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Article

Policy development of road plus property developer on toll road with SOE assignment schemes

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Abstract: The Trans Sumatra Toll Road (TSTR) is a mega toll road project with an assignment State-Owned Enterprise (SOE) scheme in Indonesia. In its development, TSTR has several limitations, including funding, low investment feasibility and the un-optimum implementation of land value capture (LVC). This has the impact of delaying the completion of project development, decreasing the performance of toll road developer companies and even causing bankruptcy. LVC is an alternative funding scheme proven successful in other countries such as Hongkong, England and Vietnam. Several transportation projects based on transit-oriented development have successfully achieved profits using the LVC method. With a low project feasibility, the implementation of the Road Plus Property Developer (RPPD) business model is expected to be a solution to improve investment performance in the TSTR project. RPPD is defined as an assignment scheme toll road business model based on LVC implementation. This research aims to develop policies for implementing the RPPD business model on toll road SOE-assigned schemes. The data was collected by in-depth interviews with experts in two stages. The data analysis method used is Soft System Methodology (SSM). This research produces two recommended actions: ratification of the Presidential Regulation regarding the implementation of LVC and institutional transformation of regionally owned business entities in the property sector. It is hoped that implementing the RPPD policy will become a priority in completing the TSTR project.

Keywords: road plus property; land value capture; toll road assignment; trans Sumatra toll road

1. Introduction

The development of toll road infrastructure continues to be a priority for the Indonesian government in producing extensive transportation infrastructure that will boost productivity and facilitate traffic or connectivity between regions. One of the priorities in the Long and Medium Term Plan (RJPMN) 2020–2024 is the construction of the Trans Sumatra Toll Road (TSTR). This is included in the list of national strategic priority projects connecting Sumatra Island, stretching from Bakauheni to Banda Aceh via a 24-toll road section with a total length of 2813 km (Hutama Karya, 2019). PT Hutama Karya (Hutama Karya) is a State-Owned Enterprise, which received an assignment from the government to build and operate TSTR based on Presidential Decree No. 100 of 2014 and Presidential Decree No. 115 of 2015 concerning Amendments to Presidential Regulation No. 100 of 2014 concerning Acceleration of Toll Road Development in Sumatra.

The implementation of the assignment scheme in toll road operations in Indonesia still faces several obstacles from the Business Entity side as the recipient of the mandate. There are at least three main problems or issues faced by the SOE, which

acts as the Toll Road Business Developer (TRBD) in toll road operations. First, the funding problem in toll road construction is limited funding from the government (DJPI PUPR, 2020). The second problem is the deficit operations of the toll road. Based on data from the Toll Road Management Authority (BPJT) in 2022, the 52 road segments recorded operating profits of IDR 4.91 trillion. Seventeen road segments still recorded operating losses, which, when combined, reached IDR 989.32 billion (BPJT, 2022). The third problem is the need for more asset utilization and implementation of value capture toll road infrastructure that have been built (ADB, 2021). If the impact of these problems is not properly mitigated, the implementation of the national strategic project will be obstructed and will not achieve the completion targets. Therefore, it is necessary to implement the optimal LVC, which can provide added value to increase the feasibility of project investment. This can be realized by implementing the Road Plus Property Developer (RPPD) business model.

The RPPD business model is defined as a toll road business concession model that integrates the functions of toll road development and management, as well as property, in one business entity. This RPPD business model will create a financially independent toll road transportation system, as well as encourage sustainable urban area growth around toll roads (Kurnia et al., 2023). The RPPD business model is provided by increasing the value through transportation access. Implementation is carried out through cooperative investment in the private sector and government. The planning and implementation can be realized with the initiative of the regional government (D'Angelo D., et al., 2019).

Several studies have shown that implementing the LVC method to rail and TOD (Transit Oriented Development) based transportation projects have been successfully applied in several countries as a financing alternative. Recent studies on land value coverage are mostly concerned with the context of transit infrastructure in several densely populated cities such as Hyderabad, Hong Kong, Wuhan, and Guangzhou (Li and Love, 2021). Several transportation projects based on transit-oriented development have achieved profits using the LVC method (Suzuki, 2015). Its implementation in Indonesia is divided into two methods: tax-based LVC and development-based LVC. A clear legal framework for tax-based LVC methods is needed. Meanwhile, for the development-based LVC method, the involvement of the private sector greatly influences the success of projects involving this method.

This article aims to answer three research questions: identifying critical success factors, inhibiting factors for implementation and developing land value capture with development-based policy implementation through the Road Plus Property Developer business model. Next, the article is organized into several parts. Section 2 describes the RPPD background. Section 3 describes the research methodology. Section 4 analyzes the main success factors and obstacles in policy implementation. Section 5 discusses soft system methodology analysis of RPPD implementation policies, and Section 6 reaches the research conclusions.

2. Road plus property developer background

Studies on the toll road business model have been conducted since the 1970s, according to (Carpintero, 2011). One of the largest toll road business models is carried

out in Spain, where the business model is integrated between investment, construction and toll road business models. Initially, these three functions (investor, construction company and operator) were carried out separately by the company with a 2000 km toll road concession.

In Indonesia, a toll road developer is known as a Toll Road Business Developer (TRBD), a corporate entity that holds toll road infrastructure concessions on certain sections. TRBD's business process with the assignment scheme consists of three stages: Planning, construction, and operation, as well as the maintenance stages of toll roads. The other side, according to government regulation No.5 1974 (PMDN, 1974), stated that property developers are business subjects who build an area or region, such as housing or apartments. It can be in the form of an institution, or a company owned privately or by the government engaged in the property sector. The land value capture scheme will capture the value of increased land prices and quote it to be allocated as initial capital for the next stage of infrastructure development (World bank, 2017). The Road Plus Property Developer business model is defined as a toll road business concession model that integrates the functions of toll road development and management, as well as property, in one business entity. This RPPD business model will create a financially independent toll road transportation system and encourage sustainable urban area growth around toll roads (Kurnia, Anwar, et al., 2023).

Policy support from the government is needed to implement the road plus the property developer business model. Implementing RPPD is highly dependent on the active role of both the central and regional governments due to the close link between toll road development and the benefits received by each region. The central government needs to encourage the optimization of appropriate utilization in accordance with national and regional spatial planning for the areas around by providing clear guidelines. The value is then increased through private sector investment, and economic development made possible by public investment obtained is classified in the Road Plus Property Developer business model, both planning and implementation depending mainly on local government initiatives (D'Angelo D., et al., 2019).

3. Methodology

In this article, the descriptive analysis research methodology was used. Methods and strategies through archival analysis sourced from papers, books, research documents and related regulations were validated by experts. The policy framework was based on literature regarding the implementation of LVC in terms of transportation infrastructure development. After obtaining the policy framework for implementing the existing RPPD business model in Indonesia, the next evaluation step is to develop research indicators for each variable and dimension by analyzing critical success factors that influence success and inhibiting factors in implementing the RPPD policy. The final stage analysis method is Soft System Methodology (SSM) to obtain the strategy for developing policies in implementing the appropriate RPPD in the assignment of toll road operations. The stages of analyzing research data carried out are as follows **Figure 1**.

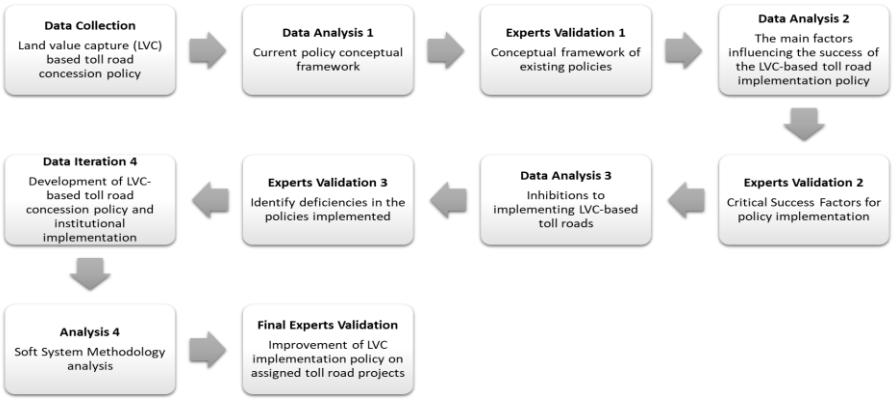

Figure 1. Research data analysis process.

The sources used to create a conceptual model in analysis using the Soft System methodology are the results of collaboration with studies from consultants appointed by the government to study the implementation of this LVC policy on the trans-Sumatra toll road project. Moreover, the results of Focus Group Discussions (FGD) conducted in several previous periods by the Coordinating Ministry for The Economic Sector is at the stage of introducing this policy to the relevant regional governments, so it has actually gone through discussions with relevant stakeholders. This conceptual model is also a combination of the results of FGDs and consultant studies by emphasizing the role of toll road operators in managing assets outside of toll roads. The results of the analysis using the Soft System methodology were then also verified by experts. The criteria for selecting experts are based on experts in their fields who can represent the main stakeholders in developing this policy with more than ten years of experience. The expert comes from the National Development Planning Agency, policy implementation study consultants, academics, toll road operators, and the Ministry of Public Works and Housing.

3.1. Data collection and analysis stage 1

Stage 1 for data collection and analysis was carried out by validation with experienced experts who knew the existing policies on the assigned toll road concession and understood the implementation of LVC as shown in **Table 1**. Validation was carried out using a questionnaire with the help of data collected through an archive analysis process. Stage 1 of data collection and analysis consisted of three questionnaires, i.e., validation of the LVC policy conceptual framework, validation of critical success factors for implementing the LVC policy and validation of factors inhibiting the policy.

3.2. Data collection and analysis stage 2

Stage 2 for data collection and analysis was carried out with a pilot survey and final validation with experts experienced and familiar with policy development on toll roads, land value capture and its application on assignment toll roads as shown in **Table 1**. Stage 2 of data collection consists of 2 types: Survey questionnaire and final expert validation by in-depth interview.

Table 1. Expert profiles for analysis stage 1 and 2.

Code	Institution	Position	Experience (year)	Education strata
P1	Indonesian National Development Planning Authority	National Strategic Project Planning and Development Coordinator	14	Master
P2	Ministry of Public Works and Housing	Secretary to the Director General of Infrastructure Financing	22	Master
P3	PT Hutama Karya (State Owned Enterprise)	Vice President Funding and Investment Planning	18	Master
P4	PT Jasa Marga (State owned enterprise)	Senior Specialist Business Development Group	14	Bachelor
P5	Coordinating Ministry for Maritime Affairs and Investment	Policy Materials Maker	11	Master
P6	Universitas Pembangunan Jaya (College)	Dean of the Faculty of Technology and Design	30	Doctoral
P7	Ministry of Public Works and Housing	Head of Infrastructure Financing Management Sub-directorate	14	Master

3.3. Data collection and analysis stage 3

Stage 3 of data collection and analysis process is the final stage of validation, which will be carried out by expert in-depth interviews to validate the results of policy development using the Soft System Methodology (SSM) with the collection of a list of data through the archive analysis process of stage 1 and stage 2. The experts in this stage are five people with ten or more years of experience in the field of toll road infrastructure development with an educational level Master's degree and have a good reputation as shown in **Table 2**.

Table 2. Experts profile for analysis stage 3.

Code	Institution	Position	Experience (year)	Education strata
P8	PT Hutama Karya (State Owned enterprise)	Vice President Funding and Investment Planning	18	Master
P9	Universitas Pembangunan Jaya (College)	Dean of the Faculty of Technology and Design	30	Doctoral
P10	Ministry of Public Works and Housing	Secretary to the Director General of Infrastructure Financing	22	Master
P11	Indonesian National Development Planning Authority	Director of National Priority Infrastructure Project Planning and Development	30	Doctoral
P12	Ernst and Young (Land value capture consultant)	Director of Strategy and Transactions	24	Doctoral

The SSM was chosen considering its emphasis on developing road plus property developer implementation policies in toll road operations. Based on in-depth interviews, researchers perceive the real world as a system of human activity to understand and approach the core problems in developing this RPPD policy. In the end, it is hoped it will provide recommendations for changes to the implementation of the LVC policy that can provide added value to assignment scheme toll road projects by developing policies for implementing the RPPD business model that can increase the feasibility of investment projects. Policy development is carried out in several stages to develop a rich picture of the situation being studied. The next step is to structure the problem by developing a rich definition of the root picture and connecting it with others to produce a conceptual model of the system. The conceptual model is

then compared with the real world to determine the desired changes systematically and to find research novelty through developing policies for implementing RPPD toll road assignments in Indonesia.

4. Results and discussion

The results of this research are divided into three sub-sections of data analysis results, as follows:

4.1. The existing RPPD business model implementation policy

Land value capture is planned for the transfer of public interest in the form of part or all of the increase in land value (passive income) generated by actions other than the land owner, such as public investment in infrastructure or administrative changes in land use norms and regulatory changes (Smolka, 2013). Several examples of the implementation of land value capture policies, such as in Hong Kong (Rail plus Property) and England (Planning Obligation), have proven successful in implementing land value capture, which also positively impacts the private sector, even though the infrastructure projects implemented are not toll road based.

The rail plus property program in Hong Kong, for example, which implements a development-based land value capture policy, has succeeded in involving private parties (property developers) in Transit Oriented Development (TOD) construction at several Mass Transit Railway (MTR) train stations. The private sector also plays an important role as a developer partner in TOD development projects. Meanwhile, MTR, the party given development rights by the government, did not relinquish its development rights and shifted its business function to asset management after the project was completed. This means that MTR continues to receive profits from property assets that have been jointly developed (Aveline-Dubach, 2019). The success of the rail plus property program is also due to institutional innovation factors and governance processes successfully implemented by the relevant authorities (Musil, 2020).

This is different from the Planning Obligation regulations in England. This policy aims to mitigate the impacts of development proposed by developers. This policy is the British government's way of capturing increases in value (incremental value capture) with a planning mechanism. Most of the income from this implementation is allocated for the construction of affordable housing, and a portion is used to finance infrastructure. In its implementation, this policy applies a negotiation system to determine the amount and type of contribution from developers. Even though England also has a tax-based land value capture policy whose amount is determined by applicable regulations, contributions that are negotiated by considering location conditions are proven to be better than taxes (Crook, 2023). A comparison of the implementation of land value capture can be seen in **Table 3**.

Table 3. Comparison of land value capture implementation policies.

No.	Policy dimension	Indonesia	Hong Kong	England
1	The purpose of implementing land value capture	Fulfillment of development costs	Maximizing property profits (commercial)	Maximizing property profits (commercial)
2	Efficiency of implementing land value capture	5–12%	Farebox recovery ratio (185%)	30%
3	Flexibility in determining the value of land value capture	Not flexible because it is based on regulations	It is quite flexible because there are negotiations between MTR and the developer	Quite flexible because there is negotiation on the amount of contribution
4	Effectiveness to improve investment performance	Less effective because the government takes additional value	Very effective for improving investment performance	Very effective for dynamic British economic conditions with the active role of the private sector
5	Contributor to the implementation of land value capture	Land owner	Developer	Developer
6	The type of coordination that occurs in the application of LVC	Coordination with tax authorities	Public Private Partnership (PPP)	Contribution negotiation
7	Land value capture implementation time	During the project	After the project operation	Before the project operation
8	Location of land value capture implementation	Only at the project site	Only at the project site	Only at the project site
9	Land value capture implementation project object	Construction of new facilities	Construction of new facilities	Construction of new facilities
10	Allocation of land value capture financing	Capital financing	Capital financing as well as Operation and Maintenance costs	Capital funding
11	Ownership of developed facilities	Government-owned facilities with concession agreements to the private sector	Government owned facilities	Private owned facilities
12	Level of government involved	Taxes are collected by the Regional Government	Local government	Local government

4.2. Critical success factor implementation of RPPD policy

Data collection at this stage was carried out through archival analysis and differences related to critical success factors in implementing the RPPD business model policy. Based on previous research (Anwar et al., 2023; Kurnia, R.F., Anwar A., et al., 2023), the following are critical success factor variables in the LVC-based Trans-Sumatra Toll Road Assignment project: 1) government policy; 2) business model of toll road developer; 3) Asset/property management; 4) supportive investment environment; and, 5) LVC planning and specific project conditions.

Adopted from the factors above, the author also found the sub-variables from this research, which are also relevant and can be added as critical success factors. Furthermore, these factors are categorized into research variables as follows (**Table 4**).

The results of expert validation are in the form of responses in making confirmations and corrections related to variables obtained from the policy dimensions of implementing land value capture. The following are the recapitulation results of this validation against experts (**Table 5**).

Table 4. Critical success factor based on previous research.

No.	Critical success factor	Reference
Legal and institutional framework variables (X1)		
1	Government policy	Li, Bao and Chau. (2022); Suzuki et al. (2015)
Variable efficiency of implementing the land value capture method (X2)		
2	Land value capture planning and specific project conditions	Zhao et al. (2012)
3	Limitations of land value capture instrument applications	Xue and Fang (2017)
Private sector involvement variable (X3)		
4	Toll Road developer business model	Connolly and Wall (2016); Suzuki et al., (2015)
5	PPP financial mechanism for land value capture	Sharma and Newman (2018)
6	Selection of business partners according to project characteristics	Li and Love (2022)
7	Business Entity/SPV Strategy	Li and Love (2019)
Property business development / asset management variable (X4)		
8	Asset/property management	Li and Love (2022)
9	Property price fluctuations	Li and Love (2019)
Investment climate variable (X5)		
10	Supportive investment environment	Thanh Nguyen et al., (2020)

Table 5. Critical success factor for LVC implementation.

No.	Critical success factor
Legal and institutional framework variables (X1)	
1	Government policy
Variable efficiency of implementing the land value capture method (X2)	
2	Land value capture planning and specific project conditions
3	Limitations of land value capture instrument applications
4	LVC acceptance success rate according to plan
5	Determining the intended use of funds from LVC results
Private sector involvement variable (X3)	
6	Toll Road developer business model
7	PPP financial mechanism for land value capture
8	Selection of business partners according to project characteristics
9	Business Entity / SPV Strategy
Property business development / asset management variable (X4)	
10	Asset/property management
11	Property price fluctuations
Investment climate variable (X5)	
12	Supportive investment environment

Based on the validation, there are two additional policy dimensions: Property price fluctuations can be categorized as a critical success factor considering that developers have their own strategies for price fluctuations (Li, Bao and Chau, 2022). With fluctuations in property prices, developers will be interested in investing in LVC projects, especially if property prices are based on prior increases due to infrastructure

development, as in the case of the Hong Kong MTR (Aveline-Dubach, 2019).

4.3. Inhibiting factors for implementing RPPD policies

Based on literature studies from previous research and scientific journals, 16 factors inhibit the implementation of land value capture policies, which are grouped into four variables determined in this research. The factors that were collected were further validated by experts by assessing attitudes and levels of importance using a questionnaire using the Delphi method. In using the Delphi method, it is hoped that consensus can be obtained between experts to obtain factors inhibiting the application of land value capture. This questionnaire was carried out iteratively until a consensus can be formed between experts regarding the assessment given (Giannarou and Zervas, 2014).

The results of round three of the expert validation assessment have illustrated the similarity of perceptions and the absence of conflict, achieving a consensus assessment between experts. The results of round three of the expert validation can be seen in **Table 6**.

Table 6. Inhibiting factors for implementing RPPD policies.

No.	Inhibiting factor	References
1	Development planning framework	Wang et al. (2019)
2	Private and government synergy	Xue and Fang (2017)
3	Inadequate legal framework	ADB (2021)
4	Flexibility to change regional regulations	Mathur (2019)
5	Poor recording of proof of land ownership	OECD (2022)
6	Income from land value capture that is not according to plan	US DoT, FHWA (2023)
7	Cross-sectoral collaboration within government	ADB (2021)
8	Inadequate legal framework	OECD (2022)
9	Commitment of decision makers (political will)	Wang et al. (2019)
10	Refusal from the property owner	OECD (2022)
11	Planning and implementation agency	ADB (2021)
12	Development risks that need to be mitigated (market demand, financial stability, etc.)	US DoT, FHWA (2023)
13	Property price fluctuations	Li and Love (2019)
14	Lack of strong administrative capacity of the government (vulnerable to corruption)	OECD (2022)
15	Lack of public/stakeholder support	US DoT, FHWA (2023)
16	Excessive fees for developers	OECD (2022)

Based on the findings where 16 factors inhibiting the implementation of the RPPD policy were found, the author discusses the five inhibiting factors with the highest ranking in more depth further in the discussion section.

4.4. Soft System Methodology (SSM) Analysis

Soft System Methodology (SSM) is carried out after critical success and analysis of inhibiting factors is completed. The analysis stages of SSM can be seen in **Figure**

2.

4.4.1. Recognize the problem situation

The first step to start this analysis is to recognize the problem situation which was done by mapping the problem situation with a complete picture (rich picture) and carrying out three initial analyses, namely (Pidd, 1996): 1) analysis one (analysis of the intervention itself); 2) analysis two (social analysis); 3) analysis three (political analysis) as shown in Figure 2.

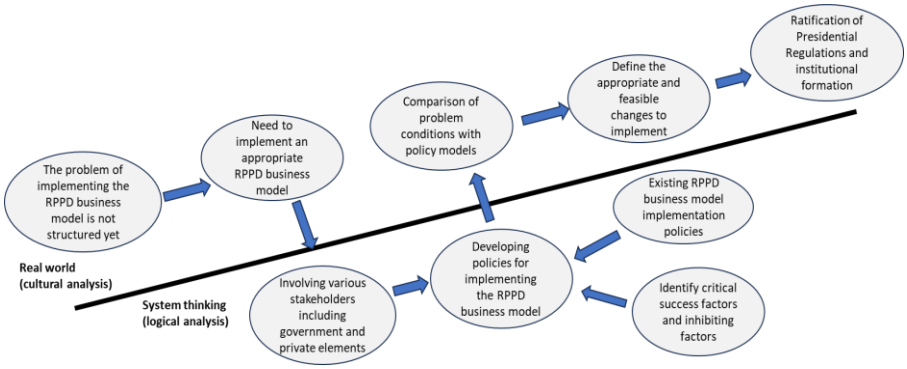

Figure 2. Soft system methodology (SSM) staging.

The rich picture presented by this research is related to changes and/or formation of legal regulations which are divided into important issues related to evaluating the implementation of value capture policies. **Figure 3** is a complete picture (rich picture) for this analysis.

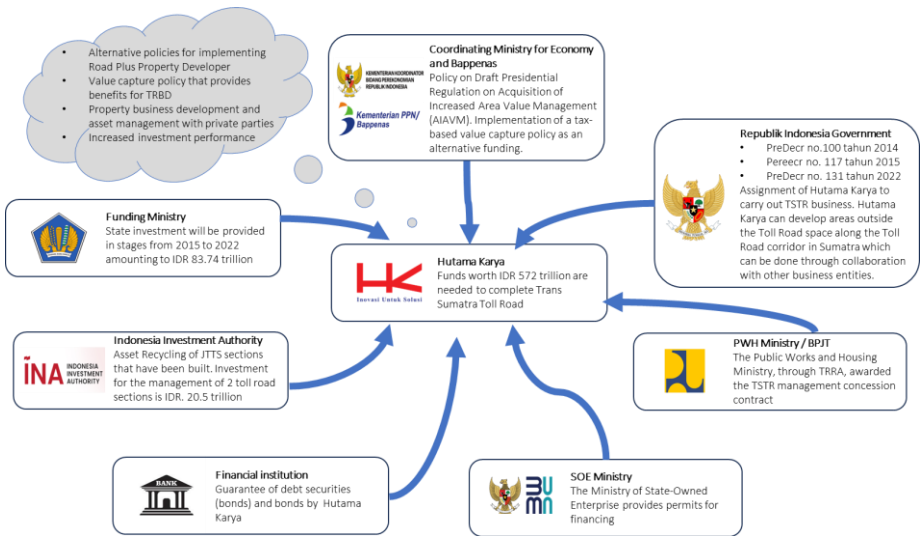

Figure 3. Rich picture evaluation of RPPD implementation policy on assignment toll roads.

First is analyzing the intervention itself. This analysis was carried out by determining three parties who played a role in this research. The division of these parties is as client, practitioner, and the owner of the issue addressed. The parties who play a role are as follows (**Table 7**).

Analysis Two (social analysis) aims to understand social situations in order to explain them more comprehensively with real-world situations. Social Analysis has

three elements: Roles, norms and values. Roles are things related to social positions that mark differences between members of a group or organization. Evaluation of RPPD implementation policies consists of various parties, each with different roles and organizations of origin. Meanwhile, norms are expected behavior related to and defining roles. Norms in evaluating policies for implementing RPPD must comply with a code of ethics in carrying out its activities. This code of ethics is formalized in the form of regulations governing the implementation of land value capture policies. Values are a standard or criterion by which the attitudes of a role are judged. Values in the context of the RPPD policy are standards of appropriate behavior for the role.

Table 7. Important role parties in research.

Categories	Parties appropriate to the research context
Client (C)	This SSM study was carried out to complete a Doctoral program in Project Management, so the parties involved were: Researcher / Student, Doctoral Advisor (Dissertation Advisor), Universitas Indonesia Civil Engineering Department Doctoral's Program.
Practitioner (P)	The parties who used SSM in this study to complete the research were students.
Owner of the issue addressed (O)	The parties involved in developing the policy model for implementing RPPD are: Directorate General of Highways, Toll Road Regulatory Aauthority (TRRA), Toll Road Business Developer (TRBD), Coordinating Ministry for Economic Affairs, Ministry of National Development Planning/Agency National Development Planning (Bappenas), Coordinating Ministry for Maritime Affairs and Investment, Ministry of Home Affairs, Ministry of Finance, Business Services Agency, Regional Owned Enterprises (ROE), Regional Work Units, Regional People's Representative Council where the project is located, Revenue Agency Regions, Real Estate (Property) and Residential Owners and Developers as well as Toll Road Users

After Analysis Two had been carried out, it was then continued with Analysis Three (Political Analysis). This analysis explains the power of deciding whether something happens or not. This analysis focuses on determining the disposition of power in a situation and the process to contain it. Meanwhile, the two things that become the focus of this political analysis in accordance with the context of policy evaluation for implementing land value capture are finding the arrangement of power and the process of filling the power inherent in the actor.

The next process is to carry out several analyses related to policy evaluation for implementing land value capture at the policy level. The first stage is to determine the root definition (RD) of the relevant system to describe the transformation process and situational changes created in the real world. RD is a system relevant to the problem being studied. There is a PQR formula that must be followed in determining RD. The PQR formula means doing P by Q to achieve R, where PQR will answer the questions of what, how, and why. In this study, two RDs were identified as explained in **Table 8**.

Table 8. Research root definition (RD).

Level	Transformation	Root definition name	Description
Policy	Presidential regulation	The system that the Government has in presidential regulations (P) through formal laws in policy formulation for implementing land value capture (Q) to improve investment performance (R).	RD1
	Institutional transformation	The system that the Government has in transforming the functions and instiutions of Regional-Owned Enterprises (ROE) at the provincial level which are formed as business entities from the PPP scheme (P) through formal law in the formulation of policies regarding the function of ROE as institutions implementing land value capture policies/P3NK Agency (Q) to achieve alternative funding for assignment toll roads in Indonesia (R).	RD2

4.4.2. First transformation: Presidential regulation

The first transformation relates to the formation of a Presidential Regulation which regulates policies for implementing land value capture. The first transformation is related to the formation of a Presidential Regulation which regulates land value capture implementation policies that support the RPPD business model. To test and improve the RD created, a CATWOE analysis was made (**Table 9**).

Table 9. CATWOE analysis transformation I.

Categories	Description
Customers	Directorate General of Highways, Toll Road Regulatory Agency (BPJT), Toll Road Business Developer (BUJT), Business Service Agency (BLU), Regional Owned Enterprise (BUMD), Regional Work Unit, Regional People's Representative Council where the project is located, Revenue Agency Regions, Real Estate (Property) and Residential Owners and Developers, Toll Road Users.
Actors	Coordinating Ministry for Economic, Ministry of National Development Planning/National Development Planning Agency (Bappenas), Coordinating Ministry for Maritime and Investment, Ministry of Internal Affairs, Ministry of Finance, Regional Government.
Transformation	From not existing to existing. Presidential Regulation Acquisition of Increased Area Value Management (P3NK) concerning the policy of implementing land value capture (RPPD business model) as a legal basis for alternative funding for toll road infrastructure in Indonesia.
Worldview	With the existence of governing regulations, the policy model for implementing land value capture (RPPD business model), especially development-based ones, will be implement well, thereby increasing investment performance.
Owner (s)	Coordinating Ministry for Economic, Ministry of National Development Planning/National Development Planning Agency (Bappenas), Coordinating Ministry for Maritime and Investment, Ministry of Internal Affairs, Ministry of Finance.
Environment	Time and cost limitations, the complexity of organizing project financing with an assignment scheme, parties who do not support to implement land value capture on infrastructure projects.

After the CATWOE analysis is done to RD, a conceptual model (CM) was formed based on its formation of Presidential Regulation as shown in **Figure 3**. CM is an intellectual tool used as a basis for questioning, studying and exploring real situations of concern. CM can be used as a source of questions or comparisons to real situations being studied (Checkland and Poulter, 2006).

According to **Figure 4**, the first step transformation is to form an Inter-Ministerial Committee (PAK) team and prepare a Presidential Regulation regarding the policy for implementing land value capture by the Coordinating Ministry for Economy. The committee reviewed regulations related to land value capture, considering studies, aspirations and input from the World Bank, ADB and KIAT. The committee socialized the land value capture policy on the Presidential Regulation on Acquisition of Increased Area Value Management (P3NK). Then, data and information related to the preparation of policies based on the results of the socialization were collected. After the data had been collected, data processing to prepare a Draft Presidential Regulation concerning the Acquisition of Increased Area Value Management (P3NK). Harmonization of the Draft Presidential Regulation on P3NK between agencies is very necessary, revision of the draft is carried out if necessary and the final stage is legalization of the Presidential Regulation on P3NK.

Activities for formulating Presidential Regulations must be controlled using Criterion 3E: Efficacy, namely the existence of formal laws that specifically regulate the implementation of land value capture; Efficiency, in using minimum resources in the process of establishing a presidential regulation (P3NK) led by the Coordinating

Ministry for the Economy; and Effective, which means this model is successful if the presidential regulation regarding the implementation of land value capture.

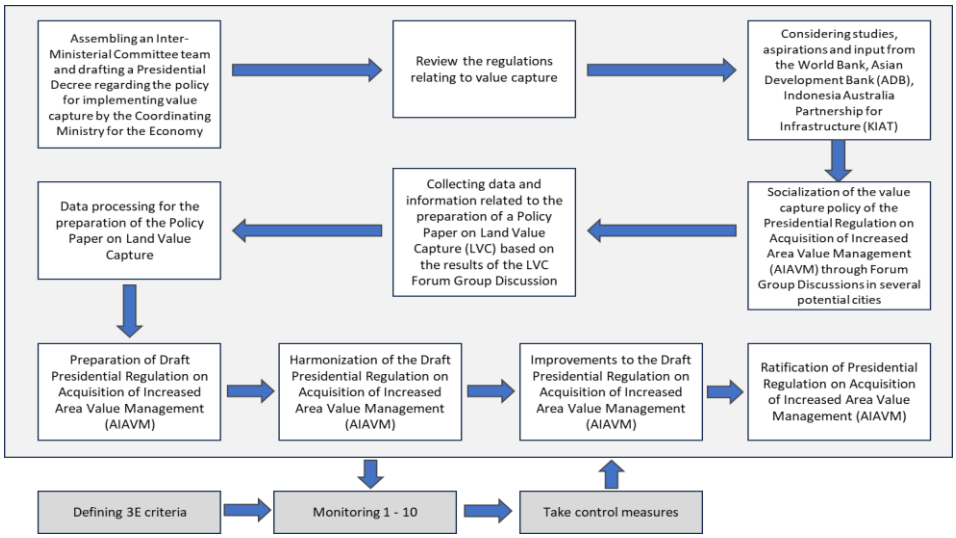

Figure 4. First Transformation Conceptual Model.

Based on the results of expert validation regarding this first transformation, the output was obtained in the form of changes in the first transformation system which can be seen in **Table 10** below.

Table 10. Changes in the first transformation system.

Name	Systematically desirable	Culturally feasible	Possible action
Formulation of a Presidential Regulation regarding policies for implementing land value capture.	Yes, one alternative funding scheme through land value capture is needed to fund infrastructure development, especially through an assignment scheme.	Yes, by accommodating the different interests of the stakeholders involved.	Ratification of Presidential Regulations as the legal basis for implementing the land value capture policy.

4.4.3. Second transformation: Institutional transformation

The second transformation is related to the institutional transformation of provincial-level Regional-Owned Enterprises (ROE), which were formed as business entities from the JV scheme as institutions for implementing the land value capture policy to test and improve the RD created, as explained in the following table. The transformation in question is from non-existing to existing institutional transformation of provincial level Regional-Owned Enterprises (ROE), which were formed as business entities from the PPP scheme as institutions for implementing the land value capture policy. The following is input from the results of the analysis of Critical Success Factors (CSF) and factors inhibiting the implementation of LVC policies prepared in this transformation. A CATWOE analysis was made as shown in **Table 11** below to test and improve the RD created.

After the CATWOE analysis is completed to the RD, a conceptual model (CM) is formed based on the activities carried out in institutional transformation. The second transformation is shown in the following **Figure 5**.

Table 11. CATWOE analysis transformation II.

Categories	Description
Customers	Directorate General of Highways, Toll Road Regulatory Agency (BPJT), Toll Road Users, Coordinating Ministry for Economic, Ministry of National Development Planning/National Development Planning Agency (Bappenas), Ministry of Finance.
Actors	Coordinating Ministry for Maritime and Investment, Ministry of Internal Affairs, Regional Government, Regional Representative Council (DPRD), Business Services Agency (BLU), Regional Owned Enterprises (ROE), Regional Work Units, Regional Revenue Agency, Toll Road Business Developer (TRBD) , Owner and developer of Real Estate (Property) and Residential.
Transformation	From not existing to existing. Institutional transformation of provincial-level Regional Owned Enterprises (ROE) which were formed as business entities from the PPP scheme as institutions for implementing the land value capture policy.
Worldview	With ROEs working together with PPP principles as business entities implementing policies, the implementation of land value capture policies, especially those based on development, will be implement well, thereby increasing investment performance.
Owner (s)	Regional Government, Regional Representative Council (DPRD), Business Services Agency (BLU), Regional Owned Enterprises (ROE).
Environment	Time and cost limitations, the complexity of organizing project financing with an assignment scheme, parties who do not support to implement land value capture on infrastructure projects.

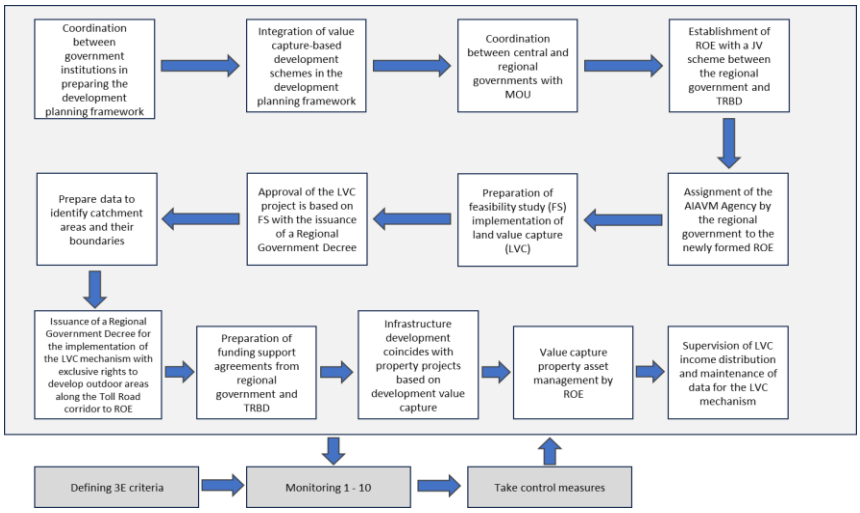

Figure 5. Second transformation conceptual model.

According to **Figure 5**, the first step is coordination between government institutions in preparing the development planning framework, then integrating LVC-based development schemes into the development planning framework. Coordination between central and regional governments is needed by agreeing on a memorandum of understanding (MOU). The next step is establishing a joint venture (JV) ROE with a PPP scheme between the regional government and TRBD as the regional government's assignment of the P3NK Agency. Preparation of a feasibility study (FS) for implementing LVC and Approval of the LVC project based on the FS with the issuance of a Regional Government Decree (SK). After that, preparing data for identification of catchment areas and their boundaries with the issuance of a Regional Government Decree for the implementation of the LVC mechanism with rights exclusive development of outdoor areas belonging to the Toll Road along the Toll Road corridor to the ROE. An important thing that supports success is the preparation of funding support agreements from the regional government and TRBD to carry out infrastructure development in conjunction with property projects. After the project is

built, property asset management is carried out by ROE, and LVC Income distribution and maintenance of data for the LVC mechanism are supervised.

The success or failure of the transformation can be measured through three criteria: Efficacy, namely the existence of formal laws and informal conventions in implementing the ROE transformation as an institution implementing the land value capture policy (P3NK Agency); Efficiency, using minimum resources; and Effectiveness, namely the model is successful if the functional and institutional transformation of ROE as an institution implementing LVC (P3NK Agency).

Based on the results of validation with experts regarding the second stage of transformation, the output was obtained in the form of changes in the second transformation system which can be seen in **Table 12** below.

Table 12. Changes in the second transformation system.

Name	Systematically desirable	Culturally feasible	Possible action
Transformation of ROE as an institution implementing land value capture policies.	Yes, with the existence of ROE consisting of regional governments and TRBD, the implementation of development-based land value capture can be implemented.	Yes, with TRBD's investment in ROE, a JV between the regional government and TRBD can be formed.	Creation of TRBD with a JV scheme between the regional government and TRBD.

5. Discussion

The Trans Sumatra Toll Road (TSTR) project is a collaborative project implementation between the private sector (in this case, the state-owned enterprise that received the mandate to develop) and the government (in this case, that gave the mandate for the assignment of the toll road concession at the planning, construction and operation and maintenance stages). In its implementation, the costs of toll road construction initiated by the government are 24% higher than toll roads developed with public-private partnerships (PPP). This is due to the combination of the scope of development and operation in one contract, risk transfer factors from the government to the private sector and transaction costs. Development is more efficient when implemented with PPP (Blanc-Burde et al., 2009).

This also applies to the implementation policy of the Road Plus Property Developer business model on the TSTR, where government and private collaboration will be able to provide positive value in increasing the feasibility of project investment due to the more cost-efficient PPP toll road project compared to toll road projects initiated by the government in realizing integration to generate revenue from toll roads and land development business (Kurnia, R.F, Latief, Y., et al., 2023).

The data gap identified is that there is no detailed information from the studies carried out, so it is not known to what extent the state has prepared a legal basis regarding the management of the acquisition of increased area value. This limitation was hoped to be overcome by asking for verification from experts. Experts have confirmed what has been explained in this research. There is still no specific policy as the basis for implementing land value capture in Indonesia at the time this research was written. The government is in the harmonization and finalization stage of the Draft Presidential Regulation on the management of regional value increase (KIAT, 2023). The draft Presidential Regulation concerning the Acquisition of Increased Area Value Management (P3NK) has also explained the capture of area value, which can be

carried out using the following mechanisms: Increase in regional income (property tax and/or fees for acquiring rights to land and buildings) voluntary payments with fiscal incentives, utilization of state/regional goods, compensation for exceeding building floor coefficient, transfer of building rights, horizontal integration of infrastructure provision and property business, and land consolidation.

Vertical development integration by creating a level of urban planning, which combines transportation infrastructure with residential and commercial areas development, also coupled with development-based land value capture, can work synergistically to maintain, or create a stable traffic flow, which can increase fare revenues (Chang and Phang, 2017). In general, the implementation of LVC policy is divided into five stages of the development cycle: the land has not been developed stage, the distribution of land for development allocation, building permits, the construction stage, and the occupancy stage after the building has been completed (Zhao, 2012).

According to previous research (Anwar, 2023; Kurnia, R.F, Anwar, A., et al., 2023), there are five categories of critical success factors in land value capture-based projects. These five categories also align with the five variables previously determined in this research. Based on several additional variables (sub-variables) from other journals and an expert validation process, 12 critical success factors for implementing the value capture policy were obtained and based on the results of the questionnaire and expert validation, 16 main factors are considered to be inhibiting factors in implementing LVC-based toll roads policy. From the results of data analysis and validation, both critical success factors and inhibiting factors for implementation of the LVC policy were obtained. These factors then become input for the analysis material in Section 4.

Critical success factors were then applied to activities that support the transformation process of Presidential Regulations and institutional transformation, as explained in **Table 9.** Meanwhile, inhibiting factors were addressed into activities that also support the transformation process of Presidential Regulations and institutional transformation, as explained in **Table 9**. The relationship between input, process and output is depicted in the following relationship diagram as shown in **Figure 6**.

From the results of the final validation, all experts agreed that ratification of the Presidential Regulation on Acquisition of Increased Area Value Management (P3NK) was very necessary. From the existing draft it can also be seen that the Presidential Decree already includes both tax-based and development-based land value capture methods. However, as suggested by land value capture consultants, the recommended implementation mechanisms are property tax, building permit, and Betterment Levy (KIAT, 2023).

Meanwhile, regarding the function of TRBD as a P3NK body, two types of P3NK bodies can be formed to implement the land value capture policy. The first P3NK agency functions as a tax-based P3NK agency whose task is to take care of all matters related to the implementation of tax-based land value capture policies (including tax collection). The second P3NK agency functions as a development-based P3NK agency whose task is to take care of all matters related to implementing development-based land value capture policies.

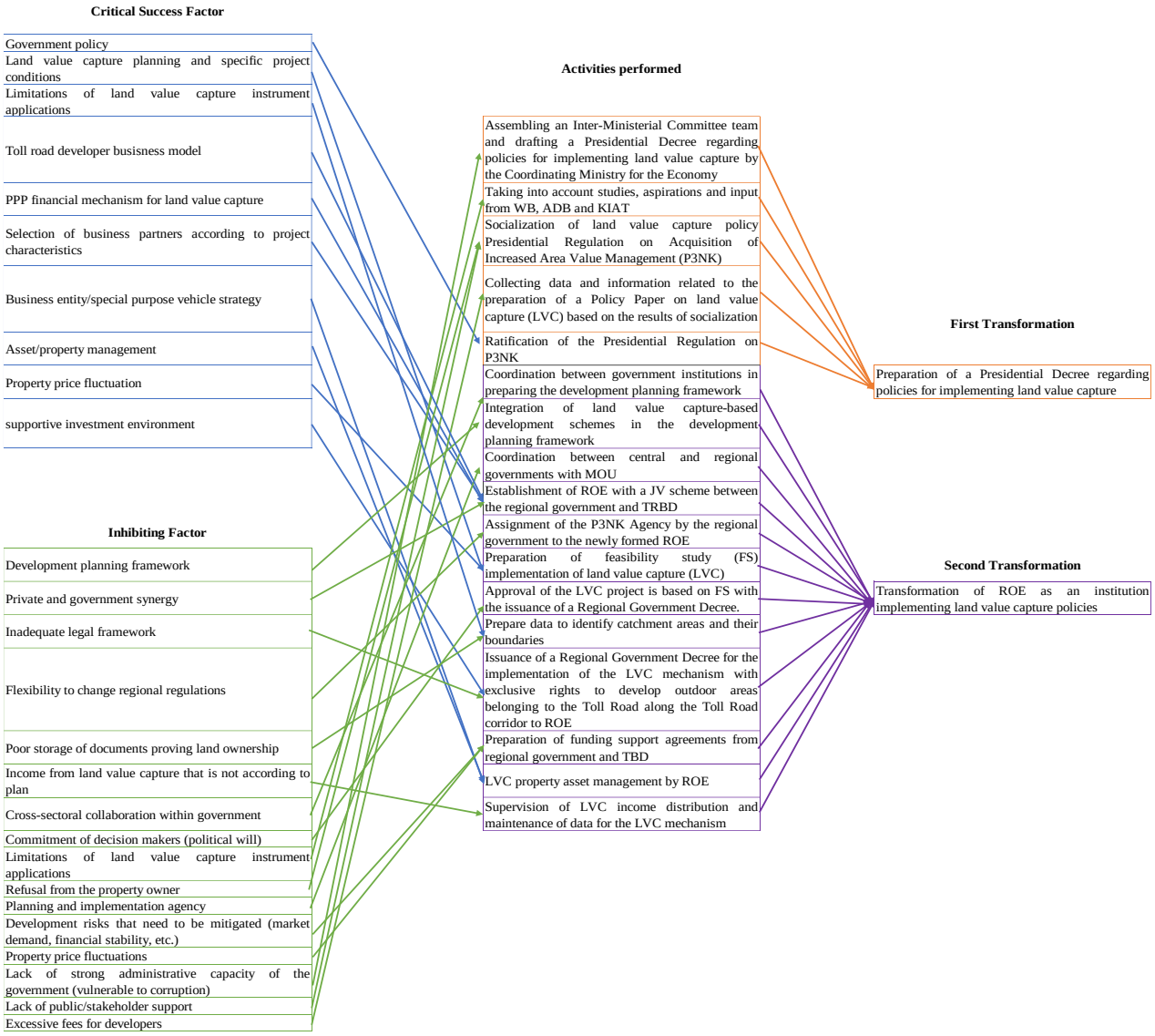

Figure 6. Relationship between input, process and output of transformation policy.

This ROE will operate in the property sector and obtain exclusive rights to develop outdoor areas belonging to the Toll Road along the Toll Road corridor. When the property built on the basis of regional development for implementing the development-based land value capture policy is completed, ROE will become the business entity for asset management. This business transfer process also occurred in implementing development-based land value capture in Hong Kong carried out by MTR Corporation (Aveline-Dubach, 2019). The support provided to MTR Corporation by the Hong Kong government was a policy of land grants, which also gave MTR Corporation exclusive development rights for the area above and around its train station. This grant exempts MTRC from purchasing the land on the open market. To generate revenue, MTRC utilizes the real estate development potential of its stations (Cevero and Murakami, 2009).

The success of CM is measured through three criteria: Efficacy (success of Transformation Two in achieving its goals), Efficiency (success in using minimum resources) and Effectiveness (success of Transformation Two in achieving higher goals or for a longer period). These criteria are determination based on analysis of

previous research on SSM (Rarasati, 2017) and also the Capacity Building document implementing the land value capture policy implemented by the Indonesia Australia Partnership for Infrastructure (KIAT, 2023).

This RPPD model can also be applied in other countries by prioritizing the role of toll road operators as one of the stakeholders in developing areas around toll roads. In our opinion, this is a development of the rail plus property policy in Hong Kong with adjustments to the toll road development system in Indonesia. A similar policy has also been implemented in Shenzhen, but because the government system there is oriented towards central government, the resulting policy is not oriented towards profits from the business world but rather towards meeting the needs of the community. Apart from that, it should also be noted that Hutama Karya here is an SOE with the presidential regulation; HK status is more directed at private toll road operators because they have no restrictions in developing areas around toll roads. Therefore, one of the solutions provided is a joint venture with ROE because HK as a SOE does not have an advantage in the development location area, especially in relation to regional government regulations regarding the development of areas around toll roads.

6. Conclusion

First, the success factors that influence the RPPD business model implementation policy were identified through qualitative analysis involving experts from various points of view. Based on analysis, the five highest factors from each variable that determine success are government policy, land value capture planning and specific project conditions, toll road developer business model, asset/property management, and supportive investment environment.

Second, the factors that inhibit the implementation of the RPPD business model policy were identified through qualitative analysis involving experts from various points of view. Based on this analysis, the five highest factors as inhibiting factors are development planning framework, private and government synergy, inadequate legal framework, flexibility to change regional regulations, and poor recording of land ownership proof.

Third, until this study, there has been no specific policy governing the implementation of land value capture in Indonesia. However, the following are the policy dimensions for implementing land value capture that are expected to be included in the policy: private and government synergy, integration of land value capture in the development planning framework, determination of planning and implementation institutions, negotiation flexibility with contributors, cross-sectoral cooperation in government, coordination with tax authorities, involvement of regional government to change regulations, justification of the objectives of implementing land value capture, efficiency (value ratio) of implementing land value capture, determining the time for policy implementation, land value capture contribution from obligated parties, effectiveness of policies to finance development and improve investment performance, developing citizen ownership of infrastructure using the Public Private People Partnership (PPPP) scheme.

Meanwhile, policy development can be carried out by establishing a ROE between the regional government and the relevant TRBD. This ROE can then be

appointed as a development-based P3NK Agency to bridge the implementation of development-based land value capture. This ROE operates in the property sector with funding support from TRBD and the local regional government. With the existence of this ROE, it is hoped that Regional Original Income where the land value capture policy is implemented will increase. Integrating the application of land value capture into the development planning framework is also very important. Therefore, land value capture can also influence regional development plans.

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