

Governance of the Handover of Infrastructure, Facilities, and Public Utilities in Housing Areas in Balikpapan City

Arief Bandoro Sigit^{1*}, Bambang Irawan², Cathas Teguh Prakoso³

^{1,2,3}Universitas Mulawarman, Kuaro St, Samarinda City

*Corresponding Author: ariefbandorosigit1976@gmail.com

Keyword:
Governance;
Infrastructure
Handover;
Housing Management.

Abstract: This study examines the governance of the handover of infrastructure, facilities, and public utilities in housing areas in Balikpapan City by focusing on regulatory compliance, institutional coordination, administrative mechanisms, and stakeholder participation. Using a qualitative descriptive approach supported by in-depth interviews, document analysis, and field observations involving local government officials, developers, community representatives, and related institutions, this research analyzes the implementation of handover policies and identifies major challenges affecting their effectiveness. The findings indicate that although regulatory frameworks are well established, their implementation remains inconsistent due to weak institutional coordination, incomplete administrative documentation, limited verification mechanisms, variations in developer compliance, and low levels of community participation. These conditions reflect gaps between policy objectives and operational practices, which are influenced by limited institutional capacity and fragmented communication among stakeholders. The study further reveals that effective governance in the handover process requires strong collaboration, integrated administrative systems, continuous supervision, and greater transparency. Strengthening document management, enhancing human resource capacity, and expanding participatory mechanisms are essential to improve accountability and sustainability. This research contributes to the understanding of housing governance by highlighting the interdependence of regulatory, administrative, and social dimensions in public infrastructure management and provides practical insights for policymakers in developing more transparent, accountable, and sustainable governance frameworks for housing development and public service delivery.

INTRODUCTION

The management of the handover of infrastructure, facilities, and public utilities in residential areas in Balikpapan City is a crucial aspect in the context of rapid urban development and urbanization in Indonesia. Balikpapan City, as one of the metropolitan cities in East Kalimantan, has experienced significant growth in housing development in recent years. This growth is driven not only by the increasing need for housing due to urbanization and migration from surrounding areas, but also by increasing private investment to meet the demands of the middle class, as well as workers in the industrial and service sectors.

In this context, housing development emphasizes not only the number of available housing units but also the quality of infrastructure, public facilities, and adequate public utilities as part of the sustainability and comfort of community life. The process of handing over infrastructure and public facilities from developers to the city government is crucial to maintaining the quality of public services, ensuring optimal public access to their rights, and ensuring the sustainability of housing development. The infrastructure and public facilities in question include roads, drainage, electricity and clean water networks, social facilities such as parks, playgrounds, public open spaces, and other utilities that support the function of residential areas (Kimic & Ostrysz, 2021; Yhee et al., 2021). Effective governance in the handover process is key to creating a safe, comfortable, and livable residential environment, while maintaining the quality of housing development investments from both technical and economic perspectives.

The governance of infrastructure and public facility handovers is part of the concept of governance, which emphasizes the principles of transparency, accountability, public participation, and coordination between relevant institutions. Governance emphasizes the need for clear procedures, systematic evaluation mechanisms, and the involvement of various stakeholders, including the government, developers, and the community as end users. In many developing countries, including Indonesia, problems are often found related to the lack of clear technical standards in the handover process, inconsistent inspection procedures, suboptimal coordination between government agencies, and limited capacity of local governments to assess the quality of handed over infrastructure. In Balikpapan City, this situation is particularly relevant given the rapid development of housing areas and the limited monitoring capacity of the city government, which can impact infrastructure quality, high maintenance costs, and low levels of public satisfaction (Chen & Chan, 2023; Mazele & Amoah, 2022). A study of infrastructure handover governance provides an in-depth understanding of the procedures implemented, the factors influencing their effectiveness, and improvement strategies that can be implemented to enhance the quality of public services and the sustainability of housing development.

In the academic realm, the study of infrastructure handover governance lies at the intersection of public administration, public facility management, and urban development governance. The literature shows that the success of housing development is measured not only by the number of units built or the occupancy rate, but also by the quality of public facilities and services provided to the community. Effective infrastructure handover requires clear technical standards, structured inspection procedures, community involvement as end users, and transparent accountability mechanisms (Chang & Parlikad, 2025; Too et al., 2023). The concept of governance emphasizes a synergistic relationship between the government as regulator and ultimate manager, developers as the parties constructing and handing over infrastructure, and the community as beneficiaries. Thus, handover governance is not merely an administrative formality, but also a strategic process that directly impacts the community's quality of life and the sustainability of housing development.

Practically, this issue is highly relevant for Balikpapan City, as its rapid growth in housing development demands an effective, systematic, and measurable handover management mechanism. A poorly managed handover process can lead to various problems, including faster-than-expected infrastructure deterioration, increased government maintenance costs, and public dissatisfaction with the quality of public services. Furthermore, the handover of substandard infrastructure can lead to inefficient city management, undermine public trust in the government, and potentially create legal risks for developers and local governments (Md Zia Uddin, 2024; Obiadi et al., 2023). A study of infrastructure handover governance aims to analyze how the mechanism is implemented, the extent to which governance principles are applied, and the factors that influence the effectiveness and efficiency of the process. Therefore, this approach emphasizes not only administrative and technical aspects but also considers the social and sustainable dimensions of development.

Problems that frequently arise in the handover process encompass several dimensions. Regulatory aspects sometimes overlap between regional regulations, national regulations, and technical standards, leaving developers and city governments confused about the procedures to be followed. The capacity of city governments to conduct technical inspections, quality verification, and post-handover evaluations is often limited, while developers have an economic interest in reducing construction costs, potentially impacting the quality of the infrastructure being handed over. Community involvement as end users is also often limited, resulting in suboptimal input and oversight of the quality of public facilities, which is crucial for ensuring that public facilities and utilities meet user needs (Lin et al., 2025). All of these factors indicate that handover governance requires a holistic, integrative approach based on governance principles to ensure the process runs effectively and provides maximum benefits to the community and the sustainability of housing development.

Theoretically, this study emphasizes governance principles that highlight transparency, accountability, coordination, and participation as key elements in managing infrastructure handovers. Governance emphasizes a collaborative approach between the government,

developers, and the community to ensure handover procedures are implemented in accordance with technical standards and regulations, while also providing adequate space for evaluation and oversight (Rahmadani et al., 2025; Timbung, 2026). The literature on public facility management also emphasizes the importance of the technical and functional quality of the infrastructure being handed over, making quality standards, technical certification, and inspection procedures an integral part of handover governance. In practice, the application of governance principles helps reduce the risk of damage to facilities, increases the efficiency of city management, and provides legal certainty for all parties involved.

The local context of Balikpapan City provides unique dynamics to the governance of infrastructure handovers. As a port city and industrial hub, Balikpapan faces high urbanization pressures, with increasing housing needs for both local and migrant residents. Housing estates built by large developers offer modern facilities, but the handover process often faces technical, administrative, and coordination challenges between relevant agencies (Nguyen & Dao, 2021; Wong et al., 2025). The city government needs to develop systematic oversight mechanisms, including technical inspections, quality certification, and post-handover evaluations, to ensure optimal and sustainable functioning of infrastructure and public facilities. This governance study provides empirical insight into current practices, emerging challenges, and potential improvement strategies.

Some studies such as Rahmad & Oryza Lhara Sari, (2025) shows that This growth has an impact on the quality of healthcare services at Hospital X in Balikpapan City, where physical and digital infrastructure need to be improved to accommodate the needs of patients and visitors. Meanwhile in Laksono & Latief, (2024) These findings provide valuable insights into infrastructure development, project financing, and risk management, as well as providing a blueprint for sustainable housing projects in the Indonesian Capital Region.

The focus on handover governance aims to identify infrastructure and public facility management mechanisms, assess the factors influencing their effectiveness, and analyze their implications for the quality of facilities in residential areas. A governance approach allows for a comprehensive evaluation, examining not only administrative procedures but also the extent to which principles of transparency, accountability, coordination, and participation are implemented. This type of analysis is crucial for generating concrete policy recommendations for the city government, developers, and the community, ensuring effective infrastructure handovers, well-managed public facilities, and housing developments provide maximum benefits to the community.

The governance of the handover of infrastructure, facilities, and public utilities in residential areas in Balikpapan City provides a crucial contribution to understanding the complexities of urban development and public facility management. Clear procedures, adequate institutional capacity, coordination between stakeholders, and community involvement are key elements to ensure each infrastructure handover generates maximum benefits for the community and supports sustainable development. In the context of rapid residential area growth, this study is highly relevant for providing policy recommendations, strengthening technical procedures, and improving the quality of public facility management. The findings can serve as a reference for the city government, developers, and academics in formulating effective governance strategies, thereby improving the quality of life for residents and ensuring that housing development investments have a long-term positive impact on Balikpapan City.

RESEARCH METHODS

This study employs a qualitative approach with a descriptive-analytical design to examine the governance of the handover of infrastructure, facilities, and public utilities in housing areas in Balikpapan City. Data were collected through in-depth interviews with local government officials, housing developers, area managers, and community representatives, as well as through field observations and document analysis of relevant regulations, handover agreements, technical reports, and policy archives. Informants were selected using purposive sampling based on their direct involvement in the handover process of infrastructure, facilities, and utilities. The collected

data were analyzed using thematic analysis, which involved data reduction, data display, and systematic conclusion drawing to identify patterns, institutional dynamics, coordination mechanisms, and factors influencing governance effectiveness (Bin-Qiang et al., 2024). Data validity was ensured through source, method, and time triangulation, thereby enabling the study to provide a comprehensive and in-depth understanding of governance practices in the handover of infrastructure, facilities, and public utilities in housing areas in Balikpapan City.

RESULTS AND DISCUSSION

The results of this study are presented to provide a comprehensive overview of governance practices in the handover of infrastructure, facilities, and public utilities in housing areas in Balikpapan City. The main focus of the analysis is directed toward institutional dynamics, regulatory mechanisms, and stakeholder involvement in ensuring the sustainability of public infrastructure and services. Through field data collection and document analysis, this study seeks to reveal how the handover process is implemented within the context of local policies and the continuously evolving needs of urban communities.

In the context of increasingly complex urban development, the handover of infrastructure and public facilities is not merely understood as an administrative activity but as an integral part of a governance system involving multiple actors and interests (Monstadt et al., 2022; Worku & Adugna, 2024). This study views the handover process as a strategic stage that determines the long-term quality of public services. Therefore, the analysis of the research findings focuses on how governance practices are able to balance development objectives, regulatory frameworks, and community needs in a sustainable manner.

The first subtheme highlights institutional coordination in the handover of infrastructure, facilities, and public utilities. Coordination among local government agencies, housing developers, and area management institutions is a key factor in determining the smoothness and effectiveness of the handover process. The findings indicate that communication patterns, the distribution of authority, and the level of inter-institutional synergy significantly influence the quality of public services after the handover. This section provides an in-depth understanding of the role of institutions in building integrated governance (A. Ahmad et al., 2021; Myeza et al., 2023).

The second subtheme addresses regulatory compliance and administrative mechanisms governing the handover of infrastructure, facilities, and public utilities. This aspect includes legal procedures, document completeness, and the implementation of local policies that form the basis of the handover process. The findings suggest that consistency in applying regulations and administrative transparency significantly contribute to accountability and legal certainty (Grimmelikhuijsen et al., 2021; Jaradat & Oudat, 2025). This discussion emphasizes the importance of a regulatory system that is clear, systematic, and responsive to the dynamics of housing development.

In addition, the study reveals variations in the level of regulatory compliance across different housing areas. Differences in institutional capacity, policy understanding, and implementation commitment influence the quality of administrative mechanisms. These conditions contribute to delays in the handover process, non-compliance with technical standards, and potential conflicts among stakeholders. These findings indicate that strengthening institutional capacity and regulatory oversight is essential for improving governance effectiveness.

The third subtheme examines the roles of stakeholders and the challenges faced in achieving sustainable governance. Local governments, developers, area managers, and communities have interrelated interests and responsibilities in maintaining the quality of infrastructure and public services. The findings show that conflicting interests, limited resources, weak coordination, and low levels of community participation remain major obstacles in the handover process. Therefore, this study emphasizes the need to strengthen collaboration, transparency, and shared commitment to ensure the sustainable management of infrastructure, facilities, and public utilities in housing areas in Balikpapan City.

Institutional Coordination in the Handover of Infrastructure, Facilities, and Public Utilities

Institutional coordination plays a central role in ensuring the effective handover of infrastructure, facilities, and public utilities in housing areas. In the context of urban governance, the handover process involves multiple institutions with different mandates, responsibilities, and interests, including local government agencies, housing developers, and area management bodies (Engdaw, 2022; Riyanti et al., 2023). The effectiveness of this process is largely determined by the extent to which these institutions are able to communicate, collaborate, and align their actions within an integrated governance framework. Therefore, understanding patterns of institutional coordination becomes essential for assessing the overall quality of governance in the handover process.

In practice, institutional coordination is reflected in the mechanisms of information exchange, decision-making procedures, and the distribution of authority among involved actors. Well-coordinated institutions tend to demonstrate clear role divisions, consistent policy implementation, and efficient problem-solving mechanisms. Conversely, weak coordination often leads to overlapping responsibilities, administrative delays, and inconsistencies in technical and legal standards (Camacho & Glicksman, 2021). These conditions may reduce the effectiveness of public service delivery and weaken public trust in governance institutions.

This section examines how institutional coordination is developed and implemented in the handover of infrastructure, facilities, and public utilities in housing areas in Balikpapan City. The analysis focuses on the interactions among relevant institutions, the formal and informal coordination mechanisms applied, and the challenges encountered in fostering inter-institutional synergy. By exploring these dimensions, this study aims to provide a deeper understanding of how coordinated governance practices can support sustainable and accountable management of public infrastructure and services.

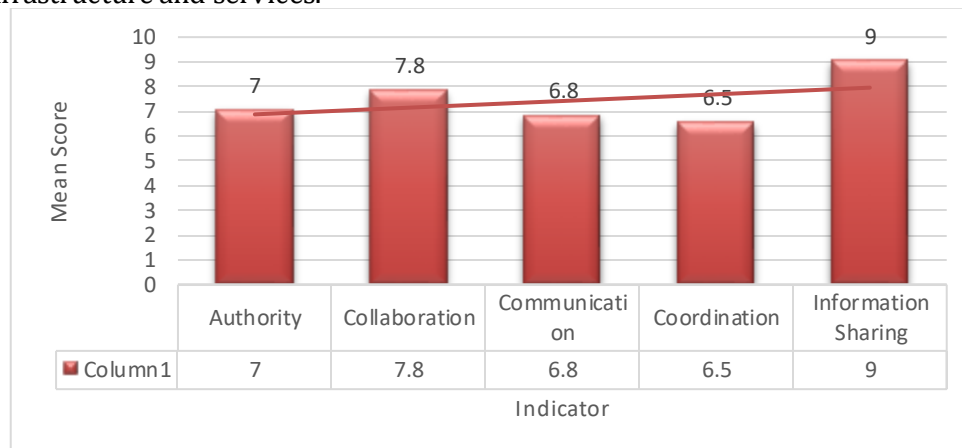


Figure 1. Institutional Coordination Indicator

Source Data Processed by the Author

Figure 1 is the bar chart presented illustrates the average scores of five key indicators of institutional coordination in the handover of infrastructure, facilities, and public utilities in housing areas. The five indicators analyzed include inter-agency communication, operational coordination, authority distribution, information sharing, and institutional collaboration. Each indicator provides insight into a specific aspect of institutional governance that plays a role in ensuring the smooth execution of the handover process. Overall, the chart offers a clear visualization of the strengths and weaknesses in coordination among actors, highlighting areas that require attention to improve governance effectiveness.

The communication indicator scores relatively high compared to the other indicators, suggesting that the institutions involved in the handover process maintain active channels of communication. This is reflected in the frequency of information exchange, clarity of directives, and openness between institutions regarding technical and administrative needs (Steen-Tveit et al., 2024). Effective communication forms the foundation for successful coordination, as each actor understands their roles and responsibilities. This finding indicates that, in the context of

infrastructure handover, the mechanisms for communication are generally adequate, although some variation may exist between regions or organizational units.

Operational coordination ranks next, indicating that institutions are relatively capable of carrying out integrated activities to ensure that the handover process proceeds according to plan. This score reflects the institutions' ability to schedule activities, allocate tasks, and address issues that arise during the handover. Although the operational coordination score is slightly lower than that of communication, the difference is minimal, suggesting that challenges are managed effectively through regular meetings, coordination sessions, and monitoring mechanisms. This underscores the importance of active engagement by all stakeholders to maintain continuity and quality in the handover process.

The institutional collaboration indicator shows scores comparable to operational coordination, reflecting the extent to which agencies work together to accomplish shared goals. Collaboration encompasses not only information exchange but also willingness to support one another and resolve obstacles encountered in the field (Bodunde et al., 2024; Steen-Tveit et al., 2024). This score highlights that institutions recognize the importance of integrating roles to achieve optimal outcomes in the management of public infrastructure and facilities. Strong collaboration directly contributes to successful handover by minimizing role conflicts, expediting administrative processes, and maintaining technical quality.

The authority indicator, which reflects the clarity of responsibility distribution, scores lower than the first three indicators. This suggests that ambiguities or differences in interpretation regarding the limits of authority exist among institutions. Such ambiguities may lead to overlapping duties, delayed decision-making, or inefficiencies in addressing administrative issues. Although the score is not critically low, it indicates the need to review institutional structures, task assignments, and internal regulations so that each institution is aware of its responsibilities. Clear delineation of authority is essential to reduce obstacles and ensure the smooth execution of the handover process (Angelen Shirley et al., 2024; Mohd Nawawi & Ibrahim, 2024).

Information sharing registers the lowest score among the five indicators. This indicates that, while inter-agency communication is generally functioning well, the formal distribution of technical documents, activity reports, and regulations governing the handover process still requires improvement. Limited information sharing can result in delayed decisions, miscommunication, and fragmented implementation on the ground. These findings highlight the need to develop an integrated information system accessible to all stakeholders, enabling each actor to have accurate and up-to-date data to support decision-making.

Overall, the chart indicates that institutional coordination in the handover of infrastructure, facilities, and public utilities is at a moderate to high level, with communication, operational coordination, and collaboration being the strongest aspects. However, authority distribution and information sharing remain challenges that need to be addressed to enhance governance effectiveness. This visualization helps researchers and policymakers understand which aspects of institutional coordination are functioning well and which require intervention (Eboseremen et al., 2022; Lundkvist et al., 2021). By strengthening authority clarity and information sharing, institutions can achieve better synergy, reduce role conflicts, and ensure that infrastructure handovers are conducted efficiently, transparently, and sustainably.

Regulatory Compliance and Administrative Mechanisms in the Handover Process

The handover of infrastructure, facilities, and public utilities in housing areas depends not only on inter-agency coordination but also on the level of compliance with regulations and the administrative mechanisms in place. This aspect encompasses the implementation of local regulations, legal procedures, document completeness, and technical standards that form the basis of the handover process. Compliance with regulations serves as a critical indicator of governance effectiveness, as clear and consistent procedures ensure that all stages of the handover are carried out in accordance with applicable provisions and minimize the potential for disputes in the future.

The administrative mechanisms applied during the handover process include the management of planning documents, technical reports, and handover records between developers and local government authorities. The effectiveness of these mechanisms is determined not only by the availability of documents but also by structured systems for verification, recording, and archiving. This study emphasizes the importance of transparent and well-documented administration, as it enables more effective oversight, facilitates audits, and provides legal certainty for all parties involved in the handover process. Non-compliance with procedures or incomplete documentation can lead to delays, conflicts, or discrepancies in technical standards (Glevitzky et al., 2025; Hope Ekeh et al., 2025).

Furthermore, regulatory compliance and administrative mechanisms play a key role in establishing accountability among the institutions involved. With clear administrative systems and consistent procedures, each party can be held responsible for its roles and obligations in the handover process. Emphasizing regulations and administrative mechanisms also reflects the local government's efforts to create professional and standardized governance, thereby reducing the risk of deviations and enhancing public trust in housing development. A thorough understanding of this aspect is essential for assessing the effectiveness of policies in ensuring the smoothness and sustainability of infrastructure, facilities, and public utilities handovers.

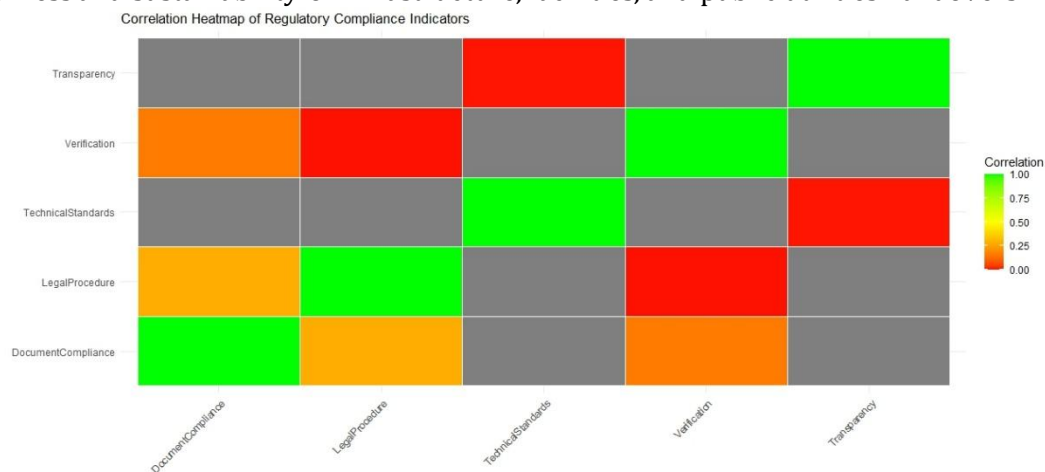


Figure 2. Correlation Heatmap of Regulatory Compliance Indicators

Source Data Processes by the Author

Figure 2 is the correlation heatmap presented in this study provides a visual representation of the relationships among key indicators of regulatory compliance and administrative mechanisms in the handover of infrastructure, facilities, and public utilities in housing areas. Through color intensity, the heatmap illustrates the strength and direction of correlations between variables, with more intense colors indicating stronger relationships. This visualization enables readers to understand interaction patterns among indicators in a comprehensive manner, while also identifying administrative aspects that mutually reinforce or influence one another in the handover process.

The indicators of document completeness and compliance with legal procedures demonstrate relatively strong correlations in the heatmap. This relationship suggests that well-organized document management tends to be accompanied by consistent adherence to legal requirements. In the context of governance, this finding reflects that institutions with structured documentation systems are generally more compliant with applicable regulations (Khan & Mita, 2023; Königstorfer & Thalmann, 2021). Document completeness serves as the foundation for legalization, verification, and formal approval processes, and the strength of this correlation highlights the structural linkage between administrative and regulatory dimensions of the handover process.

The relationship between technical standards and verification mechanisms also shows a significant correlation. This indicates that the effective implementation of technical standards is

typically supported by systematic verification procedures. Institutions that apply rigorous inspection and validation processes are more likely to ensure that transferred infrastructure and facilities meet quality and safety requirements. This correlation underscores the importance of oversight functions in maintaining construction standards and confirms that technical and administrative aspects are closely interconnected within professional governance practices (H. Ahmad & Muslim, 2024; Moshood et al., 2025).

The transparency indicator exhibits relatively strong associations with most other indicators, particularly document completeness and verification mechanisms. This finding suggests that information openness functions as a central connecting element within the handover administration system. Transparency allows stakeholders to access relevant data, reports, and official documents, thereby facilitating evaluation and monitoring processes. This relationship indicates that when administrative systems operate in an open and accessible manner, regulatory compliance and administrative quality tend to improve simultaneously.

Although most indicators display positive correlations, the heatmap also reveals variations in the strength of relationships among variables. Some indicator pairs exhibit moderate correlations, indicating that the connections between administrative aspects are not always linear or uniform (Bagnall et al., 2022; Han et al., 2024). These variations may be influenced by differences in institutional capacity, regulatory understanding, and the availability of human and technological resources. Such conditions suggest that improvements in one aspect do not automatically guarantee enhancements in other areas, highlighting the need for more integrated policy approaches.

From a governance perspective, the correlation patterns depicted in the heatmap reveal that regulatory compliance and administrative mechanisms function as an interconnected system. Weaknesses in one indicator may affect the performance of others, particularly in areas related to documentation, verification, and transparency. Therefore, governance improvements should not be implemented in a fragmented manner but should instead focus on strengthening the entire administrative framework. A holistic approach is essential to ensure that the handover process is conducted consistently, accountably, and in accordance with established standards.

The correlation heatmap provides empirical evidence that regulatory compliance and administrative mechanisms in the handover of infrastructure, facilities, and public utilities are closely interrelated and mutually influential. This visualization serves not only as a statistical analytical tool but also as a basis for policy reflection for local governments and other stakeholders. By understanding the patterns of relationships among indicators, policymakers can design more targeted interventions, such as strengthening documentation systems, enhancing transparency, and improving verification mechanisms. Ultimately, reinforcing these aspects is expected to improve governance quality, reduce the risk of irregularities, and ensure the sustainable management of public infrastructure and facilities in housing areas.

Stakeholder Roles and Challenges in Ensuring Sustainable Governance

The subheading Stakeholder Roles and Challenges in Ensuring Sustainable Governance emphasizes the importance of the involvement of various actors in ensuring the sustainability of governance in the handover of infrastructure, facilities, and public utilities in housing areas. In this context, the handover process is not merely understood as an administrative procedure, but as an arena of interaction among local governments, developers, communities, and supervisory institutions (Sawaka et al., 2025; Widiyanto et al., 2025). Each actor has different interests, authorities, and responsibilities, so the quality of governance is strongly influenced by the extent to which these roles can be carried out in a balanced and mutually supportive manner.

The role of local government is central in coordinating all stages of the handover process, ranging from policy formulation and implementation to supervision and regulatory enforcement. At the same time, developers are responsible for ensuring that all transferred infrastructure and facilities comply with applicable technical and legal standards. Communities, as end users, also hold a strategic position in providing feedback, conducting social monitoring, and promoting accountability in public service delivery. The interaction among stakeholders reflects that

governance effectiveness depends heavily on communication patterns, levels of trust, and shared commitment to safeguarding public interests.

Nevertheless, the implementation of sustainable governance continues to face various structural and operational challenges. Differences in interests, limited institutional capacity, weak cross-sector coordination, and low levels of community participation often hinder the realization of transparent and accountable systems (Olvik, 2024; Vogel et al., 2022). In addition, policy dynamics and regulatory changes may affect the stability of relationships among actors. Therefore, a comprehensive understanding of stakeholder roles and challenges serves as an essential foundation for formulating strategies to strengthen governance that is adaptive, inclusive, and oriented toward long-term sustainability.

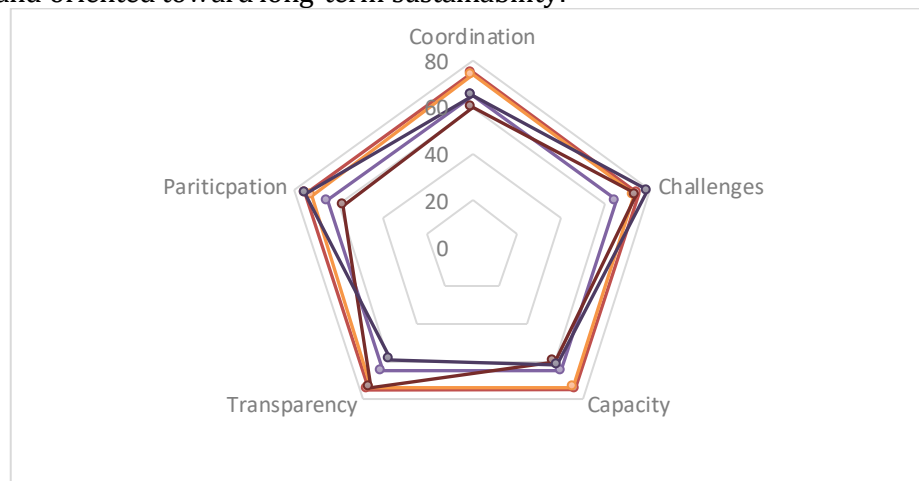


Figure 3. Stakeholder Performance and Challenges
Source Data Processed by the Author

Figure 3 is the radar chart used in this study functions as a visualization tool that is able to depict the performance profiles of each stakeholder in a comprehensive and integrated manner. Through this spider-web-shaped graph, various indicators of stakeholder roles and challenges, such as coordination, participation, transparency, institutional capacity, and the level of obstacles faced, can be displayed simultaneously. Each axis represents one indicator, while the lines connecting the values on each axis form a specific pattern that reflects the characteristics of each actor's performance. In this way, the radar chart enables readers to understand differences and similarities in stakeholder performance visually without having to interpret complex data tables.

In the context of governance in the handover of infrastructure, facilities, and public utilities, the use of a radar chart is particularly relevant because the process involves multiple actors with interdependent roles. Local governments, developers, communities, and supervisory institutions have different responsibilities, yet they rely on one another. The radar chart allows researchers to observe the extent to which each actor fulfills its functions across various aspects of governance (Reinsberg & Westerwinter, 2021; Visser, 2024). For example, the level of coordination of local government can be directly compared with the level of community participation or the institutional capacity of developers. The patterns formed through this visualization reflect the balance or imbalance of roles that occurs in practice.

One of the main advantages of the radar chart lies in its ability to present multidimensional performance. In governance research, performance cannot be measured by a single indicator but must be understood as the result of interactions among multiple complex factors. The radar chart accommodates this need by presenting various variables simultaneously within a single graphic. When a stakeholder achieves high scores across most indicators, the shape of the graph approaches the outer boundary, indicating relatively strong and stable performance. Conversely, when certain indicators receive low scores, the shape becomes irregular, reflecting weaknesses in specific aspects.

In addition to illustrating performance levels, the radar chart also serves as a diagnostic tool for identifying areas that require improvement. Imbalances in the shape of the graph indicate aspects that have not yet been optimized in the implementation of stakeholder roles. For instance, if communities demonstrate high participation scores but low institutional capacity scores, this suggests that although community involvement is strong, structural support and available resources remain limited (Wahyuningtyas et al., 2023). Such information is crucial for policy formulation, as it enables decision makers to design more targeted and effective interventions.

From the perspective of sustainable governance, the radar chart also helps assess the consistency of stakeholder performance over time. Relatively stable patterns indicate that an actor is able to maintain the quality of its role in a sustainable manner, while sharp fluctuations may reflect dependence on situational factors. By comparing radar charts across different periods, researchers can analyze changes in roles and challenges faced by stakeholders. This strengthens the understanding that governance is a dynamic and evolving process.

The use of radar charts in this study also has high communicative value. This form of visualization is easier to understand for various audiences, including policymakers, practitioners, and the general public, compared with complex statistical presentations (Jensen et al., 2023). By observing the shape of the graph, readers can quickly grasp the overall performance of each stakeholder without having to interpret numerical data individually. Therefore, the radar chart serves as a bridge between academic analysis and practical policy needs.

Furthermore, the radar chart reflects an integrative approach to governance assessment. Effective governance is not determined solely by the strength of a single actor, but by the synergy among actors in fulfilling their respective roles. When the graphs of different stakeholders display complementary patterns, this indicates relatively harmonious cooperation. In contrast, significant gaps among actors reflect weak coordination and potential conflicts of interest. Thus, the radar chart can be used as an evaluative tool to assess the quality of collaboration within the governance system.

Within the framework of this research, the radar chart is positioned not merely as a visualization tool, but also as an analytical instrument that supports the interpretation of findings. Quantitative data obtained from surveys or respondent assessments are translated into a more informative graphical form. This process helps researchers connect empirical findings with theoretical frameworks related to stakeholder roles and sustainable governance (Naciti et al., 2022; Siems et al., 2023). The resulting visualizations then become the basis for constructing more systematic and convincing academic arguments.

Overall, the radar chart makes a significant contribution to understanding stakeholder performance profiles in a comprehensive manner. By presenting multiple indicators in a single integrated display, this chart enables holistic analysis of the roles and challenges faced by each actor. This visualization strengthens data interpretation, supports the formulation of policy recommendations, and enhances the communication of research findings. In the context of governance in the handover of infrastructure and public facilities, the radar chart serves as a strategic tool for assessing the extent to which governance systems operate effectively, inclusively, and in a manner oriented toward long-term sustainability.

DISCUSSION

The results of this study on the evaluation of policies for the handover of public infrastructure, facilities, and utilities in housing areas in Balikpapan City indicate that the governance of the handover process continues to face various structural and operational challenges. The findings suggest that although regulations have been established to define the obligations of developers and the roles of local governments, their implementation has not yet been fully optimized. The gap between normative policy frameworks and actual practices reflects limitations in institutional coordination, administrative capacity, and the commitment of actors involved in the handover process.

From the perspective of institutional coordination, the study finds that relationships among local governments, developers, and related agencies have not been systematically and sustainably developed. Unstructured communication processes have led to delays in handovers,

incomplete documentation, and differing interpretations of technical and administrative provisions (Atinga et al., 2024). This condition indicates that existing coordination mechanisms remain sectoral in nature and have not yet been integrated into a cohesive operational system. As a result, evaluation and verification processes for transferred infrastructure and facilities are often inefficient and vulnerable to administrative errors.

The findings also reveal that the level of developer compliance with regulations varies considerably. While some developers have fulfilled their administrative and technical obligations, others have not fully complied with established standards. This is reflected in infrastructure that does not meet specifications, incomplete documentation, and delays in submitting handover applications. Such variations in compliance may be influenced by differences in financial capacity, regulatory understanding, and business orientation. In this context, weak supervision and enforcement further contribute to inconsistent policy implementation (Peeters & Campos, 2023; Walker, 2023).

With regard to administrative mechanisms, the study demonstrates that document management systems and verification procedures require further strengthening. Lengthy and complex administrative processes often become obstacles for developers in completing their handover obligations. At the same time, limited human and technological resources within local government institutions affect the effectiveness of service delivery and oversight. These conditions indicate that bureaucratic reform and the modernization of administrative systems are urgently needed to improve governance quality in the handover process.

Community participation in the handover of infrastructure and facilities remains relatively limited. Communities tend to act primarily as beneficiaries rather than as active participants in monitoring and evaluation. However, as direct users of public facilities, communities have significant potential to provide feedback on infrastructure quality and service delivery. Low levels of participation may be attributed to limited access to information, insufficient formal participation channels, and low awareness of civic rights and responsibilities. These findings highlight the importance of strengthening participatory mechanisms in housing governance.

In the context of sustainable development, the results emphasize that the quality of the handover process has a significant impact on the continuity of public services in housing areas. Infrastructure and utilities transferred without adequate standards may impose high maintenance burdens on local governments and reduce residents' quality of life. Therefore, the effectiveness of handover policies affects not only administrative outcomes but also social, economic, and environmental dimensions (Daicampi et al., 2025; Ullah et al., 2023). Weak governance practices may hinder the achievement of sustainable housing development objectives.

The findings are also consistent with governance perspectives that emphasize the importance of collaboration among actors in public service delivery. An effective handover process requires synergy among clear regulations, adequate institutional capacity, and strong stakeholder commitment. When any of these elements is weak, overall governance quality declines. In the case of Balikpapan, the main challenges lie in strengthening coordination, enhancing staff capacity, and ensuring consistent supervision of developers.

Overall, the study demonstrates that the evaluation of policies governing the handover of public infrastructure, facilities, and utilities in Balikpapan City still requires systemic improvement. Efforts to enhance governance cannot be implemented in a fragmented manner, but must encompass regulatory reform, institutional strengthening, capacity building, and expanded community participation. Through a more integrated and collaborative approach, the handover process is expected to become more transparent, accountable, and oriented toward public interests. These improvements constitute essential prerequisites for achieving sustainable and equitable housing governance in Balikpapan City.

CONCLUSION

This study concludes that the governance of the handover of infrastructure, facilities, and public utilities in housing areas in Balikpapan City has not yet been implemented optimally and continues to face various structural, administrative, and institutional challenges. Although regulatory frameworks are already in place, gaps remain between policy provisions and their practical implementation, particularly in terms of coordination among stakeholders, consistency of supervision, administrative capacity, and community participation. Variations in developer compliance, limitations in institutional resources, and weak integration of governance mechanisms have reduced the effectiveness of the handover process. Therefore, strengthening regulatory enforcement, improving administrative systems, enhancing institutional capacity, and promoting collaborative and participatory governance are essential to ensure that the handover process becomes more transparent, accountable, and sustainable in supporting long-term public service delivery and housing development.

REFERENCES

- Ahmad, A., Maynard, S. B., Desouza, K. C., Kotsias, J., Whitty, M. T., & Baskerville, R. L. (2021). How Can Organizations Develop Situation Awareness For Incident Response: A Case Study Of Management Practice. *Computers & Security*, 101, 102122. <https://doi.org/10.1016/j.cose.2020.102122>
- Ahmad, H., & Muslim, M. (2024). Exploring The Nexus Between Internal Control Structures And Good Corporate Governance. *Advances In Applied Accounting Research*, 2(2). <https://doi.org/10.60079/Aaar.V2i2.311>
- Angelen Shirley, S. G., Abdullah, B. F., & Iii Dioso, R. (2024). Enhancing Teamwork Through Effective Handover Practices Among Nurses In Elder Care Setting. *Malaysian Journal Of Nursing*, 15(04), 100–108. <https://doi.org/10.31674/Mjn.2024.V15i04.012>
- Atinga, R. A., Gmaligan, M. N., Ayawine, A., & Yambah, J. K. (2024). "It's The Patient That Suffers From Poor Communication": Analyzing Communication Gaps And Associated Consequences In Handover Events From Nurses' Experiences. *Ssm - Qualitative Research In Health*, 6, 100482. <https://doi.org/10.1016/j.ssmqr.2024.100482>
- Bagnall, D. K., Morgan, C. L. S., Bean, G. Mac, Liptzin, D., Cappellazzi, S. B., Cope, M., Greub, K. L. H., Rieke, E. L., Norris, C. E., Tracy, P. W., Aberle, E., Ashworth, A., Tavarez, O. B., Bary, A. I., Baumhardt, R. L., Gracia, A. B., Brainard, D. C., Brennan, J. R., Reyes, D. B., ... Honeycutt, C. W. (2022). Selecting Soil Hydraulic Properties As Indicators Of Soil Health: Measurement Response To Management And Site Characteristics. *Soil Science Society Of America Journal*, 86(5), 1206–1226. <https://doi.org/10.1002/Saj2.20428>
- Bin-Qiang, J., Abdullah, H., Gill, S. S., Rosnon, M. R., Zaremohzzabieh, Z., & He, Y. (2024). A Thematic Review On Community Governance From 2018 To 2023: Analysis Of Future Research Trends. *Journal Of Infrastructure Policy And Development*, 8(5), 3805. <https://doi.org/10.24294/jipd.V8i5.3805>
- Bodunde, K. J., Bello, S. A., & Olasunkanmi, L. (2024). Information Exchange And Collaborative Problem-Solving Roles In Organizational Conflict Resolution. *Journal Of Management, Economics, And Industrial Organization*, 18–33. <https://doi.org/10.31039/Jomeino.2024.832>
- Camacho, A. E., & Glicksman, R. L. (2021). Designing Regulation Across Organizations: Assessing The Functions And Dimensions Of Governance. *Regulation & Governance*, 15(S1). <https://doi.org/10.1111/Rego.12420>
- Chang, J., & Parlikad, A. (2025). An Empirical Investigation On The Use Of Building Handover Information And Its Quality Requirements For Commercial Building Management. *Journal Of Facilities Management*, 23(3), 444–462. <https://doi.org/10.1108/jfm-05-2023-0059>
- Chen, Z., & Chan, I. C. C. (2023). Smart Cities And Quality Of Life: A Quantitative Analysis Of Citizens' Support For Smart City Development. *Information Technology & People*, 36(1), 263–285. <https://doi.org/10.1108/Itp-07-2021-0577>
- Daicampi, C., Veronese, M., & Cesaro, E. (2025). Impact Of Bedside Handover On Patient Perceptions And Hospital Organizational Outcomes: A Systematic Review. *Journal Of*

- Nursing Management, 2025(1). <https://doi.org/10.1155/Jonm/3803491>
- Eboseremen, B. O., Adebayo, A. O., Essien, I. A., Ofori, S. D., & Soneye, O. M. (2022). The Impact Of Interactive Data Visualizations On Public Policy Decision-Making. *International Journal Of Multidisciplinary Research And Growth Evaluation*, 3(1), 1189–1203. <https://doi.org/10.54660/Ijmrge.2022.3.1.1189-1203>
- Engdaw, B. (2022). The Effect Of Administrative Decentralization On Quality Public Service Delivery In Bahir Dar City Administration: The Case Of Belay Zeleke Sub-City. *Cogent Social Sciences*, 8(1). <https://doi.org/10.1080/23311886.2021.2004675>
- Glevitzky, M., Glevitzky, I., Mucea-Ştef, P., & Popa, M. (2025). The “Daily Challenge” Tool: A Practical Approach For Managing Non-Conformities In Industry. *Sustainability*, 17(13), 5918. <https://doi.org/10.3390/Su17135918>
- Grimmelikhuijsen, S., Herkes, F., Leistikow, I., Verkroost, J., De Vries, F., & Zijlstra, W. G. (2021). Can Decision Transparency Increase Citizen Trust In Regulatory Agencies? Evidence From A Representative Survey Experiment. *Regulation & Governance*, 15(1), 17–31. <https://doi.org/10.1111/Rego.12278>
- Han, H., Zeeshan, Z., Talpur, B. A., Sadiq, T., Bhatti, U. A., Awwad, E. M., Al-Razgan, M., & Ghadi, Y. Y. (2024). Studying Long Term Relationship Between Carbon Emissions, Soil, And Climate Change: Insights From A Global Earth Modeling Framework. *International Journal Of Applied Earth Observation And Geoinformation*, 130, 103902. <https://doi.org/10.1016/J.Jag.2024.103902>
- Hope Ekeh, A., Elachi Apeh, C., Somtochukwu Odionu, C., & Austin-Gabriel, B. (2025). Automating Legal Compliance And Contract Management: Advances In Data Analytics For Risk Assessment, Regulatory Adherence, And Negotiation Optimization. *Engineering And Technology Journal*, 10(01). <https://doi.org/10.47191/Etj/V10i01.26>
- Jaradat, H., & Oudat, M. S. (2025). Enhancing Clarity And Transparency In Islamic Financial Practices: The Role Of Regulatory Influence. *Journal Of Financial Reporting And Accounting*. <https://doi.org/10.1108/Jfra-07-2024-0479>
- Jensen, E. A., Borkiewicz, K., Naiman, J. P., Levy, S., & Carpenter, J. (2023). Evidence-Based Methods Of Communicating Science To The Public Through Data Visualization. *Sustainability*, 15(8), 6845. <https://doi.org/10.3390/Su15086845>
- Khan, F., & Mita, T. A. B. (2023). Cybersecure Documentation And Record-Keeping Protocols For Safeguarding Sensitive Financial Information Across Business Operations. *International Journal Of Scientific Interdisciplinary Research*, 04(03), 117–152. <https://doi.org/10.63125/Cz2gwm06>
- Kimic, K., & Ostrysz, K. (2021). Assessment Of Blue And Green Infrastructure Solutions In Shaping Urban Public Spaces—Spatial And Functional, Environmental, And Social Aspects. *Sustainability*, 13(19), 11041. <https://doi.org/10.3390/Su131911041>
- Königstorfer, F., & Thalmann, S. (2021). Software Documentation Is Not Enough! Requirements For The Documentation Of Ai. *Digital Policy, Regulation And Governance*, 23(5), 475–488. <https://doi.org/10.1108/Dprg-03-2021-0047>
- Laksono, N. B., & Latief, Y. (2024). Sustainable Infrastructure Development In The Ikn Region (Nusantara Capital): Simulation Of The Smart Self-Sustaining Urban Center Area Development. *Smart City*, 4(1). <https://doi.org/10.56940/Sc.V4.I1.3>
- Lin, H., Juan, Y.-K., & Castro-Lacouture, D. (2025). Guiding Campus Building Design And Renovation Through Design Quality Indicators And Post-Occupancy Evaluations. *Ain Shams Engineering Journal*, 16(8), 103457. <https://doi.org/10.1016/J.Asej.2025.103457>
- Lundkvist, A., El-Khatib, Z., Kalra, N., Pantoja, T., Leach-Kemon, K., Gapp, C., & Kuchenmüller, T. (2021). Policy-Makers’ Views On Translating Burden Of Disease Estimates In Health Policies: Bridging The Gap Through Data Visualization. *Archives Of Public Health*, 79(1), 17. <https://doi.org/10.1186/S13690-021-00537-Z>
- Mazele, O., & Amoah, C. (2022). The Causes Of Poor Infrastructure Management And Maintenance In South African Municipalities. *Property Management*, 40(2), 192–206. <https://doi.org/10.1108/Pm-06-2021-0042>

- Md Zia Uddin. (2024). The Cost Of Coordination Failures: Impacts On Urban Development Projects And Citizen Services In Bangladesh. *Open Access Indonesia Journal Of Social Sciences*, 8(1), 1922–1936. <https://doi.org/10.37275/Oaijss.V8i1.280>
- Mohd Nawawi, M. H., & Ibrahim, M. I. (2024). Nurses' Perceptions Of Patient Handoffs And Predictors Of Patient Handoff Perceptions In Tertiary Care Hospitals In Kelantan, Malaysia: A Cross-Sectional Study. *Bmj Open*, 14(8), E087612. <https://doi.org/10.1136/Bmjopen-2024-087612>
- Monstadt, J., Colen Ladeia Torrens, J., Jain, M., Macrorie, R. M., & Smith, S. R. (2022). Rethinking The Governance Of Urban Infrastructural Transformations: A Synthesis Of Emerging Approaches. *Current Opinion In Environmental Sustainability*, 55, 101157. <https://doi.org/10.1016/J.Cosust.2022.101157>
- Moshood, T. D., Rotimi, J. O. B., & Shahzad, W. (2025). Enhancing Construction Organizations' Performance Through Strategic Decision-Making: Unveiling The Mediating Role Of Quality Of Information. *International Journal Of Organizational Analysis*, 33(9), 2956–2991. <https://doi.org/10.1108/Ijoa-01-2024-4228>
- Myeza, L., Ecim, D., & Maroun, W. (2023). The Role Of Integrated Thinking In Corporate Governance During The Covid-19 Crisis: Perspectives From South Africa. *Journal Of Public Budgeting, Accounting & Financial Management*, 35(6), 52–77. <https://doi.org/10.1108/Jpbafm-08-2022-0133>
- Naciti, V., Cesaroni, F., & Pulejo, L. (2022). Corporate Governance And Sustainability: A Review Of The Existing Literature. *Journal Of Management And Governance*, 26(1), 55–74. <https://doi.org/10.1007/S10997-020-09554-6>
- Nguyen, T.-Q., & Dao, Q. V. (2021). A Case Study Of Bim Application In A Public Construction Project Management Unit In Vietnam: Lessons Learned And Organizational Changes. *Engineering Journal*, 25(7), 177–192. <https://doi.org/10.4186/Ej.2021.25.7.177>
- Obiadi, B. N., Onuorah, I. M., Mbah, P. U., Okafor, C. C., & Kikanme, E. I. (2023). Corrupt Government Practices, Regulatory Oversight, Ignorance And Negligence, The Key Factors Affecting Sustainable Urban And Rural Developments In Nigeria: Heance, Floodings. *International Journal Of Research And Scientific Innovation*, X(Ix), 39–60. <https://doi.org/10.51244/Ijrsi.2023.10907>
- Olvik, J. (2024). Navigating Complexity: Potentials And Paradoxes Within Governance Strategies For Public And Third Sector Collaboration. *Voluntas: International Journal Of Voluntary And Nonprofit Organizations*, 35(6), 1154–1166. <https://doi.org/10.1007/S11266-024-00682-3>
- Peeters, R., & Campos, S. A. (2023). Street-Level Bureaucracy In Weak State Institutions: A Systematic Review Of The Literature. *International Review Of Administrative Sciences*, 89(4), 977–995. <https://doi.org/10.1177/00208523221103196>
- Rahmad, & Oryza Lhara Sari. (2025). Analysis Of Smart Infrastructure Implementation In Facilities And Infrastructure Of Supporting Hospital For Nusantara Capital City. *Jurnal Teknik Sipil Dan Lingkungan*, 10(2), 213–224. <https://doi.org/10.29244/Jsil.10.2.213-224>
- Rahmadani, W., Ardiansah, & Andrizar. (2025). Implementation Of Monitoring And Investigation Results By The Rokan Hilir Regency Inspectorate Auditor On Regional Property. *Jilpr Journal Indonesia Law And Policy Review*, 7(1), 113–126. <https://doi.org/10.56371/Jirpl.V7i1.475>
- Reinsberg, B., & Westerwinter, O. (2021). The Global Governance Of International Development: Documenting The Rise Of Multi-Stakeholder Partnerships And Identifying Underlying Theoretical Explanations. *The Review Of International Organizations*, 16(1), 59–94. <https://doi.org/10.1007/S11558-019-09362-0>
- Riyanti, N., Jariah, A., Ariyadi, A., & Selawaty, D. (2023). Actor Relationship Model In The Development Of New Housing Facilities In Palangka Raya City: Problems And Urgency Of Providing Public And Social Facilities. *Jurnal Administrasi Publik Public Administration Journal*, 13(2), 147–157. <https://doi.org/10.31289/Jap.V13i2.10300>
- Sawaka, R. S., Nugroho, B., Ichwandi, I., & Setiawan, B. (2025). Application Of The Rules-In-Use Concept In The Analysis Of Regulations On Forest And Land Rehabilitation (Reforestation). *Jurnal Penelitian Pendidikan Ipa*, 11(11), 725–734.

- <https://doi.org/10.29303/jppipa.v11i11.8648>
- Siems, E., Seuring, S., & Schilling, L. (2023). Stakeholder Roles In Sustainable Supply Chain Management: A Literature Review. *Journal Of Business Economics*, 93(4), 747–775. <https://doi.org/10.1007/s11573-022-01117-5>
- Steen-Tveit, K., Munkvold, B. E., & Rustenberg, K. (2024). Enhancing Cross-Organizational Collaboration In Crisis Management: Outcomes From A Full-Scale Regional Exercise In Norway. *Journal Of Contingencies And Crisis Management*, 32(4). <https://doi.org/10.1111/1468-5973.70000>
- Timbung, M. P. (2026). Local Government Strategies For Providing Adequate Housing Infrastructure, Facilities, And Public Utilities (Psu) In Lamandau Regency. *Priviet Social Sciences Journal*, 6(1), 334–343. <https://doi.org/10.55942/pssj.v6i1.1495>
- Too, J., Ejohwomu, O. A., Bukoye, T. O., Hui, F. K. P., & Oshodi, O. S. (2023). Standardising The Route To Project Handover To Improve The Delivery Of Major Building Projects. *International Journal Of Business Performance Management*, 24(2), 175. <https://doi.org/10.1504/ijbpm.2023.129847>
- Ullah, Y., Roslee, M. Bin, Mitani, S. M., Khan, S. A., & Jusoh, M. H. (2023). A Survey On Handover And Mobility Management In 5g Hetnets: Current State, Challenges, And Future Directions. *Sensors*, 23(11), 5081. <https://doi.org/10.3390/s23115081>
- Visser, E. L. (2024). Permanently Provisional: An Ethnographic Analysis Of Responsive Governance Practices In And Through Meetings. *Public Administration*, 102(2), 626–643. <https://doi.org/10.1111/padm.12943>
- Vogel, R., Göbel, M., Grewe-Salfeld, M., Herbert, B., Matsuo, Y., & Weber, C. (2022). Cross-Sector Partnerships: Mapping The Field And Advancing An Institutional Approach. *International Journal Of Management Reviews*, 24(3), 394–414. <https://doi.org/10.1111/ijmr.12283>
- Wahyuningtyas, R., Disastra, G., & Rismayani, R. (2023). Toward Cooperative Competitiveness For Community Development In Economic Society 5.0. *Journal Of Enterprising Communities: People And Places In The Global Economy*, 17(3), 594–620. <https://doi.org/10.1108/jec-10-2021-0149>
- Walker, C. (2023). Regulatory Transfer In Transitioning Economies: Responses To Corruption And Weak State Institutions. *Policy Studies*, 44(1), 26–45. <https://doi.org/10.1080/01442872.2021.1980521>
- Widiyanto, A., Nurrochmat, D. R., Trison, S., & Subarudi. (2025). An Iad Framework Analysis Of Social Forestry Institutional Transformation: A Case Of Forest Areas With Special Management (Khdpk) In Indonesia. *Social Sciences & Humanities Open*, 12, 101928. <https://doi.org/10.1016/j.ssaho.2025.101928>
- Wong, P. Y. L., Lai, J. H. K., & Lo, K. C. C. (2025). Sustainable Transport And Development Partnership: Enhancing Urban Growth In Hobart, Australia Through Tod, Ppp And Green Building Practices. *Sustainability*, 17(3), 881. <https://doi.org/10.3390/su17030881>
- Worku, G., & Adugna, D. (2024). The Current Governance Paradigm For Integrated Urban Infrastructure Planning In The Metropolitan Areas Of Addis Ababa And Sheger. <https://doi.org/10.21203/rs.3.rs-5171799/v1>
- Yhee, H., Kim, S., & Kang, S. (2021). Gis-Based Evaluation Method For Accessibility Of Social Infrastructure Facilities. *Applied Sciences*, 11(12), 5581. <https://doi.org/10.3390/app11125581>