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Border Infrastructure and Cross-Border Trade: Policy Implementation at the Sota State Border Crossing Post

¹Christian Jhonfri Tambunan, ²Bonaventura Ngarawula, ³Wahyu Wiyani

^{1, 2, 3} Universitas Merdeka Malang, Indonesia

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*Corresponding author: Christian Jhonfri Tambunan

Abstract

This study aims to analyze the implementation of the Sota Cross-Border Post (PLBN) development policy and identify supporting and inhibiting factors in the context of cross-border trade activities between Indonesia and Papua New Guinea. The study used a qualitative approach with a case study design. Data were obtained through semi-structured interviews with six purposively selected informants, limited participant observation, and documentation. The analysis used the Edwards III policy implementation framework, which includes communication, resources, disposition, and bureaucratic structure. The results show that the implementation of the Sota PLBN policy has generally gone well, primarily supported by inter-agency coordination, clear division of authority, the availability of basic infrastructure, and the commitment of the apparatus. However, implementation still faces limitations in human resources, trade support facilities, access to information, transportation, distribution costs, and community business capital. The existence of the PLBN also supports more structured cross-border services and the development of formal trade activities, as indicated by increased export transactions and the growth of community businesses. The findings indicate that the ability of border infrastructure to support cross-border trade is related to the quality of policy implementation, administrative capacity, institutional coordination, and community economic capacity. Strengthening these aspects is necessary to optimize the function of the Sota PLBN in supporting trade activities in the border area.

Keywords: Policy Implementation; Border Infrastructure; Sota PLBN; Cross-Border Trade; Border Governance.

1. Introduction

National border areas hold a strategic position because they not only represent sovereign boundaries but also serve as spaces for population mobility, trade, public services, and socio-economic interactions between countries. In the development of modern border management, policy orientation no longer emphasizes solely security aspects, but also connectivity, cross-border

cooperation, regional development, and community welfare. Brunet-Jailly (2022) points out that cross-border cooperation is related to the interaction between economic activities, institutions, and government networks at various levels. In the Indonesian context, the complexity of border management is also influenced by institutional coordination, administrative capacity, cross-border mobility, and the government's ability to adapt policies to changes

in the strategic environment (Anuar & Raharjo, 2022; Arifin et al., 2024). Therefore, the effectiveness of border area development is determined not only by the existence of policies but also by the government's ability to implement them consistently at the operational level.

One of the instruments for developing Indonesia's border areas is the National Border Crossing Post (PLBN), which functions as a service facility, monitoring, and managing the movement of people and goods between countries. Public infrastructure can essentially improve connectivity and support regional productivity and economic activity (Aschauer, 1989). In border areas, this function is increasingly important because public trade is significantly influenced by accessibility, transportation, crossing facilities, administrative procedures, and inter-institutional coordination. Cross-border trade activities can also be a crucial part of the livelihood strategies of border communities and shape local economic dynamics (Grigorieva et al., 2023). However, the benefits of border infrastructure development depend not only on physical development but also on administrative capacity, institutional coordination, and the quality of governance that underpins policy implementation (Plümmer, 2022; Chilla, 2023).

This situation is relevant to the Sota PLBN in Sota District, Merauke Regency, South Papua, which serves as a land crossing point between Indonesia and Papua New Guinea (PNG). The construction of the Sota PLBN is part of the implementation of Presidential Instruction Number 1 of 2019 concerning the Acceleration of the Development of 11 Integrated Cross-Border Posts and Supporting Infrastructure in Border Areas. In the context of this research, the development of trade activities is used as an empirical indicator to understand the economic dynamics of border communities because the economic characteristics of Sota District are closely related to cross-border trade. Research data shows an increase in the value of export transactions through the Sota PLBN from approximately IDR 741 million in 2023 to more than IDR 1.3 billion in 2024. The development of cross-border activities is also accompanied by the growth of kiosks, trade in basic necessities, transportation services, freight forwarding services, and various small businesses around the PLBN area. This condition indicates that the Sota PLBN not only carries out administrative and state oversight functions but also serves as infrastructure related to trade activities of communities in the border area.

Previous research has shown that border area development and governance are linked to mobility, trade, and the socio-economic conditions of the community. Charles (2024) identified limited facilities, resources, understanding of trade actors, and coordination as key issues in cross-border trade facilitation. In the Indonesian context, Rozie et al. (2025) discussed the socio-economic implications of the Entikong border crossing (PLBN), while Timpal et al. (2024) emphasized the implementation of border area development policies from a welfare perspective. Nino et al. (2025) also demonstrated the importance of social and economic mobility in the Indonesia–Timor Leste border region. More closely, Pugu and Pusung (2025) examined the socio-economic dynamics of the Sota border crossing and its implications for cooperation with Papua New Guinea. Meanwhile, Korwa (2026) highlighted the challenges of Indonesia–PNG cross-border relations in the Jayapura–Vanimo context, including the imbalance in capacity and development on both sides of the border.

Although various studies have addressed the socio-economic impacts, mobility, trade, and governance of border areas, there

remains analytical scope to explain how the implementation of PLBN development policies at the operational level shapes the capacity of border infrastructure to support community trade activities. For example, Pugu and Pusung's (2025) study discussed the socio-economic dynamics at the Sota PLBN, but it did not specifically prioritize policy implementation mechanisms as the primary focus of the analysis. Similarly, the literature on border governance focuses more on cross-border cooperation, institutional capacity, coordination, and interregional mobility (Brunet-Jailly, 2022; Plümmer, 2022; Chilla, 2023; Arifin et al., 2024). Therefore, an analysis is needed that specifically examines the implementation of PLBN development through aspects of communication, resources, implementer disposition, and bureaucratic structure, linking these to the conditions of trade activity in border areas.

This study uses George C. Edwards III's (1980) policy implementation framework, which places communication, resources, disposition, and bureaucratic structure as the primary factors influencing the success of policy implementation. This framework is used to analyze how the Sota PLBN development policy is translated into cross-border services and how these implementation factors support or constrain policy implementation. The contribution of this study lies in integrating the policy implementation perspective with the context of border infrastructure and cross-border trade on the Indonesia-Papua New Guinea border. This is important because the results show that the implementation of the Sota PLBN has been supported by service infrastructure, inter-agency coordination, and apparatus commitment, but still faces limitations in human resources, transportation costs, community business capital, trade support facilities, access to information, and the lack of an equivalent official crossing post on the Papua New Guinea side. Therefore, this study aims to analyze the implementation of the Sota PLBN development policy and identify factors that support and hinder its implementation in the context of community trade activities in the Indonesia-Papua New Guinea border area.

2. Literature Review and Theoretical Framework

2.1 Border Infrastructure and Cross-Border Trade

Border infrastructure plays a strategic role in connecting state services with the mobility and economic activities of people in border areas. Public infrastructure can increase productivity by enhancing connectivity and efficiency of economic activity (Aschauer, 1989). In the context of border regions, these benefits relate to the availability of crossing facilities, transportation networks, administrative services, and goods distribution mechanisms that enable more orderly economic interactions between regions. The economic base perspective also explains that economic activity that connects a region to external markets can be a driver of local economic development (North, 1955). Thus, border infrastructure can be understood not only as a means of state oversight but also as a means of providing the conditions for cross-border economic activity.

Cross-border trade is a vital part of the lives of people in various border regions. Grigorieva et al. (2023) show that cross-border trade can be part of a community's livelihood strategy and evolve with the dynamics of border policies and management. Saiyarod (2023) shows that trade activities in border regions are related to logistics networks, infrastructure, and the regulation of the movement of goods, while Charles (2024) shows that cross-border

trade facilitation can face obstacles such as limited facilities, resources, understanding of trade actors, and institutional coordination. These findings suggest that the economic benefits of border infrastructure do not arise automatically but are influenced by the service capacity and institutional environment that support trade activities.

In the Indonesian context, the construction of the National Cross-Border Post (PLBN) demonstrates an effort to integrate service, surveillance, connectivity, and regional development functions. Rudiati et al. (2023) emphasize the importance of transportation networks in supporting supply chains in Indonesia's border regions. Rahail (2020) demonstrates that trade at the Skouw PLBN is part of the economic activities of Papuan border communities. Rozie et al. (2025) demonstrate that the construction of the Entikong PLBN has socio-economic implications for border communities, while Pugu and Pusung (2025) specifically identify the growth of trade, market access, and business opportunities around the Sota PLBN. This literature provides the basis for understanding the relationship between border infrastructure and trade activities, along with the institutional processes that determine how border facilities are operated and utilized.

2.2 Border Governance and Policy Implementation

Border area management involves various institutions, levels of government, and interstate relations, thus requiring governance that integrates security, service delivery, mobility, and development interests. Brunet-Jailly (2022) explains that cross-border cooperation is shaped by the interaction of economic relations, political institutions, and government networks at various levels. From this perspective, border governance relates not only to the existence of formal institutions but also to the ability of various actors to build coordination and cooperation in managing activities that cross national borders. Chilla (2023) emphasizes the importance of coordination in cross-border governance, while Plümmer (2022) points out that administrative capacity is a crucial element in the government's ability to manage border areas.

Similar challenges are encountered in Indonesian border management. Anuar and Raharjo (2022) demonstrate that governance of the Indonesia–Malaysia border requires institutional coordination and adaptability to changing cross-border conditions. Arifin et al. (2024) also emphasize the continued importance of strengthening coordination, institutional capacity, and harmonization in Indonesian border management. Wika (2025) demonstrates the importance of effective policy implementation in border infrastructure development. In the Indonesia–Papua New Guinea context, Korwa (2026) demonstrates that cross-border relations occur under conditions of unequal capacity and development on both sides of the border. This literature demonstrates that the success of border area development is not solely explained by the availability of infrastructure but also needs to be analyzed through institutional capacity to translate policies, allocate resources, establish coordination, and implement cross-border services.

The border governance perspective is therefore closely linked to policy implementation. Border development policies can have clear objectives and be supported by infrastructure investment, but their implementation outcomes still depend on the capacity of implementing organizations and inter-institutional relationships. In this study, border governance is used as the institutional context to understand the implementation of the Sota PLBN policy, while its

implementation mechanisms are analyzed more specifically using a policy implementation framework.

2.3 Policy Implementation Framework

Policy implementation is the process of translating policy objectives and decisions into operational actions. Dunn (2018) places implementation as a crucial part of the public policy process because achieving policy objectives depends not only on policy formulation but also on the institutional capacity to implement them. From a public administration perspective, organizational and apparatus capacity is also crucial in carrying out government functions and public services (Ngarawula, 2024). This becomes increasingly relevant in border region development because implementation involves various interacting organizations, resources, authorities, procedures, and environmental conditions.

This study uses George C. Edwards III's (1980) policy implementation model as the primary analytical framework. Edwards III identified four main factors influencing policy implementation: communication, resources, disposition, and bureaucratic structure. Communication relates to the clarity and consistency of the delivery of policy objectives and information to implementers and target groups. Resources include the availability of human resources, information, authority, budget, and facilities necessary to implement the policy. Disposition refers to the implementer's attitude, understanding, and commitment to the policy objectives, while bureaucratic structure relates to the division of authority, operational procedures, and coordination between organizations involved in implementation.

These four dimensions are relevant to analyzing the development of the Sota PLBN because its implementation involves conveying policy information to the public, coordinating various agencies, providing service personnel and facilities, implementing commitments, and distributing authority and cross-border service procedures. In line with the research focus, the communication dimension specifically encompasses the dissemination of the Sota PLBN development policy, coordination between government agencies, and the dissemination of information to the border community. Thus, the Edwards III model provides a systematic framework for identifying conditions that support and hinder the implementation of the Sota PLBN development policy.

Based on this framework, this study places policy implementation as the primary analytical focus, while border governance, border infrastructure, and cross-border trade serve as analytical contexts to understand the environment in which the policy is implemented. This study does not assume a direct causal relationship between PLBN development and economic growth. Instead, the development of trade activities is used as an empirical indicator to understand the economic dynamics of the community because the characteristics of the Sota region are closely related to cross-border trade activities. This approach is consistent with the research focus, which analyzes the implementation of the Sota PLBN development policy and the factors that support and hinder its implementation. Thus, this framework allows the study to explain how policy implementation capacity interacts with the function of border infrastructure in the context of cross-border trade services and activities between Indonesia and Papua New Guinea. Based on these theoretical and contextual considerations, the analytical framework used to guide the analysis of Sota PLBN policy implementation is presented in Figure 1.

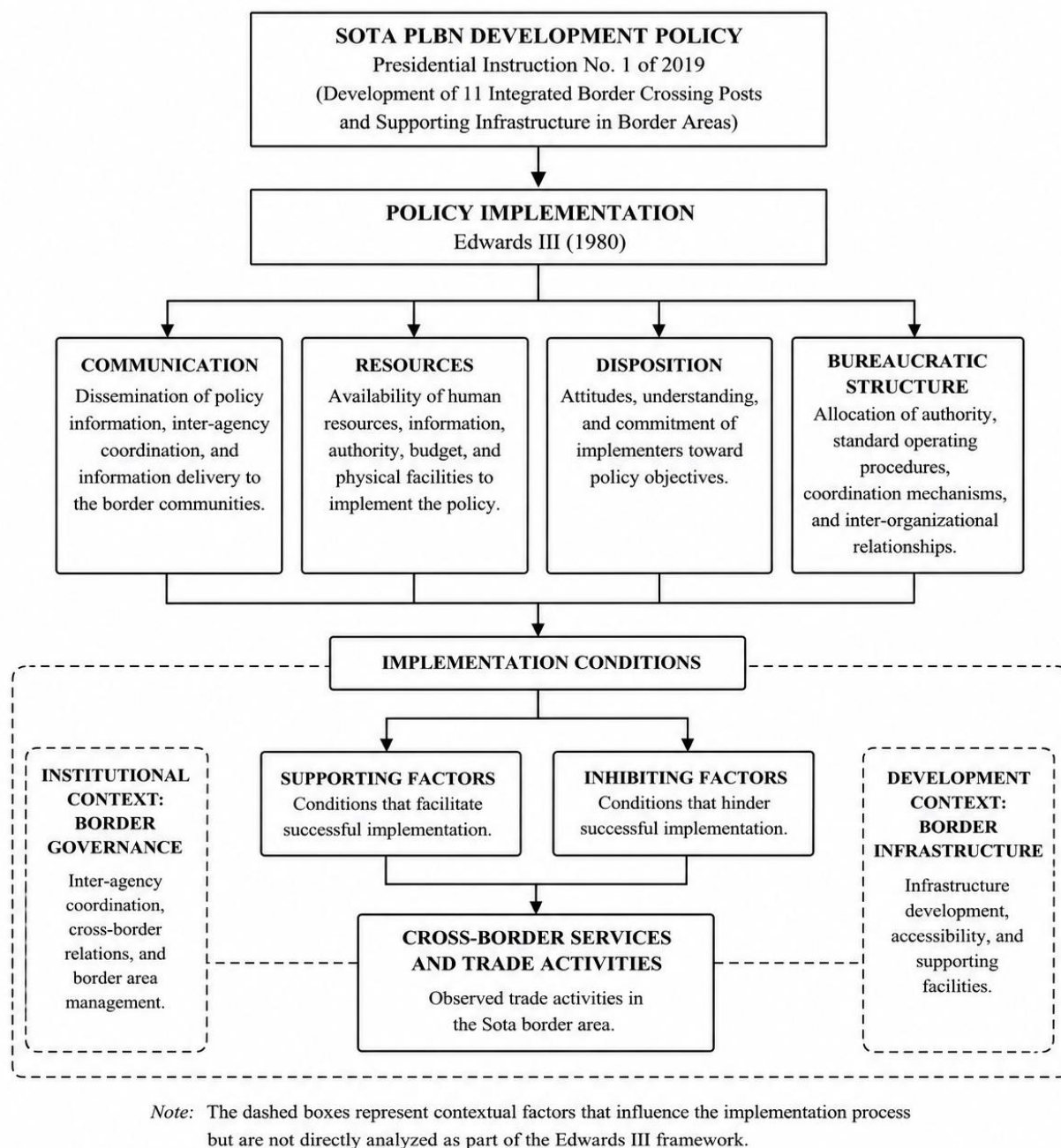


Figure 1. Analytical Framework of the Study

Source: Developed by the authors based on Edwards III (1980) and relevant border governance and cross-border trade literature.

3. Research methods

3.1 Research Design and Location

This research uses a qualitative approach with a case study design to analyze the implementation of the Sota State Cross-Border Post (PLBN) development policy based on Presidential Instruction Number 1 of 2019. The case study approach was chosen because it allows for an in-depth analysis of the policy implementation process in the context of the border area, including inter-institutional coordination, the role of stakeholders, and factors that support and hinder policy implementation. The research is qualitatively oriented, while secondary quantitative data, such as trade, population, and regional economic statistics, are used as supporting data to provide context and strengthen the qualitative findings.

The research was conducted at the Sota Border Post (PLBN Sota), Sota District, Merauke Regency, South Papua Province, Indonesia, on the Indonesia–Papua New Guinea (PNG) border. This location was chosen because the Sota Border Post is an official crossing point that provides administrative services, border surveillance, and facilitates the mobility of people and goods. The geographic and socio-economic characteristics of the Sota region also make it relevant for understanding the implementation of border development policies in relation to community activities and cross-border trade.

3.2 Informants and Data Sources

Informants were selected using purposive sampling based on their knowledge, experience, and direct involvement in the management, implementation, or utilization of the Sota PLBN. The study involved six informants: two government officials involved in the operations of the Sota PLBN and Customs, two cross-border and domestic business actors, and two local government representatives representing the Sota District Government and the Merauke

Regency Border Management Agency. The selection of these informants was intended to gain perspectives from policy

implementers, local governments, and economic actors in the border region.

Table 1. Research Informants

Informant Group	Representation	Code	Selection Criteria	Amount
Relevant government apparatus	Sota PLBN/BNPP	AP1	Involved in the management and operation of PLBN	1
Relevant government apparatus	Customs	AP2	Involved in cross-border services and supervision	1
Businessmen	Cross-border traders	PU1	Have hands-on experience in cross-border trade	1
Businessmen	Traders in the Sota area	PU2	Have experience in local trading activities	1
Local government	Sota District Government	PD1	Understanding the implementation of policies and conditions in border areas	1
Local government	Merauke Regency Regional Border Management Agency	PD2	Understanding border area policies and management	1
Total				6

Source: Research data, processed by the author.

Data sources consist of primary and secondary data. Primary data was obtained through interviews and field observations, while secondary data was obtained from laws and regulations, institutional reports, government publications, statistical data, archives, meeting minutes, activity photographs, and other relevant written sources. Secondary data was used to complement, compare, and verify information obtained from primary data.

3.3 Data collection technique

Data were collected through semi-structured interviews, limited participant observation, and documentation. Semi-structured interviews were conducted using an interview guide, allowing researchers the flexibility to develop questions based on informants' responses. Interviews aimed to obtain information on policy communication, resource availability, implementer disposition, bureaucratic structure, inter-agency coordination, and factors supporting and hindering the implementation of the Sota PLBN development policy.

Limited participant observation was conducted in the Sota PLBN area to obtain a direct overview of policy implementation, apparatus activities, the mobility of people and goods, and trade activities within the border area. Documentation was conducted by reviewing laws and regulations, program implementation reports, institutional data, statistics, meeting minutes, activity photographs, and other documents relevant to the implementation of the Sota PLBN development policy.

3.4 Data Analysis Techniques and Validity

Data were analyzed using Miles and Huberman's interactive model, which includes three stages: data reduction, data display, and conclusion drawing and verification. Data from interviews, observations, and documentation were first selected and grouped based on the research focus. Next, the data were presented systematically to identify patterns and interrelationships between findings. Conclusions were then drawn and continuously verified through comparisons of various data sources.

The analysis was guided by Edwards III's (1980) four dimensions of policy implementation: communication, resources, disposition, and bureaucratic structure. Other relevant findings were then

grouped into supporting and inhibiting factors. Data on cross-border trade were used as contextual empirical evidence to understand the dynamics of activity around the Sota PLBN and were not used to statistically test causal relationships.

Data validity refers to four criteria: credibility, transferability, dependability, and confirmability. Credibility is strengthened through triangulation of sources, techniques, and time, member checks, extended observation, and observational persistence. Transferability is supported by adequate descriptions of the location, informants, and research context. Dependability is achieved through systematic documentation of the research process, while confirmability is achieved by ensuring that interpretations and conclusions are based on the appropriateness of evidence from interviews, observations, and documentation.

4. Research result

The research findings indicate that the implementation of the Sota PLBN development policy has taken place through a cross-border service mechanism involving various government agencies, local governments, and border communities. The findings are grouped based on four dimensions of policy implementation: communication, resources, disposition, and bureaucratic structure. Furthermore, the research findings also identify supporting and inhibiting factors in the implementation and development of cross-border trade activities as the empirical context for policy implementation.

4.1 Implementation of the Sota PLBN Development Policy

4.1.1 Communication

Policy communication between the central government and the implementers at the Sota PLBN is conducted through official letters, technical instructions, coordination meetings, and regular institutional communication. Horizontal coordination also takes place between PLBN managers, Customs, Immigration, Quarantine, local governments, and other relevant agencies. This mechanism provides clarity regarding the duties and responsibilities of each implementer in providing cross-border services. AP1 explained:

"Policy delivery is usually through coordination meetings and official letters from the central BNPP. We at the PLBN receive guidance regarding cross-border services, including trade facilities for border communities. So far, the policy delivery has been quite clear, although implementation sometimes requires adjustments to conditions on the ground in Sota."(AP1, Interview)

Public communication was also conducted through outreach regarding procedures for transporting goods, customs regulations, and the use of official channels. However, this information has not yet reached all residents equally, especially those living far from the Sota District center. AP1 stated:

"The main obstacle is usually that some people live in remote villages and have limited access to information. So, information distribution isn't always evenly distributed."(AP1, Interview)

These findings indicate that inter-institutional communication has been running relatively well, while the delivery of information to the public still requires strengthening so that it can reach border communities more evenly.

4.1.2Resource

The Sota PLBN is equipped with basic cross-border service facilities and infrastructure, including CIQS facilities, service rooms, goods inspection areas, and other operational facilities. These facilities support more organized service and supervision of the movement of people and goods. AP2 stated:

"The available facilities and infrastructure are sufficient to support cross-border trade services and oversight. Inspection facilities, service rooms, and operational support access are available and can be utilized effectively to support activities in the PLBN area."(AP2, Interview)

In terms of human resources, the number of officers is still sufficient to meet current service needs. However, increased crossing and trade activities require increased personnel numbers and competencies. An operational budget is also available to support services, supervision, facility maintenance, and other operational needs. AP2 emphasized:

"I think what still needs to be improved is the number of human resources, improving the competence of officers through training, and providing various operational support facilities so that services and supervision can keep pace with the ever-increasing cross-border trade activity."(AP2, Interview)

Thus, infrastructure and operational support are in place, but human resource capacity and trade support facilities still require strengthening.

4.1.3Disposition

The research results show that the apparatus is committed to carrying out its duties and providing services to the public. Implementers understand that the PLBN is a strategic government program that not only relates to border surveillance but also to public services and border area development. AP1 stated:

"As officers assigned to the Sota PLBN, we strive to carry out our duties in accordance with our respective functions and responsibilities. We understand that the PLBN development is a strategic government program to strengthen the border region and improve the welfare of the community."(AP1, Interview)

The responsiveness of the apparatus was also evident when operational issues arose. Officers coordinated with relevant agencies to find solutions to ensure cross-border services and activities continued. AP2 explained:

"When encountering obstacles, officers usually coordinate with relevant agencies to find a joint solution. We strive to resolve every issue quickly to avoid disrupting services or cross-border trade activities."(AP2, Interview)

These findings indicate that the commitment, responsiveness, and service orientation of the apparatus are elements that support the implementation of the Sota PLBN development policy.

4.1.4Bureaucratic Structure

The bureaucratic structure of the Sota PLBN is characterized by a relatively clear division of duties and authorities between agencies. The PLBN management is responsible for managing the area and facilities, Immigration handles the inspection of people and travel documents, Customs oversees the flow of goods and customs, and Quarantine handles the inspection of related commodities. Security elements also support border security. AP1 explained:

"In managing the Sota PLBN, each agency has clearly defined duties and authorities. The PLBN Manager is responsible for managing the PLBN area and facilities. Immigration handles the inspection of travel documents for those passing through, Customs oversees the flow of goods, and Quarantine is responsible for inspecting goods, animals, and plants entering and leaving the border."(AP1, Interview)

Services are implemented based on each agency's standard operating procedures (SOPs). Coordination with local governments is also conducted through regular communication and coordination meetings, particularly regarding cross-border services, security, community activities, and regional economic development. To summarize these four dimensions, the research results are presented in Table 2.

Table 2. Summary of Findings on the Implementation of the Sota PLBN Policy

Dimensions	Key Findings	Implementation Conditions
Communication	Inter-institutional coordination takes place through formal mechanisms, but the delivery of information to the public is not yet even.	Relatively good; socialization needs to be strengthened
Resource	Basic infrastructure and budget are available, but the number and competence of human resources and trade support facilities need to be increased.	Quite adequate with limited capacity

Dimensions	Key Findings	Implementation Conditions
Disposition	The apparatus demonstrates commitment, responsiveness, and service orientation.	Good
Bureaucratic structure	The division of authority is clear, SOPs are implemented, and coordination between agencies is running smoothly.	Good

Source: Research data, processed by the author.

Overall, policy implementation is supported by a relatively strong bureaucratic structure and commitment from the apparatus, while communication reach to the community and resource capacity are still aspects that need to be strengthened.

4.2 Supporting and Inhibiting Factors for Implementation

The research identified several factors supporting the implementation of the Sota PLBN development policy, including the availability of PLBN infrastructure, central government support, inter-agency coordination, government commitment, local government involvement, and increased public use of official channels. PLBN facilities facilitate more organized service and goods monitoring, while inter-agency coordination supports the resolution of various operational issues.

Local government support is also evident through programs aimed at businesses and border communities. PD1 stated:

"There are several programs aimed at supporting communities around the border, such as developing

MSMEs, supporting small traders, and empowering village communities. The district government is also encouraging the community to take advantage of business opportunities that have emerged since the establishment of the PLBN."(PD1, Interview)

On the other hand, implementation still faces several obstacles, including geographic conditions, limited human resources and supporting facilities, unequal access to information, transportation and distribution costs, and limited business capital. PU2 stated:

"The obstacles still being felt are usually transportation and the high cost of transporting goods due to the remoteness of the border. Furthermore, when there are a lot of people crossing, service can sometimes take longer."(PU2, Interview)

PU1 also identified limited access and business capital as obstacles to exploiting cross-border trade opportunities. Furthermore, trade activity can be affected by border conditions and regulations in effect in both countries. Findings regarding supporting and inhibiting factors are summarized in Table 3.

Table 3. Supporting and Inhibiting Factors in the Implementation of the Sota PLBN Policy

Supporting Factors	Inhibiting Factors
Availability of PLBN infrastructure	Limited human resource capacity
Central government support	Limited trade support facilities
Inter-agency coordination	Geographical conditions and accessibility
Commitment of the apparatus	High transportation and distribution costs
Local government involvement	Limited business capital
Increased use of official channels	Uneven understanding of procedures

Source: Research data, processed by the author.

These findings indicate that implementation conditions are not only determined by the internal capacity of the PLBN, but are also influenced by the geographical characteristics and socio-economic capacity of border communities.

4.3 Cross-Border Trading Activities

Observations and interviews indicate that trade activity is growing in the Sota area in line with increased cross-border mobility. Residents are capitalizing on these opportunities through kiosks, trading in basic necessities, selling food, and various other small-businesses. PU2 explained:

"In my opinion, the Sota PLBN has been a huge help to the local community. Previously, buying and selling activities were still unorganized, and the number of

people coming from PNG wasn't as large as it is now. Since the PLBN was built, more people have come and gone, and traders in Sota have also felt the impact. Many people have opened kiosks, sold food, and started other small businesses."(PU2, Interview)

Cross-border trade involves a variety of commodities. PNG residents primarily purchase food, clothing, and household necessities in Sota, while some Indonesians transact natural resources from PNG. This pattern demonstrates ongoing economic interaction between communities on both sides of the border.

Developments in trade activity are also reflected in commodity transaction data at the Sota PLBN. These data show changes in export and import values during the 2022–2025 period, as presented in Figure 2.

Commodity Transaction Values at Sota PLBN, 2022–2025

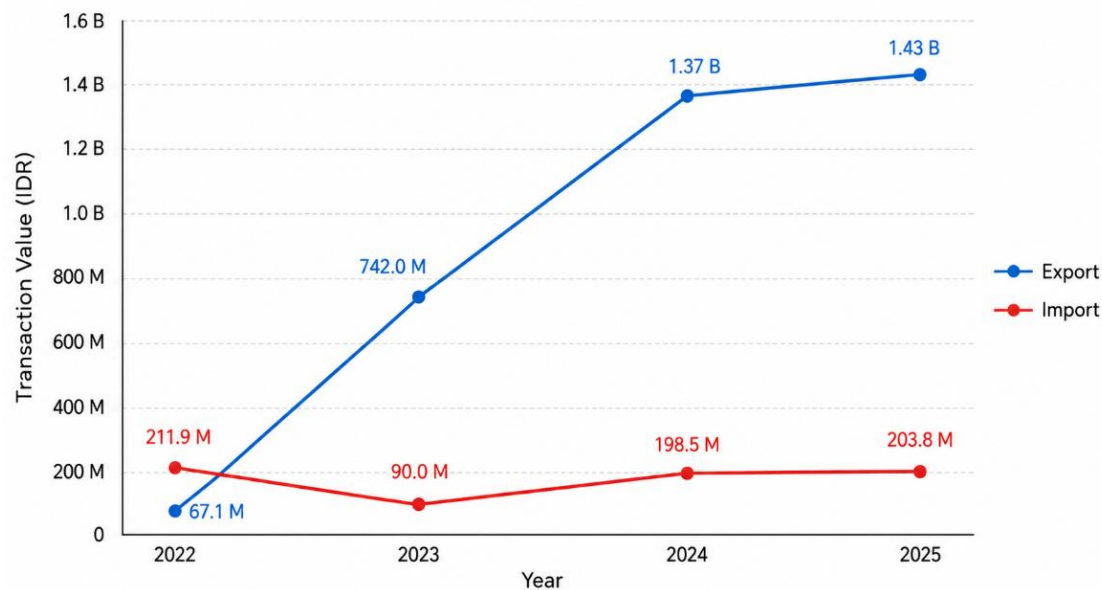


Figure 2. Commodity Transaction Values at Sota PLBN, 2022–2025

Source: Sota PLBN transaction data, processed by the authors.

Figure 2 shows that the value of export transactions increased consistently from IDR 67,070,000 in 2022 to IDR 741,998,850 in 2023, IDR 1,371,706,000 in 2024, and IDR 1,432,663,000 in 2025. In contrast, import transactions showed a fluctuating pattern, namely from IDR 211,884,500 in 2022 decreasing to IDR 89,983,650 in 2023, then increasing to IDR 198,502,000 in 2024 and IDR 203,829,000 in 2025. Thus, the most prominent development occurred in export transactions, while the value of imports fluctuated during the observation period.

The economic benefits of these activities have not been felt equally by all members of society. PU1 stated:

"I think there's been an increase in income, although it hasn't been evenly distributed across the community. Those who own businesses or actively trade typically feel the benefits more. Previously, there weren't many buyers, but now people in PNG often come to buy their necessities because goods in Indonesia are more complete and readily available."(PU1, Interview)

The use of PLBN facilities also makes the crossing process and inspection of goods more orderly. However, some residents living far from Sota still face transportation challenges and limited understanding of cross-border trade procedures.

Overall, the results of interviews, observations, and transaction data indicate growing cross-border trade activity in the Sota PLBN area, particularly evident in the increase in export transactions and the development of community business opportunities. However, these benefits are not evenly distributed and are still limited by accessibility, transportation costs, business capital, human resource capacity, supporting facilities, and access to information. Therefore, the transaction developments in this study are positioned as empirical evidence of the development of cross-border trade activity, not as statistical evidence of a causal relationship between PLBN development and regional economic growth.

5. Discussion

5.1 Implementation of Border Policy and Governance

Research findings indicate that the implementation of the Sota PLBN development policy is generally supported by a relatively clear bureaucratic structure and strong commitment from the apparatus, while communication with the public and resource capacity still require strengthening. This condition aligns with Edwards III (1980), who places communication, resources, disposition, and bureaucratic structure as important dimensions in policy implementation. In the context of the Sota PLBN, formal coordination between agencies has created a more structured division of authority and services, but its implementation still faces limitations in personnel, supporting facilities, and unequal access to information for border communities.

These findings indicate that the capacity for implementing PLBN (National Border Crossing) is inseparable from governance involving various institutions. This aligns with Chilla (2023), who emphasized the importance of institutional coordination and cooperation in cross-border governance. Plümmer (2022) also pointed out that border management requires adequate administrative capacity, while Arifin et al. (2024) identified institutional coordination and harmonization as challenges in Indonesian border governance. The findings in Sota demonstrate that inter-institutional coordination mechanisms are a strength of implementation, but their effectiveness needs to be supported by apparatus capacity and more equitable access to information for the public.

The disposition of the apparatus is also a crucial part of implementation. The commitment and responsiveness of officers helps maintain service when operational constraints arise. However, apparatus commitment cannot completely compensate for resource limitations. Therefore, successful implementation requires a combination of implementer commitment, administrative capacity, and an effective coordination structure. These findings reinforce the relevance of Edwards III (1980) and

demonstrate the interconnectedness of the four dimensions of implementation in the context of border area management.

5.2 Border Infrastructure and Cross-Border Trade

Research findings indicate that the Sota PLBN not only functions as border surveillance and service infrastructure, but also provides facilities to support the mobility of people and goods, as well as community trade activities. More centralized services, clearer official channels, and better organized inspection facilities create conditions that are more conducive to cross-border trade activities. These findings align with Aschauer (1989), who emphasized the importance of public infrastructure in supporting productive activities. In the context of Indonesia's border regions, Rudiati et al. (2023) also demonstrated the importance of transportation connectivity and infrastructure in supporting the supply chain in border regions.

The development of trade in Sota is also in line with Grigorieva et al. (2023), who position cross-border trade as part of the livelihoods of border communities. Saiyarod (2023) shows that border trade activities are shaped by the interaction between infrastructure, logistics, regulations, and community economic practices. In the Indonesian context, Rozie et al. (2025) found that the construction of the Entikong PLBN generated socio-economic benefits, but optimizing these benefits still requires the support of institutional and economic conditions in the border area.

Specifically, the findings of this study complement those of Pugu and Pusung (2025), who identified socio-economic dynamics and trade opportunities at the Sota PLBN. This study provides additional explanation by placing these dynamics within the perspective of policy implementation. The findings indicate that the PLBN infrastructure's ability to support trade activities is related to clear communication, resource availability, staff commitment, and bureaucratic structure and coordination. Thus, the benefits of border infrastructure are determined not only by the presence of physical facilities but also by the quality of policy implementation that operates and manages these facilities.

The increase in export transactions during the observation period indicates the development of formal trade activities through the Sota PLBN. However, this growth in transactions cannot be interpreted as evidence that the PLBN construction directly led to regional economic growth. Furthermore, the economic benefits have not been felt evenly, as they are felt more by people who own businesses or are directly involved in trade activities. According to North (1955), trade with markets outside the region can provide a basis for the development of local economic activity, but the community's ability to benefit remains influenced by market access, capital, connectivity, and business capacity.

5.3 Limitations of Benefits and Implications for Border Governance

Although the Sota PLBN provides more structured services, its utilization still faces various limitations, particularly transportation and distribution costs, regional accessibility, limited business capital, human resource capacity, trade support facilities, and unequal public understanding of cross-border procedures. These findings align with Charles (2024), who noted that limited facilities, resources, information, and coordination can hinder cross-border trade facilitation. This suggests that border infrastructure development needs to be accompanied by

strengthening the economic capacity of communities to maximize trade opportunities.

The situation in Sota also needs to be understood in the context of Indonesia–Papua New Guinea border governance. Korwa's (2026) study in the Jayapura–Vanimo context shows that Indonesia–PNG cross-border relations face challenges in the form of differences in capacity, development support, and infrastructure on both sides of the border. Although the geographical context differs from Sota, these findings provide a comparative perspective on the importance of addressing institutional and development asymmetries in Indonesia–PNG border management. This perspective also aligns with Brunet-Jailly (2022), who emphasizes that the effectiveness of cross-border governance depends not only on national policies but also on institutional interactions, cross-border cooperation, and community connectivity in border areas.

Overall, this study demonstrates that the relationship between border infrastructure, policy implementation, and cross-border trade is both institutional and contextual. Infrastructure facilitates mobility and trade, but the quality of implementation determines how these facilities operate, while geographic conditions, community economic capacity, and cross-border governance influence communities' ability to capitalize on available opportunities. This study's contribution lies in its finding that the capacity of border infrastructure to support cross-border trade is shaped by policy implementation mechanisms, particularly through communication, resources, disposition, and bureaucratic structure. Therefore, optimizing the Sota PLBN requires balanced strengthening of physical infrastructure, administrative capacity, institutional coordination, access to information, and economic empowerment of border communities.

6. Conclusion

The implementation of the Sota PLBN development policy has progressed through communication, resources, disposition, and bureaucratic structure. Inter-agency coordination, clear division of authority, and commitment from officials have been key drivers of implementation. However, implementation still faces limitations in human resources, trade support facilities, equitable distribution of information, accessibility, transportation costs, and community business capital.

The Sota PLBN supports more structured cross-border services and the development of formal trade activities, as evidenced by increased export transactions and the growth of community businesses. However, the economic benefits have not been felt evenly. These findings indicate that the ability of border infrastructure to support cross-border trade is related to the quality of policy implementation, administrative capacity, institutional coordination, and the community's ability to capitalize on economic opportunities.

Optimizing the Sota PLBN requires strengthening the capacity of officials, supporting trade facilities, access to information, empowering community businesses, and cross-border coordination and cooperation between Indonesia and Papua New Guinea. Future research can expand the study through comparisons between PLBNs and the use of longitudinal data on trade and community economic conditions.

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