLE INFO	ABSTRACT
<p>Keywords: Land Consolidation, Slums Settlements, Environmental Quality</p> <p>Date logs: Received: May 12, 2025 Reviewed: July 31, 2025 Accepted: August 21, 2025 Published: Sept 24, 2025</p> <p>How To Cite: Fadli, N.N., Sapardiyono, Sugiasih (2025). Implementation of the Land Consolidation Program in Slum Areas in Penawangan Village, Pringapus District, Semarang Regency, <i>Marcapada: Jurnal Kebijakan Pertanahan</i>, 5(1), 18–42. https://doi.org/10.31292/mj.v5i1.155</p>	<p>The rapid development of a region's environment has led to the emergence of slum areas due to the growing population and increased industrial and commercial activities. One way to address slum areas is through the Land Consolidation program. The implementation of land consolidation often encounters failures, so examples of successful implementation of the program are needed. This study aims to determine the stages of implementing the land consolidation program, the factors that inhibit and drive land consolidation, and the impact of land consolidation on the environmental and socio-economic conditions of the community. This study was conducted using a survey method with a mixed-method approach. Data collection methods were carried out using questionnaires, interviews, observations, and literature studies. The results of this study indicate that the implementation of land consolidation is running in accordance with applicable regulations. In its implementation, there are inhibiting and driving factors, both internal and external. Land consolidation has an impact on improving environmental quality and the socio-economic conditions of the community. The results of the implementation of land consolidation in Penawangan Village can be used as a reference for the level of success if a similar program is duplicated in a similar location and can identify efforts to overcome problems that arise later during implementation.</p>

A. Introduction

Population-related problems are commonplace in both developing and developed countries, including high population growth, high urbanization rates, and uneven population distribution. With a fixed land area and a population that continues to grow annually, population density in Indonesia continues to rise (Akhirul et al., 2020). The ever-increasing demand for land forces residents to take the initiative to organize themselves in providing public facilities and infrastructure without considering broader environmental concerns. According to Sari & Ridlo (2022), rapid population growth in an area generally fails to anticipate government efforts to develop the necessary facilities and infrastructure.

Slums are characterized by poor physical conditions and poor environmental conditions. Residents build homes using low-quality materials and hazardous structures, and the area is developed without adequate infrastructure. These settlements are densely packed with rows of

closely packed houses, leaving only narrow roads at the front of the houses. In addition to overcrowding, areas also consistently face issues related to sanitation and hygiene. Infrastructure related to clean water is usually not distributed to every residence, and areas are not equipped with adequate waste and garbage processing (Pedro & Queiroz, 2019).

As mandated in the Second Amendment to the 1945 Constitution of the Republic of Indonesia, which was enacted on August 18, 2000, Article 28 H paragraph (1) states: "Everyone has the right to live in physical and spiritual prosperity, to have a home, to enjoy a good and healthy environment, and to receive health services." This can be interpreted as meaning that good and healthy housing and residential areas are a basic right for every citizen that must be guaranteed by the state and are the state's responsibility. Therefore, the government has a responsibility and an important role in developing programs that should be able to address problems that occur in society. Based on reporting (Pristy, 2022), with this regulation, the government is obliged to provide adequate housing to its citizens. Pristy (2022), in her report, also explained that one of the government's innovations is the Slum Housing Improvement Program, which distributes funds to slum communities to rebuild their homes into habitable ones. Regarding the problem of slum settlements, the land consolidation program should be able to address this issue. Asyah (2019) stated that the popularity of the concept of land consolidation to address housing problems may not be widely heard. This occurs due to the lengthy process and bureaucratic complexity in implementing land consolidation. However, Asyah (2019) also acknowledged that land consolidation has many advantages, namely, more legally certain land ownership status, settlements becoming places to live with adequate facilities and infrastructure, effective spatial planning, and increased land prices.

Land consolidation is the strengthening of the value and function of land through the arrangement of its shape, area, and location so that land use becomes effective and efficient according to its potential (Bustomi & Barhamudin, 2020). Land consolidation as a development instrument is an alternative development policy that can address emerging problems, because its implementation process can contribute positively to regional development. In various scientific papers, the implementation of land consolidation has an impact on the reorganization of residential land plots while fulfilling the required infrastructure facilities. However, there are often obstacles in the implementation of land consolidation. According to Sugiasih (2025), land consolidation can be applied to areas that have not yet been developed but are expected to develop in the future; it is also an answer for areas that have already developed into slums. Yurmansah & Mussadun (2016) evaluated the land consolidation process in slum areas and stated that it was successful in terms of land parcel arrangement and certificate issuance, but its implementation was unsuccessful because it was temporarily halted due to various obstacles, including a lack of development funds. Aberta et al. (2024) examined a land consolidation program for slum rejuvenation in Yogyakarta, resulting in improved physical environmental quality and improved socioeconomic conditions. Despite its success, land consolidation in this area faced obstacles, including community resistance due to reduced land area and delays in administrative documentation. Adnan (2020) argues that land consolidation has been known and implemented in Indonesia for a long time, since the 1980s, and has been implemented in

various urban areas. However, the results have not been optimal in providing satisfaction to landowners and other stakeholders regarding a decent, organized, and comfortable residential environment, unless they have played a significant role in improving land administration. The implementation of land consolidation in Penawangan Village, specifically in Krajan Hamlet, is a follow-up to coordination between the Semarang Regency Government and the Ministry of ATR/BPN through the Semarang Regency Land Office and the Special Allocation Fund (DAK) Integration funding source, with the active involvement of the Krajan Hamlet community. Community enthusiasm for the Land Consolidation program is evident. This enthusiasm stems from a desire to improve housing quality and road access, enhance public infrastructure, and enhance legal security for land rights held by the local community. Junaedi (2022) explains that the land consolidation program in this area is part of the development of Penawangan Village as a tourist destination for Jawi village. Another consideration is the remoteness of the area with inadequate infrastructure.

The Semarang Regency Land Office is one of the land offices that has successfully completed the Land Consolidation program in Penawangan Village, Pringapus District, Semarang Regency. Its implementation is based on Semarang Regent Decree Number 050/0473/2020, which designates Penawangan Village as a slum area. Handling of slum areas in Penawangan Village based on the final report of land consolidation of the Semarang Regency Land Office includes:

1. Unsuitable residential buildings and building irregularities;
2. Sanitation is not feasible and does not meet technical requirements;
3. Water conditions that are unsafe and do not meet the needs of residents;
4. The neighborhood road is still dirt, access is limited < 1.5 m and the fire truck cannot reach, and there is no drainage.

In general, land consolidation often fails to fully achieve its stated success targets, resulting in problems. Land consolidation implementation is not only regulated by ministerial regulations, but its stages are also detailed in technical guidelines issued by the Directorate of Land Consolidation and Land Development, Ministry of Agrarian Affairs and Spatial Planning. However, Arnowo (2022) states that even though consolidation activities are regulated in these technical guidelines, the potential for failure remains. This concern prompted the author to conduct research on "Implementation of the Land Consolidation Program in Slum Areas." The purpose of this study was to evaluate the implementation of the land consolidation program in relation to post-land consolidation environmental conditions and to identify factors that hinder and promote its success. Furthermore, the study aimed to determine the socio-economic impacts of land consolidation activities. Therefore, if a similar program is replicated in similar locations, it can serve as a benchmark for success and efforts to address issues arising during land consolidation implementation.

B. Research Method

This research was conducted using a survey method with a mixed-methods approach. Mixed methods is a research approach that combines qualitative and quantitative forms. This method is based on assumptions and methodological investigations. Survey research aims to gather information

and examine phenomena within a group or individual behavior. This method involved compiling a list of questions for respondents, conducting interviews, and distributing questionnaires to answer questions related to the implementation of land consolidation in Penawangan Village, the inhibiting and enabling factors, the impact of land consolidation on the community's socio-economic conditions, and improving environmental quality in the slum areas of Penawangan Village. The data required for this study were sourced from interviews with the local community, including residents of Penawangan Village and land consolidation officers implementing the activities, including the Head of the Land Acquisition and Development Section of the Semarang Regency Land Office and the Coordinator of Substantive Work for Land Consolidation at the Semarang Regency Land Office, as well as other relevant parties and authorities, including the Penawangan Village Government.

To measure environmental quality improvement, Land Consolidation participants completed a provided questionnaire. Participants who filled out the questionnaire were only a sample of 78 people using a simple random sampling method. The success indicators applied in the questionnaire refer to the research of Yurmansah & Mussadun (2016), with several changes and adjustments. There are seven environmental quality indicators referring to PUPR Ministerial Regulation No. 02/PRT/M/2016 and four evaluation criteria referring to previous research that are used as success indicators in this study. The questionnaire was filled out by assigning a score to each indicator to make it easier for the public to provide a score. Before filling out the questionnaire, researchers need to calculate the score range first to facilitate the filling. The following are the details of the score calculation.

Table 1. Categories of Environmental Quality Improvement Success

Achievement of the Success Rate of Each Environmental Quality Improvement Criterion	Number of Success Rate Scores for Each Environmental Quality Improvement Criteria	Total Score Success Rate Evaluation Criteria	Number of Success Rate Scores for Each Environmental Quality Improvement Criteria
Very Unsuccessful	> 312 and < 546	> 546 and < 955,5	> 2184 and < 3822
Less Successful	> 546 and < 780	> 955,5 and < 1365	> 3822 and < 5460
Succeed	> 780 and < 1014	> 1365 and < 1774,5	> 5460 and < 7098
Very Successful	> 1014 dan < 1248	> 1774,5 and < 2184	> 7098 and < 8736
Information <ul style="list-style-type: none"> • BTT (Highest Weight) = 4 • BTR (Lowest Weight) = 1 • R (Number of Respondents) = 78 • JKE (Number of Evaluation Criteria) = 4 • V (Number of Variables) = 7 • JK (Number of Classes) = 4 	Highest Score (STT) = $BTT \times R \times JKE$ $= 4 \times 78 \times 4 = 1.248$ Lowest Score (STR) = $BTR \times R \times JKE$ $= 1 \times 78 \times 4 = 312$ Interval = $(STT-STR)/JK$ $= (1248-312)/4 = 234$	Highest Score (STT) = $BTT \times R \times V$ $= 4 \times 78 \times 7 = 2184$ Lowest Score (STR) = $BTR \times R \times V$ $= 1 \times 78 \times 7 = 546$ Interval = $(STT-STR)/JK$ $= (2184-546)/4 = 409,5$	Highest Score (STT) = $BTT \times R \times JKE \times V$ $= 4 \times 78 \times 4 \times 7 = 8736$ Skor Terendah (STR) = $BTR \times R \times JKE \times V$ $= 1 \times 78 \times 4 \times 7 = 2184$ Interval = $(STT-STR)/JK$ $= (8736-2184)/4 = 1638$

Source: Yurmansah & Mussadun (2016) and researcher analysis, 2024

Table 2. Success Categories of Each Environmental Quality Improvement Indicator

Achievement of Environmental Quality Improvement Criteria Indicators	Total Score	Information
Very Not Effective/Efficient/Fair/Responsive	> 78 and < 136,5	<ul style="list-style-type: none"> • BTT (Highest Weight) = 4 • BTR (Lowest Weight) = 1 • R (Number of Respondents) = 78 • JK (Number of Classes) = 4 • Highest Score = $BTT \times R = 4 \times 78 = 312$ • Lowest Score = $BTR \times R = 1 \times 78 = 78$ • Interval = $(BTT-BTR)/JK = (312-78)/4 = 58,5$
Less Effective/Efficient/Fair/Responsive	> 136,5 and < 195	
Effective/Efficient/Fair/Responsive	> 195 and < 253,5	
Highly Effective/Efficient/Fair/Responsive	> 253,5 and < 312	

Source: Researcher analysis, 2024

The questionnaires completed by Land Consolidation participants were then used to analyze the progress of environmental quality improvement. The results were then tabulated in an Excel spreadsheet to determine the final results. These results were then analyzed, supported by diagrams, to further illustrate the success of environmental quality improvement following the implementation of land consolidation.

C. Implementation of Land Consolidation of Krajan Hamlet, Penawangan Village

1. Implementation of Land Consolidation

The implementation of land consolidation in Penawangan Village began with the issuance of Semarang Regent Decree Number 600/0404/2021 dated November 22, 2021, concerning the determination of the land consolidation location located in Penawangan Village, Pringapus District, Semarang Regency. The selection of the Land Consolidation object location was the result of recommendations and analysis from various aspects, in addition to the selected location being a priority village for development by the regional government related to the eradication of slum areas. After the location determination was issued, communication and coordination began with the regional government, namely the Public Works Agency and the Head of Penawangan Village. This coordination was carried out to carry out socialization/education to the community as prospective land consolidation participants. The socialization included materials about land consolidation and offered clear explanations to ensure the community understood and was motivated to participate in the land consolidation activities. The implementation of land consolidation in Krajan Hamlet, according to the Final Report of the Land Consolidation of the Semarang Regency Land Office and an interview with Mr. Akhmad Nursalim, Coordinator of Substantive Work for Land Consolidation at the Semarang Regency Land Office, details the stages that have been implemented, including planning, implementation, development of results, and supervision and delivery of land consolidation certificates. The stages of land consolidation implementation in Krajan Hamlet have been generally carried out properly. Program implementation is proceeding in accordance with the stages outlined in the 2021 Technical Instructions for Land Consolidation Implementation and Regulation of the Minister of ATR/Head of the National Land Agency Number 12 of 2019.

According to Akhmad Nursalim, Coordinator of Substantive Work for Land Consolidation at the Semarang Regency Land Office, the land consolidation is being implemented as a form of collaboration between government agencies, involving active community participation and financial support from the Special Allocation Fund (DAK) for Integration. The Special Allocation Fund (DAK) for Integration is a form of support from the Central Government through the Ministry of Public Works and Public Housing (PUPR) to support the vision, plans, and roadmaps of local governments in eradicating slums. Land consolidation is a land policy focused on restructuring land ownership and potentially providing land for development. Land consolidation is also an alternative strategy for preventing and managing slum areas, involving the active participation of the community and local government.

According to Sulisty, Head of Penawangan Village, and Hatok Riyadi, Head of General Affairs and Planning for Penawangan Village, the Land Consolidation program in Penawangan Village demonstrates the government's commitment to managing slum areas, ensuring the well-being of local residents, both in terms of road access and waste management.

The Land Consolidation Program was not implemented throughout the village but only in one hamlet, Krajan Hamlet. According to Semarang Regent Decree Number 600/0404/2021 dated November 22, 2021, and the revised minutes of the formation of the Land Consolidation Participant Association, the program covered 350 plots. The implementation of Land Consolidation (KT) in Krajan Hamlet, Penawangan Village, viewed from the perspective of stakeholders at the Semarang Regency Land Office, the Penawangan Village Government, the Krajan Hamlet community group, and the Penawangan Village Head, has a similar understanding. Land consolidation is interpreted as a form of government support in eradicating slum areas and restructuring land ownership, use, and utilization according to its intended purpose. Land consolidation is also interpreted as a program that improves community land rights. In addition, land consolidation is seen as a program that can improve environmental quality. According to local residents, this program is also used to widen, construct, and repair access roads; build drainage; manage waste; and store wastewater.

The implementation of the Land Consolidation program is inseparable from several stages of activity, one of which is the socialization phase. Socialization is the stage that provides information and an overview regarding the implementation of the Land Consolidation program. This socialization includes the delivery of materials related to the financing scheme, initial land measurement, construction of facilities and infrastructure, and land requirements for development.



Figure 1. Socialization of the implementation of Land Consolidation
Source: Semarang Regency Land Office Documentation, 2022

The other stage is the identification of subjects and objects of land consolidation. At this stage, the government carries out a land plot administration process that is useful for recording land plots and the parties involved. This stage is also useful for determining the plot of land that will be used for the construction of public facilities and infrastructure. The following is documentation of land consolidation subject and object identification activities.



Figure 2. Identification of Subjects and Objects of land consolidation
Source: Semarang Regency Land Office Documentation, 2022

Other stages are the preparation of the Land Consolidation design, which includes the theme and direction of regional development; area allocation block plans; determination of the area, shape, and location of the land plot; and the area and location of development land consisting of land for infrastructure, utility facilities, and joint business land. The following is documentation of the design preparation and action planning activities carried out at the Semarang Regency Land Office.



Figure 3. Preparation of Land Consolidation Design and Action Plan 2022
Source: Semarang Regency Land Office Documentation, 2022

The following is a design drawing before and after the implementation of Land Consolidation. This design was made based on an agreement between stakeholders and the community participating in the land consolidation.



(a)



(b)

Figure 1. Design Map Before (a) and After land consolidation (b)
Source: Final Report on Land Consolidation of Semarang Regency, 2022

The other stage is the measurement and mapping of land plots by the Semarang Regency Land Office. This stage is carried out to determine the area and boundaries of land plots and is used as a guide for collecting physical field data and making detailed maps. The following is documentation of the activities carried out by the surveyor of the Semarang Regency Land Office.



Figure 4. Land Plot Measurement and Mapping
Source: Semarang Regency Land Office Documentation, 2022

The signing of the minutes, which identifies the subjects and objects of land consolidation, is an agreement approved by the community concerning the obtained data. Figure 5, showing the signing of the minutes of the agreement on the results of the identification of subjects and objects of land consolidation.



Figure 5. Signing of the Minutes of Agreement on the Results of Identification of Subjects and Objects of Land Consolidation 2022

Source: Semarang Regency Land Office Documentation, 2022

The release of land rights indicates that the land is transferred to the state's direct ownership. This land rights release process is carried out before the Head of the Land Office and involves submitting original documents proving ownership or control of the land. Officers at the Semarang Regency Land Office carry out the activities documented below.



Figure 6. Signing of the Minutes of Release of Land Rights
Source: Semarang Regency Land Office Documentation, 2022

The Head of the Land Office issued a decree granting land rights to all plots of land that already have a field map based on the results of the implementation of the Land Consolidation design. The following is documentation of certificate submission activities.



Figure 7. Submission of Certificate by the Minister of ATR/Head of BPN
Source: Semarang Regency Land Office Documentation, 2022

Development is a physical manifestation that follows up on the design and action plan of land consolidation. The construction of infrastructure, facilities, and utilities is a physical manifestation; besides that, there is also the construction of buildings in accordance with the design of land consolidation.



Figure 8 Channel Development

Source: Semarang Regency Land Office Documentation, 2022



Figure 9 Road Infrastructure Development

Source: Semarang Regency Land Office Documentation, 2022



Figure 10 Results of House Construction

Source: Researcher Documentation, 2024

1. Driving Factors, Inhibitions and Efforts to Resolve

1. Motivating Factors

a. Internal

Two internal driving factors affect the implementation of the Land Consolidation program in Krajan Hamlet, Penawangan Village, in 2022.

1. DAK Integration

The Special Allocation Fund (DAK) for Integration, according to the official website of the Central Java Public Housing and Settlement Areas Agency, is a form of support from the Central Government

through the Ministry of Public Works and Public Housing (PUPR) for the vision, plans, and roadmaps of regional governments in eradicating slum settlements. Based on the Drafting Team's (2025) Guidelines for Integrated Slum Settlement Management Policies and Programs, the integrated DAK is focused on handling slum areas in a holistic and integrated manner by improving the quality of settlements through the provision of habitable houses, access to drinking water and sanitation, as well as other supporting utility infrastructure on a regional scale. This fund is a form of support distributed to the regional government through the Public Works Agency. Based on the results of interviews with the Penawangan Village Government, the fund is worth IDR 50,000,000, which is intended for the construction of houses. The community receives IDR 7,500,000 in the form of money, and the remainder is in the form of material assistance for house construction. In addition to housing construction, some residents also received assistance for home renovations worth Rp 20,000,000, of which Rp 2,500,000 was provided in cash, with the remainder in the form of building materials. In addition to these funds, funds were also used for the development of Infrastructure, Facilities, and Utilities (PSU), as shown in the table below.

Table 2. Success Categories for Each Environmental Quality Improvement Indicator

No.	FIELD	AMOUNT	BUDGET	BUDGET SOURCE
1.	Housing and Settlements			
	➤ New House Construction	128 Unit	Rp. 7.076.506.000,-	Special Allocation
	➤ Road Construction	2.325 m		Fund (APBN)
	➤ Drainage Development	3.293 m		
	➤ Rehabilitation of Affected Homes	19 Unit	Rp. 380.000.000,-	APBD Semarang Regency
2.	Drinking Water			
	➤ <i>Drilling Wells</i>	2 Unit	Rp. 2.315.250.000,-	Special Allocation
	1. Home Connection	220 SR		Fund (APBN)
3.	Sanitation			
	➤ IPAL	2 Unit	Rp. 800.000.000,-	Special Allocation
	➤ Home Connection	118 SR		Fund (APBN)
	➤ TPS3R	1 Unit	Rp. 600.000.000,-	
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2.	Drinking Water			
	➤ <i>Drilling Wells</i>	2 Unit	Rp. 2.315.250.000,-	Special Allocation
	1. Home Connection	220 SR		Fund (APBN)

3. Sanitation

➤ IPAL	2 Unit	Rp. 800.000.000,-	Special Allocation Fund (APBN)
➤ Home Connection	118 SR		
➤ TPS3R	1 Unit	Rp. 600.000.000,-	

Source: Final Report on Land Consolidation of Semarang Regency, 2022

2. Not Charged with Financing of Land and Building Rights Acquisition Duty (BPHTB)

Another factor encouraging people to participate in the Land Consolidation program is that some people are exempt from Land Property Tax (BPHTB), and others are granted BPHTB relief. Based on the inventory and identification of Land Consolidation subjects and objects, there are Land Consolidation participants whose land rights were transferred, as well as land parcels originating from non-titled land that became BPHTB objects. These developments prompted the Semarang Regency Land Office to submit letter number AT.03.03/1939-33.22/IX/2022 regarding a BPHTB Exemption Request to the Semarang Regent to help ease the burden on Land Consolidation participants. This letter was then answered with Semarang Regent's Decree No. 973/0003646 concerning the response to the BPHTB Exemption Request in support of the 2022 Integrated Special Allocation Fund (DAK) Program in Penawangan Village, which contains several points:

- A 25% (twenty-five percent) BPHTB relief is granted for land areas exceeding 200 m²; and
- A land area less than 200 m² is exempt from BPHTB.

b. Eksternal

Active community participation is an external driving factor influencing the implementation of the Land Consolidation program in Krajan Hamlet, Penawangan Village, in 2022. Alhafidh & Sunaryo (2015) stated that the implementation of land consolidation is not simple and always involves the wider community. Therefore, a planned and targeted approach is required to ensure the community's conscious participation as subjects of development. In the implementation of land consolidation, the role of landowners is crucial, particularly in terms of awareness and support for land consolidation activities. The community's role in this program includes:

- willingness to donate part of their land;
- willingness to participate in development; and
- community-led house construction.

a) Inhibiting Factors and Solutions

1) Internal

An internal inhibiting factor influencing the implementation of the Land Consolidation program in Krajan Hamlet, Penawangan Village, in 2022 is the timing of the land consolidation implementation. The Semarang Regency Land Office encountered challenges related to time allocation because the Land Consolidation program was being implemented at the same time as other programs run by the Semarang Regency Land Office. These other programs included the inventory and identification of the Jeragung Dam construction area and complete systematic land registration. These issues were overcome through coordination between the designated implementation teams, allowing these

programs to be implemented according to the designated teams and according to the agreed schedule.

2) External

External inhibiting factors affecting the implementation of the Land Consolidation program in Krajan Hamlet, Penawangan Village, in 2022 were as follows:

(a) Community Rejection of Land Consolidation

Community participation in the Land Consolidation program positions them as subjects of development. The success of land consolidation implementation depends heavily on the active role of the community, who own the land and must consciously and willingly participate in supporting the land consolidation activities.

In the implementation of land consolidation, the Land Office had previously conducted socialization and initial data collection related to the subjects of land consolidation participants. Mr. Sulisty, the Head of Penawangan Village, stated that after the Semarang Regency Land Office conducted socialization, the community did not understand or approve of the land consolidation activities because some of their land would be used for road access arrangements. Their disapproval posed a significant obstacle for the Semarang Regency Land Office. The Land Office needs to engage the community further, elucidating the funding sources and outlining the construction schedule for implementation. The construction schedule in question is related to the deadline for the implementation of the land consolidation so that it is not late and is in accordance with the predetermined time estimate.

Problems related to residents' misunderstandings about their land being reduced for development were ultimately resolved because the community was provided with additional information regarding the function and benefits of the Land Consolidation program, which aims to reorganize irregular plots of land into organized, accessible parcels. Furthermore, the community accepted the Land Consolidation program due to the increased legal security of their land rights, from mostly Letter C to Freehold Land Rights, and the availability of funding for renovating and rebuilding homes. According to Nursuliantoro et al. (2022), a lack of comprehensive understanding of the benefits of land consolidation makes landowners reluctant to have their land reduced without any compensation.

(b) Lack of Community Consistency

The community plays a crucial role in any government program, as they play a direct role from the planning stage to post-program maintenance. Implementation of land consolidation in Penawangan Village, particularly in Krajan Hamlet, encountered obstacles related to the community's lack of consistency in approving the design of their land plots. This difficulty was due to the difference between the approved area and the resulting map. Prior to land surveying, we addressed this issue by providing land boundary markers. The markers were provided by the landowners, assisted by the village government, but upon the announcement of the design, the community was still dissatisfied with the land area used for the program.

This dilemma hampered the Land Office's Land Consolidation program process, requiring re-measurements and the creation of design maps. The solution to this issue was to provide the community with a clearer understanding of the deadlines for land surveying and determining the final Land Consolidation design map. This ensured that any revisions were promptly communicated to avoid delays in the program's implementation.

1. Access to Villages Is Poor

The Land Consolidation program was hampered by problems related to the collapse of a bridge connecting the villages. This bridge provided access to Penawangan Village and served as a supporting infrastructure for transporting building materials used for the Land Consolidation program.

The solution to this problem was to rebuild the bridge to unimpeded access. With the bridge rebuilt, the Land Consolidation program could proceed smoothly. The Land Consolidation program was accompanied by bridge construction, thus maximizing time efficiency.

(b) Collateralized Land Certificates

Pledged land certificates hampered the implementation of the Land Consolidation program because, during the Land Consolidation program, previously issued certificates by the Land Office would be revoked and used as a requirement for issuing new certificates. The solution to this problem was through further coordination with the lending bank. In this case, the Semarang Regency Land Office provided outreach and coordinated with the bank to ensure that the certificates must be revoked before new certificates can be issued. The Semarang Regency Land Office also explained the advantages of this program to the bank, stating that after the Land Consolidation program, the land value would increase, thus not harming the bank or the debtor. Withdrawal of the certificate was carried out with the consent of the landowner, thus fostering trust between the creditor and the debtor. The Semarang Regency Land Office also promised that once the new certificate was issued, it would be immediately returned to the creditor bank. This issue was resolved successfully, and there was no objection from the bank.

1. Social and Economic Conditions of the Community

Based on Regulation No. 12 of the Minister of ATR/Head of the National Land Agency (BPN) of 2019, one of the objectives of development through land consolidation is to improve environmental quality. Improved environmental quality influences mobility efficiency, driving socio-economic improvements in the community. In this study, the indicators of the community's socio-economic conditions are:

a) Education

The education level of the Penawangan Village community, specifically Krajan Hamlet, remained unchanged. The highest educational attainment level of the community, with a sample size of 78 people, included 54 (69%) elementary school graduates, 16 (21%) junior high school graduates, 5 (6%) senior high school graduates, 2 (3%) undergraduate degrees, and 1 (1%) elementary school dropout.

Penawangan Village did not experience an increase in educational infrastructure, as these facilities already exist.

b) Income

The results of the monthly income questionnaires from the community before and after the Land Consolidation program, with a sample size of 78 people, are shown in the following table.

Table 1: Income Before and After

No	Revenue/month	Before	After
1	< Rp. 1.000.000,-	6 orang (8%)	5 orang (6%)
2	Rp. 1.000.001,- – Rp. 2.000.000,-	18 people (23%)	11 people (14%)
3	Rp. 2.000.001,- – Rp. 3.000.000,-	49 people (63%)	51 people (65%)
4	Rp. 3.000.001,- – Rp. 4.000.000,-	2 orang (2%)	6 people (8%)
5	Rp. 4.000.001,- – Rp. 5.000.000,-	3 orang (4%)	3 people (4%)
6	> Rp. 5.000.000,-	-	2 people (3%)

Source: Researcher Data Processing, 2024

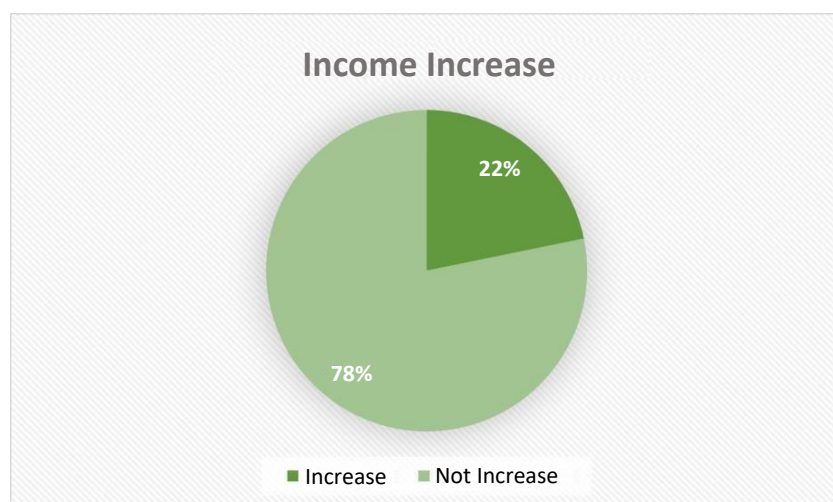


Figure 5 Diagram of Increase in Community Income After Land Consolidation Program

Source: Researcher Data Processing, 2024

Based on the data above, it can be seen that changes occurred following the Land Consolidation program. Only 17 people (22%) of the 78 sampled by the researchers experienced an increase in income, while the remaining 61 people (78%) did not experience any increase in income. This increase in income was influenced by the emergence of side businesses or job changes. Side businesses in Krajan Hamlet include furniture stores, grocery stores, food stalls, street food vendors, and mobile vegetable vendors. These side jobs have positively impacted the affected community by generating additional income and improving their family well-being.

The emergence of these new businesses is inseparable from the role of land consolidation in improving road access, housing, and other infrastructure, which has had a positive impact on the local economy. According to Mr. Hatok Riyadi, a small portion of the community has felt the positive impact of the Land Consolidation program, proving the program's success in improving the local economy. Mr. Hatok Riyadi also explained that the Penawangan Village Government is working to develop Penawangan Village as a tourist destination so that the entire community can benefit from its impact.

a) Employment

Changes in employment experienced by the community following the implementation of land consolidation can be seen in the table below.

Table 2 Before and After Work

No	Profession/Work	Before	After
1	Freelance Daily Labourers	18 people (23%)	15 people (19%)
2	<i>Home Industry</i>	-	1 people (1%)
3	Housewives	6 people (8%)	5 people (7%)
4	Private Employees	24 people (31%)	26 people (33%)
5	Civil Servants	2 people (2%)	2 people (3%)
6	Retired TNI	1 people (1%)	1 people (1%)
7	Farm Farmer	21 people (27%)	23 people (30%)
8	Self employed	6 people (8%)	5 people (6%)

Source: Researcher Data Processing, 2024

One of the changes in employment that occurred in the community stemmed from the ease of access brought about by the Land Consolidation program. This ease of access came in the form of well-organized and structured road infrastructure. This positively impacted the community's economic patterns, improving their standard of living. A home industry emerged in the community, namely refilling drinking water gallons. Distribution related to refilling drinking water gallons ran smoothly due to improved access and wider reach.

a) Fulfillment of Primary Needs

This study focused on the fulfillment of primary needs, which came in the form of ease of access provided by regional development, ensuring adequate provision of basic needs. The increase in primary needs among the residents of Krajan Hamlet was accompanied by an increase in expenditure. Based on the questionnaire results, 18 (23%) of the 78 respondents reported an increase in expenditure, while the remaining 60 (77%) reported no increase. This indicates that land consolidation has impacted the community's lifestyle. The 23% increase in expenditure was also due to increased income.

1. Environmental Quality Improvement

a) Building Construction

This building construction aims to improve the quality of housing for residents participating in the Land Consolidation program. Residential buildings for Land Consolidation participants in Krajan

Hamlet, Penawangan Village, were previously made of wood or semi-permanent, so the government provided assistance to address this issue and build permanent houses with sturdier materials. The Land Consolidation program resulted in 128 houses being rebuilt from scratch and 19 houses being rehabilitated. The building construction indicator, resulting from the Land Consolidation program, received an average score of 1.075, categorized as very successful. From the questionnaire completed by the community, 74 participants (95%) of the 78 participants stated that it was very successful, while the remaining 4 (5%) stated that it was successful.

b) Neighborhood Roads

Roads are essential access for communities to facilitate mobility. During the construction phase, the government has constructed 2,325 m² of roads. This neighborhood road construction involves repairing unpaved access roads and constructing new access roads, as agreed upon by Land Consolidation participants. The environmental road indicator, based on the results of the Land Consolidation implementation, achieved an average score of 1.156, categorized as very successful. From the questionnaire completed by the community, 73 participants (94%) of the 78 samples stated that it was very successful, while the remaining 5 (6%) stated that it was successful. Wijaya et al. (2016), in their research, explained that one of the benefits of the land consolidation program is that the presence of environmental road infrastructure leads to optimal land use because the plots of land directly face the road.

c) Drinking water provision

Drinking water provision is an effort undertaken to provide clean water. The government has drilled a well to provide clean water for the community participating in the Land Consolidation program. This well is the second in Penawangan Village, after one previously drilled well. The drilled well and the water channel that flows directly to residents' homes are very beneficial for the household life of the Penawangan Village community, especially in Krajan Hamlet. The water is distributed through pipes sourced from the drilled well. For the drinking water provision indicator, the results of the Land Consolidation implementation obtained an average score of 1,156, categorized as very successful. From the questionnaire completed by the community, 78 participants (100%) of the 78 samples stated that it was very successful.

1. Environmental drainage

Environmental drainage is an infrastructure that functions to control surface water, thereby reducing road damage and soil erosion. In Krajan Hamlet, Penawangan Village, the government has constructed 3,293 m² of drainage infrastructure. This development involves the construction of hardened drainage channels and channeling water to lower elevations. The environmental drainage indicator, based on the results of the Land Consolidation implementation, obtained an average score of 994, categorized as successful. From the questionnaire completed by the community, 15 participants (19%) of the 78 samples stated that it was very successful, while the remaining 63 (81%) stated that it was successful.

a) Wastewater Management

Wastewater management is a series of processes aimed at disposing of bathroom/toilet waste and household wastewater at a final disposal site. In Krajan Hamlet, Penawangan Village, the government has constructed two wastewater treatment plants (WWTPs). A WWTP is a wastewater treatment plant that serves as a waste reservoir and converts wastewater into clean water that can be returned to the natural water cycle. To prevent the surrounding community from inhaling odors, this development involves the construction of underground wastewater channels. For the wastewater management indicator, the Land Consolidation implementation achieved an average score of 1126, categorized as very successful. From the questionnaire completed by the community, 78 participants (100%) of the 78 samples stated that it was very successful.

b) Waste management.

Waste management is a government effort to collect, process, recycle, and process waste materials. The implemented Land Consolidation program facilitates waste management, thereby enhancing the community's environmental ecosystem. In Krajan Hamlet, Penawangan Village, the government has built one waste disposal site (TPS) and distributed trash cans to each resident's home. The TPS is a site-based waste processing facility that actively involves the community in its management, thus categorizing it as community empowerment. For the waste management indicator, the Land Consolidation implementation achieved an average score of 1010, categorizing it as successful. Based on the questionnaires completed by the community, 43 participants (55%) of the 78 participants stated that the project was very successful, while the remaining 35 (45%) stated that it was successful.

c) Fire Protection

Fire protection is an effort to extinguish or control fires to minimize damage to the surrounding environment. The fire protection indicator, based on the results of the Land Consolidation implementation, obtained an average score of 968, categorized as successful. Based on the questionnaires completed by the community, 20 participants (26%) of the 78 participants stated that the project was very successful, while the remaining 58 (74%) stated that it was successful.

In the environmental quality improvement process, the evaluation criteria completed by the community through the questionnaires yielded the following analysis:

1. Effectiveness

Effectiveness refers to how well the improvement of environmental quality in slum areas achieves the desired goals and evaluates each indicator of slum quality. The effectiveness criterion obtained a score of 1860 in the category of very successful. From the questionnaire that had been filled out by the community, as many as 74 participants (95%) out of 78 samples stated that it was very effective while the remaining 4 people (5%) stated that it was effective. Figure 1 shows the effectiveness diagram based on the participants of Land Consolidation in Krajan Hamlet.



Figure 1 Diagram of the Effectiveness of Environmental Quality Improvement
Source: Researcher Data Processing, 2024

1. Efficiency

Efficiency refers to the extent to which existing resources can be used properly in relation to the time and energy expended during land consolidation development. This criterion aims to find out the extent of budget optimization, manpower, and time required in development. The efficiency criterion obtained a score of 1863 with the category of very successful. The community filled out a questionnaire in which 70 participants (90%) out of 78 samples reported that they were very efficient, while the remaining 8 people (10%) indicated that they were efficient. Figure 2 shows the efficiency diagram based on the participants of Land Consolidation in Krajan Hamlet.



Figure 2 Environmental Quality Improvement Efficiency Diagram
Source: Researcher Data Processing, 2024

1. Justice

In this case, justice/equality is the extent to which the development fulfills society's sense of justice. One example of this justice is the fair distribution of funds and materials for house construction within the community, ensuring that everyone benefits equally. The criteria for justice obtained a score of 1850 in the category of very successful. The community's questionnaire revealed that all 78 participants (100%) out of the 78 samples stated that the distribution was very fair. Figure 3 displays the justice diagram as perceived by the Land Consolidation participants in Krajan Hamlet.



Figure 3 Environmental Improvement Justice Diagram
Source: Researcher Data Processing, 2024

a) Responsiveness

Responsiveness refers to the role of the government in following up on things that happen in the field during the implementation process. The efficiency criterion obtained a score of 1833 with the category of very successful. Out of 78 samples, 67 participants (86%) from the community stated in the filled-out questionnaires that they were very responsive, while the remaining 11 people (14%) indicated that they were responsive. The efficiency diagram according to the participants of Land Consolidation in Krajan Hamlet can be seen in Figure 4.

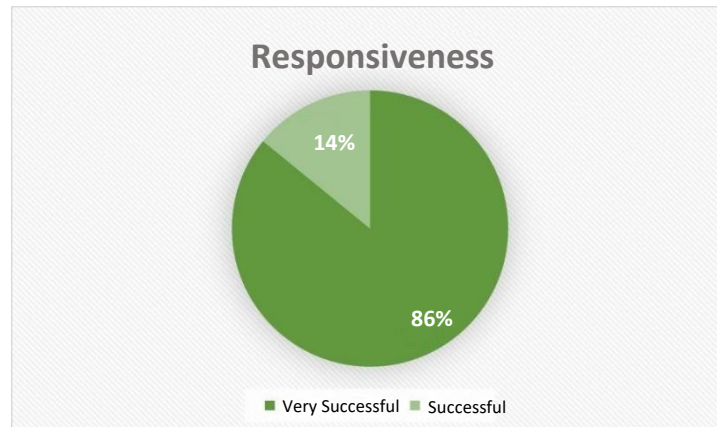


Figure 4 Environmental Quality Improvement Responsiveness Diagram
Source: Researcher Data Processing, 2024

The environmental quality improvement efforts implemented in Krajan Hamlet are generally considered very successful. The previously outlined data supports this success. The success rate is divided into two categories: successful and unsuccessful. Successful categories include very successful and successful, while unsuccessful categories include unsuccessful and very unsuccessful.

Based on the analysis, the success of environmental quality improvement in the slum areas of Krajan Hamlet is supported by each environmental quality indicator within the settlement area and by evaluation criteria. The evaluation criteria encompass effectiveness, efficiency, fairness/equality, and responsiveness. Seven of the seven indicators for environmental quality improvement have been

implemented and developed effectively, efficiently, fairly, and responsively, meeting the desires and needs of the community participating in the Land Consolidation Program.



Figure 5 Success Diagram of Environmental Quality Improvement
Source: Researcher Data Processing, 2024

D. Conclusion

Based on the research conducted, the following conclusions are drawn regarding the implementation of land consolidation to improve the quality of slum areas:

1. The government's focus on addressing slum areas motivated land consolidation in Penawangan Village. The land consolidation program in the area proceeded according to the stages specified in the Technical Guidelines for Land Consolidation Implementation and Regulation of the Minister of ATR/Head of the National Land Agency Number 12 of 2019.
2. Land consolidation in this area was influenced by driving factors such as funding support from the Integrated Special Allocation Fund (DAK), exemption or reduction of Land Acquisition (BPHTB) fees, and active community participation. Meanwhile, poor time management, community resistance, lack of consistency, poor access to the village, and collateralized land certificates posed obstacles to the program's implementation. The Land Consolidation program successfully resolved these issues, enabling it to proceed within the designated timeframe.
3. The community's social and economic conditions improved following the Land Consolidation program due to changes in livelihoods, income, the emergence of side jobs, and increased fulfillment of community needs, which are influenced by environmental conditions and income. Environmental conditions influence socioeconomic conditions due to improved accessibility, which is significantly better than before. Resident mobility has become easier, thus influencing spending patterns to meet needs.
4. The community-perceived improvement in environmental quality was 100%, indicating a significant success. This improved environmental condition also indicates that the Land Consolidation program was able to resolve the problems of the slum areas in Krajan Hamlet, Penawangan Village, Pringapus District, Semarang Regency.

Recommendation

To improve the community's economy, the local government should play an active role in providing information about the village's potential that can be explored and developed into a tourist attraction that can boost the local economy. The village government should also support this active role by investing in the development of existing human resources, enabling them to effectively manage existing resources. The Ministry of Agrarian Affairs and Spatial Planning/National Land Agency has a greater role to massively socialize the success of land consolidation so that it can be used as a reference for implementing land consolidation in other places.

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