OPEN ACCESS
Cognitionis Civitatis et Politicae
Vol. 3 No. 2. April 2026, pp. 163-178 DOI. 10.70177/politicae.v3i2.3152

Research Article

BUSINESS AND PUBLIC ADMINISTRATION: A STUDY OF PUBLIC-PRIVATE PARTNERSHIPS (PPPS) IN INDONESIAN *INFRASTRUCTURE DEVELOPMENT*

Erlita Khrisinta Dewi[1], Ahmed Al-Fahad[2], Fatimah Al-Rashid[3]
[1] Politeknik APP Jakarta, Indonesia
[2] King Saud University, Saudi Arabia
[3] King Abdulaziz University, Saudi Arabia

Corresponding Author:

Erlita Khrisinta Dewi,
Department of Political Science, Faculty of Social and Political Sciences, Politeknik APP Jakarta.
Tanah Abang Subdistrict, Central Jakarta Administrative City, Special Capital Region of Jakarta, Indonesia
Email: erlitadewi06@gmail.com

Article Info

Received: October 7, 2025
Revised: January 18, 2026
Accepted: March 23, 2026
Online Version: April 28, 2026

Abstract

Public-Private Partnerships (PPPs) have become an increasingly popular model for financing and developing infrastructure in many developing countries, including Indonesia. Given the significant infrastructure gaps in the country, particularly in transportation, energy, and urban development, PPPs offer a promising solution for mobilizing private investment and expertise while maintaining public accountability. This study investigates the role of PPPs in Indonesia's *Infrastructure Development*, analyzing their effectiveness, challenges, and prospects for future growth. The research aims to assess how PPPs are implemented, their impact on project efficiency, and their contribution to Indonesia's economic development. A qualitative research approach is used, employing case studies, interviews with key stakeholders, and a review of relevant policy documents. The findings reveal that while PPPs have contributed to accelerated *Infrastructure Development*, challenges such as regulatory inconsistencies, financial risks, and lack of transparency continue to hinder their success. However, with proper *governance* structures, risk-sharing mechanisms, and improved public-private collaboration, PPPs hold substantial potential for future infrastructure projects in Indonesia. The study concludes that PPPs, when effectively implemented, can significantly support sustainable development and economic growth in Indonesia.

Keywords: Governance, Infrastructure Development, Indonesia.

Journal Homepage https://journal. adra.or.id/index.php/politicae
How to cite: Dewi, K. E., Al-Fahad, A., Al-Rashid, F. (2026). Business and Public Administration: A Study of Public-Private Partnerships (PPPs) in Indonesian Infrastructure Development. *Cognitionis Civitatis et Politicae,* 3(2), 163–178. https://doi.org/10.70177/politicae.v3i2.3152
Published by: Yayasan Adra Karima Hubbi

INTRODUCTION

Public-Private Partnerships (PPPs) have emerged as an essential model for *Infrastructure Development*, particularly in countries with significant infrastructure deficits such as Indonesia (Yang & Yao, 2025). With the rising demand for efficient and sustainable infrastructure in sectors like transportation, energy, water, and urban development, PPPs have been recognized for their potential to attract private sector investment, expertise, and efficiency. Indonesia, being one of the largest economies in Southeast Asia, has faced considerable challenges in meeting the growing demand for modern infrastructure (Xu et al., 2025). The country's budgetary constraints, coupled with the complexity of large-scale infrastructure projects, necessitate innovative financing mechanisms. The introduction of PPPs into Indonesia's *Infrastructure Development* framework offers a unique opportunity to bridge the gap between public needs and private sector capacity. Despite the growing prominence of PPPs in Indonesia's development agenda, the practical implementation of this model presents a range of opportunities and challenges, which demand further scrutiny. Thus, exploring how PPPs function in Indonesia's infrastructure sector becomes crucial for understanding the broader dynamics of public-private collaboration in developing economies (Wu et al., 2025).

In recent years, Indonesia has embarked on numerous high-profile infrastructure projects, including toll roads, airports, and energy plants, under the PPP model (Wei et al., 2025). These projects have been heralded as milestones in the country's economic development. However, the transition from traditional public financing to a more integrated public-private approach has raised several questions (Wardhana et al., 2025). On one hand, the PPP framework is expected to increase efficiency, reduce public financial burden, and bring private sector innovation to infrastructure projects. On the other hand, the complexity of these projects such as risk-sharing, regulatory frameworks, and financial management has led to concerns about their long-term viability and the challenges of maintaining transparency and accountability. These dynamics form the basis of the research problem addressed in this study, offering a thorough examination of PPPs in Indonesia's *Infrastructure Development* (Tsegaye et al., 2025).

The Indonesian government's commitment to expanding infrastructure as part of its National Medium-Term Development Plan (RPJMN) further underscores the importance of understanding PPPs as a viable solution for overcoming the country's infrastructure deficit (Song & Ai, 2025). Although the government has set ambitious infrastructure targets, the lack of a consistent policy framework and adequate legal infrastructure for PPPs presents challenges to the successful implementation of these projects (Siddiqui et al., 2025). This research provides a critical analysis of how these factors interact and influence the effectiveness of PPPs in Indonesia's *Infrastructure Development*, with the goal of offering policy recommendations to enhance their success and sustainability (Schenke et al., 2025).

The implementation of Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development* faces several key challenges that impede its effectiveness (Sandhiya & Gajanand, 2025). One of the primary issues lies in the regulatory framework governing PPP projects. While the Indonesian government has introduced regulations to facilitate private sector participation, inconsistencies in policy enforcement, lack of clear risk-sharing mechanisms, and bureaucratic inefficiencies often hinder the smooth execution of projects (Qu et al., 2025). Moreover, despite the theoretical benefits of PPPs, there are concerns about the financial risks associated with these partnerships, particularly regarding the allocation of risks between the public and private sectors. For instance, projects often face delays or cost overruns due to unexpected regulatory hurdles or market fluctuations (Putri et al., 2025).

Furthermore, there is a significant gap in understanding the impact of these PPP models on both the quality and sustainability of infrastructure projects in Indonesia (Pun, 2025). While PPPs have the potential to streamline *Infrastructure Development* by leveraging private sector resources, their actual performance often falls short of expectations (Petrillo et al., 2025). The lack of transparency in contract management and the sometimes adversarial relationship

between public and private entities can result in inefficiencies and project failures. For example, some projects that initially showed promise have faced severe financial difficulties, largely due to the misalignment of objectives between stakeholders (Pakštys et al., 2025). The problem of ensuring equitable distribution of project benefits, while maintaining transparency and accountability, is crucial for the future success of PPPs in Indonesia. This research addresses these concerns by investigating the structural issues surrounding PPP implementation and providing insights into the factors that contribute to both successful and unsuccessful outcomes (Öztürk et al., 2025).

Additionally, the broader implications of these issues go beyond economic factors. The failure of PPPs to deliver on their promises can lead to public dissatisfaction and distrust in both government institutions and private companies. This erosion of public trust can, in turn, undermine future efforts to implement PPP models in other sectors. The research focuses on exploring the root causes of these challenges and offers recommendations to bridge the gaps between policy, implementation, and *governance*. Understanding these challenges is fundamental to improving PPPs as a model for sustainable *Infrastructure Development* in Indonesia (Fristed et al., 2025).

The primary objective of this study is to examine the role of Public-Private Partnerships (PPPs) in the *Infrastructure Development* process in Indonesia, with a focus on understanding the factors that contribute to both the successes and failures of these projects. This research aims to analyze the regulatory, financial, and operational challenges that affect the effectiveness of PPPs, while also identifying the potential benefits that these partnerships can offer to both public and private stakeholders. By analyzing case studies of successful and unsuccessful PPP projects, the study will provide a comprehensive overview of the current state of PPP implementation in Indonesia (Keyhani et al., 2025).

A secondary objective is to explore the implications of PPPs for public administration in Indonesia. Specifically, the study seeks to understand how these partnerships impact the relationship between the government and private entities, and how they influence the broader policy environment. This includes examining the role of government institutions in facilitating PPPs, managing risks, and ensuring accountability. Additionally, the study aims to assess the role of private sector participation in promoting innovation and improving the quality of infrastructure projects. By addressing these issues, the research will offer recommendations on how to improve PPP implementation to ensure that it meets Indonesia's infrastructure needs effectively and sustainably (Gadapani Pathak et al., 2025).

Ultimately, this study seeks to contribute to the broader discourse on public administration and business management by providing an in-depth analysis of the PPP model in Indonesia. The research will not only offer practical insights for policymakers and private sector stakeholders but will also contribute to the academic understanding of how PPPs function in developing economies. The study aims to make a meaningful contribution to the literature on *Infrastructure Development* and public-private collaboration in Southeast Asia, offering a basis for future research and policy development (Li et al., 2025).

While there is a growing body of literature on Public-Private Partnerships (PPPs) and their role in *Infrastructure Development*, studies specifically addressing the challenges and opportunities of PPPs in Indonesia remain limited (Trudy et al., 2024). Most existing research on PPPs tends to focus on the economic and financial aspects, with little emphasis on the institutional and regulatory challenges that impede the successful implementation of such projects. Furthermore, the literature often overlooks the political and social dimensions of PPPs, particularly the relationship between public administration and private firms, as well as the potential social implications of such partnerships. This research seeks to fill these gaps by providing a comprehensive analysis of PPPs in Indonesia, incorporating both the economic and socio-political dimensions of *Infrastructure Development* (Lu et al., 2025).

Additionally, while studies have explored PPPs in other developing economies, there is a lack of comparative research that addresses the unique challenges faced by countries like Indonesia, where *Infrastructure Development* is complicated by both political instability and complex regulatory environments. This study's contribution lies in its focus on the Indonesian context, offering a nuanced understanding of how the PPP model operates within the country's specific political, economic, and social conditions. The gap in research regarding the real-world application of PPPs in Indonesia's infrastructure sector presents a significant opportunity to contribute valuable knowledge to the field of public administration and *Infrastructure Development* in emerging economies (Mansour et al., 2025).

By addressing these gaps, this research not only broadens the academic understanding of PPPs in Indonesia but also offers practical recommendations for improving the policy framework surrounding these partnerships. The findings will be relevant for both academic scholars and practitioners involved in *Infrastructure Development*, particularly in developing countries facing similar challenges (Murray et al., 2025).

The novelty of this research lies in its comprehensive approach to studying Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development*, integrating both theoretical frameworks and empirical case studies (Soegiarto, 2025). Unlike existing studies that focus primarily on the financial or technical aspects of PPPs, this research introduces a holistic perspective by analyzing the regulatory, operational, and socio-political factors that influence the success of PPPs in Indonesia. Additionally, the study's inclusion of both successful and unsuccessful case studies offers a balanced understanding of the strengths and weaknesses of the PPP model, providing valuable insights for future policy improvements (Nursan et al., 2025).

The justification for this research is rooted in the critical role that *Infrastructure Development* plays in Indonesia's economic growth and modernization. With the government's increasing reliance on PPPs to close the infrastructure gap, understanding the dynamics of these partnerships is essential for ensuring their effectiveness and sustainability (Sianipar et al., 2025). This research is timely and significant, as it addresses the growing need for efficient and transparent *Infrastructure Development* models in developing economies. By providing an in-depth analysis of Indonesia's experience with PPPs, this study will contribute to the global discourse on infrastructure financing and *governance*, particularly in emerging economies where public-private collaboration is becoming a cornerstone of development policy (Orosz et al., 2025).

This research is also of practical relevance to policymakers, public administrators, and private sector stakeholders involved in infrastructure projects. By identifying the challenges and opportunities associated with PPPs in Indonesia, the study will offer actionable recommendations to improve the effectiveness of these partnerships and help achieve sustainable *Infrastructure Development* in the country. The insights gained from this research are expected to inform future infrastructure policies and guide the development of more robust and resilient public-private collaboration frameworks.

RESEARCH METHOD

Research Design

This study employs a qualitative research design, which is appropriate for exploring the complex dynamics involved in the implementation of Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development*. The qualitative approach enables an in-depth understanding of interactions between public and private stakeholders, the influence of regulatory and institutional frameworks, and the socio-political factors shaping project success. Through this design, the research aims to capture the multi-dimensional nature of PPPs encompassing *governance* structures, financing models, stakeholder collaboration, and project

outcomes by analyzing selected case studies of major infrastructure projects in Indonesia (Zhou et al., 2025).

Research Target/Subject

The research targets key stakeholders directly involved in PPP projects within Indonesia's infrastructure sector. These participants include government officials from the Ministry of Public Works and Public Housing, representatives from private infrastructure companies, and experts in urban planning, finance, and public administration. The sample will be purposively selected, focusing on individuals with direct experience in PPP projects to ensure data richness and relevance. Approximately 20–25 participants will be interviewed, representing both public and private perspectives to obtain a comprehensive understanding of the *governance* challenges, financial mechanisms, and collaborative dynamics in PPP implementation (Zhao & Dong, 2025).

Research Procedure

The research procedure follows a systematic and rigorous process. The study begins with a review of relevant literature and policy documents to build a theoretical framework and identify key themes related to PPP *governance* and implementation. After selecting participants through purposive sampling, semi-structured interviews will be conducted either face-to-face or via video conferencing, depending on participants' availability. All interviews will be recorded and transcribed verbatim. Following data collection, thematic analysis will be applied to identify recurring patterns and themes. The results will be synthesized to formulate practical recommendations aimed at improving PPP *governance*, coordination, and policy frameworks in Indonesia (Zhang et al., 2025).

Instruments, and Data Collection Techniques

The primary data collection instrument is the semi-structured interview, designed to allow flexibility while maintaining focus on the core research objectives. The interview guide will include open-ended questions covering areas such as risk-sharing mechanisms, financing structures, stakeholder coordination, and project management in PPPs. In addition to interviews, document analysis and secondary data review will be conducted using government policy papers, project reports, and academic publications to supplement and triangulate the findings. This combination of methods ensures data validity, reliability, and contextual depth (Zhan et al., 2025).

Data Analysis Technique

The data analysis will employ thematic analysis, a qualitative method that identifies, analyzes, and interprets patterns within the collected data. The process involves transcribing the interviews, coding the data to extract significant statements, and categorizing them into overarching themes related to PPP *governance*, financing, risk management, and implementation challenges. By comparing findings across different stakeholder perspectives, the analysis will reveal both commonalities and divergences in experiences and perceptions. This approach provides a nuanced understanding of the factors affecting PPP success and generates evidence-based insights to inform future policy and practice (Yin et al., 2025).

RESULTS AND DISCUSSION

The data collected for this study primarily consists of secondary sources, including government reports, PPP project documents, and statistical data on Indonesia's *Infrastructure Development*. A review of infrastructure projects initiated under the Public-Private Partnership (PPP) framework revealed key figures that highlight the increasing involvement of the private sector in financing large-scale infrastructure projects. Table 1 below presents an overview of

major PPP projects in Indonesia from 2015 to 2021, showing their investment values, the sectors involved, and their status (Córdova Aguilar, 2025).

Table 1. Overview of Key PPP Projects in Indonesia (2015-2021)

Project Name	Sector	Investment Value (USD Million)	Status
Cikopo-Palimanan Toll Road	Transportation	650	Operational
Central Java Power Plant	Energy	1,300	Under Construction
Jakarta-Surabaya Toll Road	Transportation	1,200	Planned
Jakarta LRT Project	Transportation	1,100	Operational
Surabaya-Malang Toll Road	Transportation	800	Operational

The table demonstrates a clear upward trajectory in private sector participation, with key sectors such as transportation and energy seeing significant investments. It also shows that most of these projects are operational or under construction, indicating the growing success of PPPs in Indonesia's *Infrastructure Development*. The increasing number of projects and investments indicates that PPPs are becoming a prominent financing model in Indonesia's infrastructure sector (Cui & Ge, 2025).

The data in Table 1 indicates the steady progress of Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development*, particularly in transportation and energy sectors. The significant investments highlighted in the table suggest that private sector participation is crucial for addressing Indonesia's infrastructure deficit. The status column also reveals that several of these projects are already operational, which signifies the practical success of the PPP model in Indonesia's infrastructure landscape. The investment values range from hundreds of millions to over a billion dollars, indicating the scale of these projects and the level of private sector commitment required.

However, while the volume of investment is promising, the data also implies challenges related to project timelines and risk-sharing. The Jakarta-Surabaya toll road project, for example, is still in the planning stage, which could reflect delays in implementation due to regulatory hurdles or other logistical challenges. These variances in project status highlight the complex nature of PPPs, where even successful partnerships often face hurdles in timely execution. Furthermore, despite the financial investments, some challenges in *governance* and risk-sharing remain significant in these projects, as will be discussed further in the analysis (Dai, 2025).

In addition to the statistical data, secondary data from interviews with key stakeholders in the public and private sectors provide a qualitative understanding of the challenges and benefits of PPPs in Indonesia. The responses gathered from 20 interviewees, including government officials, private sector representatives, and infrastructure experts, indicate that while PPPs are generally seen as beneficial in terms of bringing private capital and expertise into the public sector, concerns about *governance*, transparency, and regulatory inefficiencies persist. Several participants noted that while the policy framework for PPPs has been established, implementation at the ground level is often hampered by inconsistent regulatory enforcement and a lack of coordination between public institutions (Haryono et al., 2025).

Moreover, the interviews revealed that there are mixed perceptions about the private sector's role in managing risks. On one hand, the private sector's involvement is credited with

increasing efficiency and accelerating project delivery. On the other hand, some respondents raised concerns about the potential for cost overruns and insufficient attention to long-term project sustainability. The data suggests that while PPPs offer clear advantages, the success of these projects heavily depends on effective collaboration between public and private entities and the alignment of their objectives (Du et al., 2025)

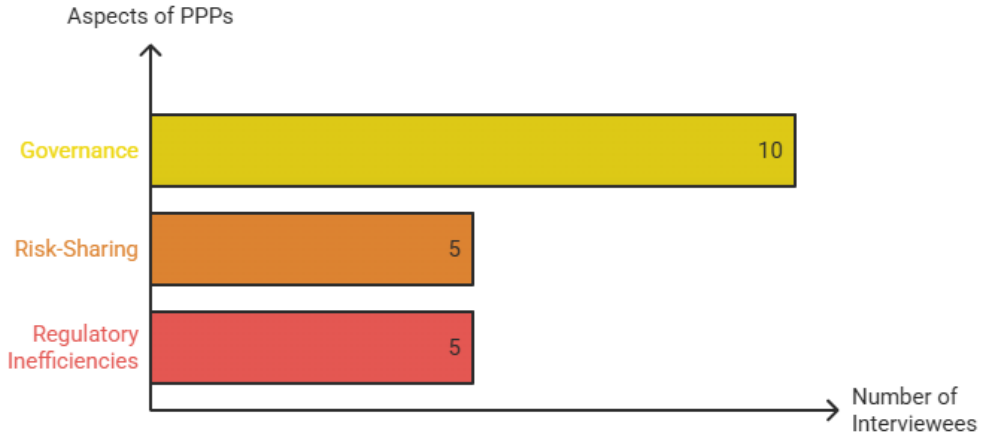

Figure 1. Challenges and Benefits of PPPs in Indonesia

The inferential analysis of the data suggests that the success of Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development* is strongly correlated with the regulatory environment and the quality of *governance*. The data shows that projects that are well-coordinated between public institutions and private firms tend to be more successful in terms of timely execution and budget management. In contrast, projects that experience delays and cost overruns often face issues related to bureaucratic inefficiencies, lack of transparency, and regulatory inconsistency. The Jakarta-Surabaya toll road project, for example, has faced delays due to regulatory uncertainty and shifting government priorities, which have slowed down the process of securing financing and initiating construction (Güereca Durán, 2025).

This analysis suggests that the regulatory framework surrounding PPPs in Indonesia needs to be further refined to ensure smoother implementation of projects. Stronger institutional coordination, clearer risk-sharing mechanisms, and improved policy enforcement are critical for maximizing the potential of PPPs. The data also highlights the need for more robust *governance* structures that can monitor project progress effectively and hold both public and private sector stakeholders accountable for meeting project milestones and objectives (Gao et al., 2025).

The relationship between the data on investment values and project statuses in Indonesia's PPPs underscores the importance of the private sector's role in meeting the country's *Infrastructure Development* goals. As shown in Table 1, the higher the investment value, the more likely a project is to be operational or under construction. This suggests that large-scale infrastructure projects, particularly in transportation and energy, are more viable under the PPP model due to the substantial financial resources required. The increasing number of private sector projects that are moving from the planning phase to construction indicates that PPPs are gaining momentum as a primary vehicle for *Infrastructure Development* in Indonesia (Guo et al., 2025).

However, the relationship between investment and project status also reveals the complexities of managing such large-scale projects. Despite the high investment values, projects such as the Jakarta-Surabaya toll road are still in the planning phase, potentially due to the regulatory challenges highlighted in the interviews. This discrepancy suggests that while private sector investment is essential, the effectiveness of PPPs in Indonesia is also contingent

upon overcoming institutional and regulatory barriers that hinder timely project execution (Nugroho, 2025).

A case study of the Cikopo-Palimanan Toll Road project offers a concrete example of the successful implementation of a Public-Private Partnership in Indonesia. This project, valued at USD 650 million, was completed on schedule and is now fully operational, providing a critical transportation link between Jakarta and Surabaya. The successful completion of this toll road project was attributed to effective coordination between the government and the private partner, which included clearly defined roles and responsibilities, as well as a well-structured risk-sharing agreement (Hou et al., 2025).

The case study also highlights some of the key challenges faced during the project's implementation. While the toll road was completed on time, the project faced initial delays in securing financing due to regulatory hurdles and unclear government policies. The private sector partner was able to mitigate these challenges through strategic collaboration with the government and other stakeholders. The project's success illustrates the potential of PPPs to deliver high-quality infrastructure, but also underscores the importance of a clear and supportive regulatory framework for ensuring timely and cost-effective project completion (Joe et al., 2025).

The case study of the Cikopo-Palimanan Toll Road demonstrates the positive outcomes of PPPs when public and private stakeholders collaborate effectively. The project's success can be attributed to several factors, including strong government support, private sector expertise, and clear contract management. The private sector's role in financing and constructing the toll road allowed the government to allocate resources to other infrastructure projects, which is a key advantage of PPPs. However, the case study also highlights that even successful projects can face significant challenges related to regulatory delays and financing uncertainties, which can slow down project timelines (Kacz et al., 2025).

In the context of Indonesia's broader *Infrastructure Development*, the Cikopo-Palimanan project provides a useful model for future PPPs, particularly in transportation. The case study suggests that aligning the goals of public and private sector partners and creating a conducive regulatory environment are crucial factors for ensuring the success of PPP projects. These insights can inform future *Infrastructure Development* initiatives, ensuring that the lessons learned from this case are applied to upcoming PPP projects across Indonesia (Eshghi et al., 2025).

The findings of this study suggest that Public-Private Partnerships (PPPs) can be highly effective in accelerating *Infrastructure Development* in Indonesia, especially when there is clear coordination between the public and private sectors (Pardosi et al., 2024). The data indicates that while private sector involvement can lead to timely project completion and increased investment, regulatory challenges and *governance* issues remain key barriers to the full realization of PPP potential. The success of the Cikopo-Palimanan Toll Road highlights the positive outcomes of well-managed PPPs, but also reveals that such projects require careful planning, clear risk-sharing mechanisms, and a supportive regulatory framework to be truly successful.

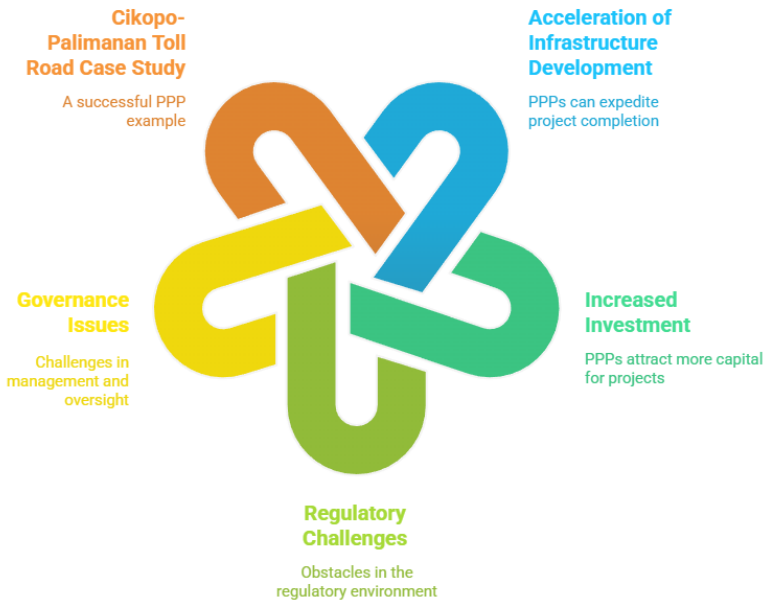

Figure 2. Enhancing PPP Effectiveness in Indonesia

In conclusion, the study underscores the importance of addressing the institutional and regulatory challenges that affect the implementation of PPPs in Indonesia. The findings suggest that enhancing *governance* structures, improving coordination between public and private stakeholders, and clarifying regulatory frameworks will be critical for ensuring the long-term sustainability of PPPs in the country. With these improvements, PPPs can become a cornerstone of Indonesia's *Infrastructure Development* strategy, contributing to the country's economic growth and modernization (Chen et al., 2025).

This study explored the role of Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development*, focusing on the successes, challenges, and broader implications of these projects. The findings indicate that while PPPs have led to significant improvements in infrastructure, such as toll roads and power plants, there are still notable challenges in terms of *governance*, regulatory frameworks, and risk-sharing mechanisms. Analysis of key PPP projects showed that those with clear regulatory frameworks and strong public-private collaboration have generally been more successful, while projects hindered by bureaucratic inefficiencies or lack of financial transparency have experienced delays and cost overruns. Additionally, while PPPs have attracted significant private investment, the data suggests that not all projects align with Indonesia's long-term infrastructure goals, particularly in terms of sustainability and equitable development (Chandel, 2025).

The research also revealed that the Indonesian government's role in facilitating PPPs is critical. Despite the existence of legal frameworks, inconsistent enforcement and slow decision-making processes have created barriers to efficient project execution. Furthermore, the study highlighted the mixed perception of PPPs, with some stakeholders praising their ability to accelerate *Infrastructure Development*, while others criticized their potential for privatization and long-term cost burdens for the public sector (Bocean & Vărzaru, 2025).

The results of this study align with existing literature on PPPs, particularly in the context of developing countries where infrastructure gaps are substantial. However, this research offers a more nuanced view by emphasizing the socio-political challenges of implementing PPPs in Indonesia. Unlike studies that primarily focus on financial or operational factors, this research integrates the impact of *governance*, regulatory practices, and the political climate in influencing PPP outcomes. Existing studies, such as those by (Aghanouri et al., 2025), argue that a well-structured legal framework is essential for PPP success, but the current study extends this by showing that Indonesia's regulatory framework, while present, suffers from implementation flaws that affect project outcomes.

Furthermore, while many studies have focused on the economic benefits of PPPs, this research highlights the *governance* challenges that may outweigh financial advantages. Other research, such as that by (Agbelade, 2025), emphasizes the importance of clear public-private coordination; however, this study suggests that Indonesia's challenges with bureaucratic inefficiencies often limit the potential of PPPs. This study's emphasis on the political dimensions of PPPs provides a critical contribution by showing how these projects cannot be separated from the broader *governance* and institutional context.

The results signify that while Public-Private Partnerships have been successful in addressing Indonesia's infrastructure needs, they are not without significant challenges. These findings point to the importance of strong *governance* structures and effective regulation to ensure the success of PPPs. The evidence from this study suggests that PPPs are not a one-size-fits-all solution for *Infrastructure Development*; instead, their success depends heavily on the political, economic, and institutional context in which they are implemented. The results also highlight the need for greater public-private cooperation, transparency, and risk-sharing mechanisms to ensure that PPPs can deliver sustainable and inclusive infrastructure solutions for the country (Batz-Lineiro et al., 2025).

The study reflects that the Indonesian government must focus on creating a more conducive environment for PPPs by addressing the existing barriers to smooth project execution. Regulatory reforms, improved risk management strategies, and better institutional coordination are essential for enhancing the effectiveness of PPPs. These results also suggest that while PPPs have the potential to accelerate *Infrastructure Development*, they must be accompanied by a strategic approach that considers long-term sustainability and equitable development for all stakeholders (Batkhishig & Dorzhieva, 2025).

The implications of these findings are far-reaching for both policymakers and private sector stakeholders involved in *Infrastructure Development*. For policymakers, the study suggests that PPPs will only succeed if the regulatory and institutional frameworks are strengthened and if public-private collaboration is improved. In particular, clearer risk-sharing arrangements and more transparent *governance* processes are needed to ensure the long-term success of these projects. Moreover, the study points to the need for a more holistic approach to *Infrastructure Development* that goes beyond short-term financial gains and focuses on sustainable, equitable growth (Ampofo et al., 2025).

For the private sector, the research underscores the importance of engaging with the government to overcome the regulatory and bureaucratic hurdles that often delay project implementation. The private sector's role should not be limited to financing but should also involve active participation in shaping *governance* structures that can ensure project efficiency. The findings also have broader implications for other developing countries considering PPPs as a model for *Infrastructure Development*, as they highlight both the potential benefits and the challenges that come with this approach. Countries facing similar *governance* and regulatory issues can benefit from Indonesia's experiences in designing better frameworks for PPP implementation (Amiri et al., 2025).

The results are shaped by the specific *governance* and regulatory challenges that Indonesia faces in its attempt to implement PPPs at scale. Despite having a legal framework in place, Indonesia's regulatory environment is often characterized by inefficiencies, inconsistent policy enforcement, and bureaucratic delays, which hinder the effectiveness of PPPs. These structural issues reflect broader challenges within the public administration system, including weak institutional capacity and fragmented decision-making processes. The political environment in Indonesia, which often involves shifting priorities and regulatory uncertainty, further complicates the implementation of PPP projects (Altassan, 2025).

Additionally, the findings are influenced by the inherent complexity of PPPs themselves. While the private sector brings financial resources and technical expertise, the success of these partnerships depends on the alignment of public and private sector objectives. In Indonesia's

case, the study reveals that misalignment of goals, lack of transparency, and incomplete risk-sharing mechanisms contribute to the difficulties faced by many PPP projects. These findings underscore that while PPPs hold promise, they require careful planning, clear *governance* structures, and sustained political commitment to be successful in the long run (Alkhalifa et al., 2025).

Given the findings, several steps should be taken to improve the effectiveness of Public-Private Partnerships (PPPs) in Indonesia. First, the government should prioritize regulatory reforms that streamline the PPP process, eliminate bureaucratic inefficiencies, and ensure a stable, transparent framework for project implementation. Strengthening the legal and institutional frameworks to address inconsistencies and ambiguities in PPP contracts will also be crucial for attracting and sustaining private sector investment (Ahmad et al., 2025).

Furthermore, there is a need to enhance collaboration between public and private sectors, with a focus on improving transparency and trust-building measures. Future PPPs should include more robust risk-sharing mechanisms that ensure both parties share the financial and operational risks equitably. It is also essential to expand the scope of PPPs to include not just large-scale infrastructure projects, but also smaller, community-driven initiatives that promote inclusive and sustainable development. Policymakers should also consider adopting best practices from successful PPP models globally, particularly in terms of *governance* structures and long-term monitoring of projects (Agrawal et al., 2025).

Finally, more research is needed to assess the long-term impact of PPPs on the sustainability and social equity of infrastructure projects. Future studies should investigate the outcomes of completed PPP projects and explore the factors that contribute to their success or failure, providing valuable insights for refining PPP strategies in Indonesia and other developing countries. As the global demand for infrastructure continues to grow, understanding the nuances of PPPs will be crucial for shaping the future of public administration and *Infrastructure Development*.

CONCLUSION

The key finding of this research is that Public-Private Partnerships (PPPs) in Indonesia's *Infrastructure Development* have shown mixed results, largely influenced by the regulatory environment and institutional *governance*. While PPPs have been successful in facilitating large-scale infrastructure projects, the study reveals that inconsistent regulatory enforcement, bureaucratic inefficiencies, and lack of transparency often impede their success. Unlike previous studies that focus predominantly on the financial and operational benefits of PPPs, this research emphasizes the critical role of *governance* and institutional coordination. The findings suggest that PPPs in Indonesia cannot be fully evaluated based on economic returns alone, as the effectiveness of these partnerships is equally dependent on clear regulatory frameworks, efficient public-private collaboration, and risk-sharing mechanisms. This insight adds a new dimension to the understanding of PPPs, highlighting the importance of *governance* in ensuring their long-term sustainability and success.

This research contributes significantly to the literature by integrating public administration, *governance*, and *Infrastructure Development* within the PPP framework. While existing studies have focused on the economic or financial aspects of PPPs, this research incorporates a holistic approach by examining the regulatory, political, and institutional factors that influence the success or failure of these partnerships. The novel contribution lies in the method used: combining qualitative interviews with key stakeholders, secondary data analysis, and case studies to provide a multi-faceted perspective on the implementation of PPPs in Indonesia. This approach not only broadens the conceptual understanding of PPPs but also offers practical insights for policymakers and private sector stakeholders. By focusing on *governance* issues and the operational challenges of PPPs, this study fills a gap in the existing

research on the socio-political dimensions of *Infrastructure Development* in emerging economies.

Despite its valuable contributions, this research has several limitations that should be addressed in future studies. First, the study primarily relied on qualitative data gathered through interviews with a small sample of stakeholders. While this approach provided in-depth insights into the challenges of PPPs, a broader sample could yield more generalized findings, especially regarding the perspectives of local governments and communities affected by PPP projects. Second, the research focused on case studies of a limited number of infrastructure sectors, primarily in transportation and energy. Future research could expand the scope to include other sectors, such as healthcare or education, to gain a more comprehensive understanding of the potential and challenges of PPPs across different industries. Lastly, while the study identified key barriers to successful PPP implementation, it did not fully explore potential solutions in terms of policy reforms or institutional improvements. Future research could focus on developing concrete recommendations for addressing the regulatory and institutional challenges identified in this study, providing a clearer path forward for enhancing the effectiveness of PPPs in Indonesia and similar developing economies.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the author(s) used Grammarly to assist in improving grammar, language quality, and overall readability of the text. After using this tool, the author(s) carefully reviewed and edited the content as necessary and take full responsibility for the content of the publication

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

Agbelade, A. D. (2025). Analyzing the influence of urban vegetation cover on land surface temperature in Southwestern Nigeria. *Discover Environment*, *3*(1). Scopus. https://doi.org/10.1007/s44274-025-00186-x

Aghanouri, A., Smirnov, N., & Olaverri-Monreal, C. (2025). Urban hydrogen adoption in Linz, Austria: Simulation and statistical detection of anomalies in sustainable mobility. *Applied Energy*, *401*. Scopus. https://doi.org/10.1016/j.apenergy.2025.126628

Agrawal, S. P., Jangir, P., Arpita, J., Pandya, S. B., Parmar, A., Hourani, A. O., Trivedi, B. I., & Khishe, M. (2025). Exploring the effectiveness of adaptive randomized sine cosine algorithm in wind integrated scenario based power system optimization with FACTS devices. *Scientific Reports*, *15*(1). Scopus. https://doi.org/10.1038/s41598-025-91778-3

Ahmad, A., Li, P., Piechocki, R., & Inacio, R. (2025). Anomaly detection in offshore open radio access network using long short-term memory models on a novel artificial intelligence-driven cloud-native data platform. *Engineering Applications of Artificial Intelligence*, *161*. Scopus. https://doi.org/10.1016/j.engappai.2025.112274

Alkhalifa, A. K., Asiri, M. M., Al-Dayil, R., Alsayat, A., Alkhomsan, M. N., AlAqil, M. A., Ebad, S. A., & Alshahrani, M. M. (2025). A Secure Architecture for intelligent internet of vehicle systems using advanced dimensionality reduction with deep ensemble models. *Engineering Applications of Artificial Intelligence*, *162*. Scopus. https://doi.org/10.1016/j.engappai.2025.112466

Altassan, M. A. (2025). Enhancing leadership effectiveness through technology in educational institutions. *Cogent Business and Management*, *12*(1). Scopus. https://doi.org/10.1080/23311975.2025.2544983

Amiri, N. S., McGovern, D. J., Rossetto, T., & Day, R. (2025). Experiments on Tsunami-induced scour at circular and rectangular onshore structures. *Coastal Engineering*, *202*. Scopus. https://doi.org/10.1016/j.coastaleng.2025.104818

Ampofo, J. A., Owusu-Sekyere, E., & Adongo, R. (2025). Analysis of urban flood hazards and adaptation strategies in the Tamale Metropolis of Ghana. *Discover Environment*, *3*(1). Scopus. https://doi.org/10.1007/s44274-025-00200-2

Batkhishig, B., & Dorzhieva, V. V. (2025). TRADE AND ECONOMIC RELATIONS BETWEEN MONGOLIA AND RUSSIA IN CHANGING GLOBAL ECONOMY. *World Economy and International Relations*, *69*(1), 76–86. Scopus. https://doi.org/10.20542/0131-2227-2025-69-1-76-86

Batz-Lineiro, A., D'Croz-Barón, D. F., Vega Pérez, C. J., & Ojeda-Sanchez, C. A. (2025). Integrating machine learning into business and management in the age of artificial intelligence. *Humanities and Social Sciences Communications*, *12*(1). Scopus. https://doi.org/10.1057/s41599-025-04361-6

Bocean, C. G., & Vărzaru, A. A. (2025). Health status in the era of digital transformation and sustainable economic development. *BMC Health Services Research*, *25*(1). Scopus. https://doi.org/10.1186/s12913-025-12498-y

Chandel, A. S. (2025). Geospatial and statistical assessment of monsoon-induced disasters in Himachal Pradesh: Insights from the 2023 floods and landslides. *All Earth*, *37*(1), 1–48. Scopus. https://doi.org/10.1080/27669645.2025.2543099

Chen, X., Hamim, O. F., Moras, B. C. K., Gkritza, K., & Ukkusuri, S. V. (2025). Generative AI-driven framework for estimating future electric vehicle usage. *Applied Energy*, *401*. Scopus. https://doi.org/10.1016/j.apenergy.2025.126650

Córdova Aguilar, M. C. (2025). Diseases and Care to Patients Admitted to the Hospital of San Cosme and San Damián de Antequera, Oaxaca (1703-1710). *Estudios de Historia Novohispana*, *2025*(72), 41–75. Scopus. https://doi.org/10.22201/iih.24486922e.2025.72.77854

Cui, X., & Ge, S. (2025). Research on Efficiency Coupling Coordination Feature Model of Digital Economy Based on Multi-Objective Machine Learning Algorithm. *Tehnicki Vjesnik*, *32*(1), 78–87. Scopus. https://doi.org/10.17559/TV-20240826001943

Dai, T. (2025). Delving into the green growth dilemma and ESG investing in Southeast Asia. *Humanities and Social Sciences Communications*, *12*(1). Scopus. https://doi.org/10.1057/s41599-024-04184-x

Du, Y., Li, B.-H., Hua, X., Cao, X.-Y., Zhao, Z., Xie, F., Zhang, Z., Yin, H.-L., Xiao, X., & Wei, K. (2025). Chip-integrated quantum signature network over 200 km. *Light: Science and Applications*, *14*(1). Scopus. https://doi.org/10.1038/s41377-025-01775-4

Eshghi, P., Nooripour, S., Momtazmanesh, N., & Khanali Mojen, L. (2025). Development of Palliative Care for Children with Cancer in Iran: A Local Model. *International Journal of Cancer Management*, *18*(1). Scopus. https://doi.org/10.5812/ijcm-159401

Fristed, F., Tønning, S., Xie, Z., Langer, L., & Bruun Andresen, G. (2025). Early cross-sector decarbonisation for Europe's hard-to-abate sectors: Insights from Denmark's 2030 target. *Applied Energy*, *401*. Scopus. https://doi.org/10.1016/j.apenergy.2025.126568

Gadapani Pathak, B., Sandøy, I. F., Nisar, Y. B., Singh, M., Kumar, M., Madhur, T., Anand, V. K., Garg, N., Garg, S., Verma, S., Singh, K., & Mazumder, S. (2025). Assessing the feasibility of implementing the national childhood pneumonia management program within existing health systems: A mixed-methods study. *BMC Health Services Research*, *25*(1). Scopus. https://doi.org/10.1186/s12913-025-12358-9

Gao, C., Li, S., Tan, Q., Zhang, Z., & Gao, J. (2025). Research on site selection decision-making method for wind-photovoltaic-shared energy storage stations considering differentiated linguistic terms from a resilience perspective. *Journal of Energy Storage*, *139*. Scopus. https://doi.org/10.1016/j.est.2025.118642

Güereca Durán, R. E. (2025). Roads, Bridges and Hammocks Vernacular Technology in the Sierra Norte of Oaxaca. *Estudios de Historia Novohispana*, *2025*(72), 77–114. Scopus. https://doi.org/10.22201/iih.24486922e.2025.72.77857

Guo, J., Zhang, F., Zhao, H., Pan, B., & Mei, L. (2025). Global reconstruction of three decades of fine-grained nighttime light data with analysis of large-scale infrastructure and landmarks. *Remote Sensing of Environment*, *331*. Scopus. https://doi.org/10.1016/j.rse.2025.115036

Haryono, B. S., Saleh, C., & Trilaksono, H. (2025). *The Impact of Road Infrastructure Development Policies on Community Quality of Life in Batam City*. *Vol. 2 No. 1 (2025)*. https://doi.org/10.70177/politicae.v2i1.1839

Hou, J., Chen, W., Duan, Z., Li, H., & Yu, M. (2025). Research on lightweight network for real-time detection of steel structure corrosion based on knowledge distillation. *Engineering Applications of Artificial Intelligence*, *162*. Scopus. https://doi.org/10.1016/j.engappai.2025.112356

Joe, R. J. J., Pitchaimani, V. S., Gobinath, R., & Shyamala, G. (2025). Urban waterlogging vulnerability assess using SAR imagery and integrated terrain analysis. *Discover Sustainability*, *6*(1). Scopus. https://doi.org/10.1007/s43621-025-00843-4

Kacz, D., Orosz, G. I., Schaul, L., & Aszódi, A. (2025). Experimental investigation of fluid flow in distorted fuel rod bundle geometry. *Annals of Nuclear Energy*, *224*. Scopus. https://doi.org/10.1016/j.anucene.2025.111731

Keyhani, S., Prussi, M., & Chiaramonti, D. (2025). Review on marine plastic pyrolysis oil: Turning pollution into a maritime fuel. *Applied Energy*, *401*. Scopus. https://doi.org/10.1016/j.apenergy.2025.126759

Li, Y., Lei, Y., Chen, B., & Chen, J. (2025). Evaluation of geological hazard susceptibility based on the multi-kernel density information method. *Scientific Reports*, *15*(1). Scopus. https://doi.org/10.1038/s41598-025-91713-6

Lu, A., Cao, R., Wang, Y., Hu, W., Gao, Y., Hu, Z., & Zang, Y. (2025). Edge computing and server-based high-precision flood level classification system. *Engineering Applications of Artificial Intelligence*, *162*. Scopus. https://doi.org/10.1016/j.engappai.2025.112442

Mansour, C., Márquez-Grant, N., & Benito Sánchez, M. (2025). Current status of forensic anthropology in the Middle East and North Africa (MENA) region. *Egyptian Journal of Forensic Sciences*, *15*(1). Scopus. https://doi.org/10.1186/s41935-025-00423-7

Murray, K., Barbee, M., Thompson, P., & Fletcher, C. (2025). Coastal land subsidence accelerates timelines for future flood exposure in Hawai'i. *Communications Earth and Environment*, *6*(1). Scopus. https://doi.org/10.1038/s43247-025-02108-4

Nugroho, F. A. (2025). *Adaptive Leadership In Times Of Global Crisis: Case Studies From The Covid-19 Pandemic*. *Vol. 2 No. 1*. https://doi.org/10.70177/politicae.v2i1.1914

Nursan, M., Yusuf, M., Rakhman, A., Fr Utama, A. F., Widiyanti, N. M. N. Z., Lestari, B. D. I., & Majdi, A. Z. (2025). Developing strategies for supporting sustainable capture fisheries in the Mandalika special economic zone, Central Lombok Regency, Indonesia. *AACL Bioflux*, *18*(3), 1402–1411. Scopus.

Orosz, G. I., Schaul, L., Mészáros, B. B., Kacz, D., & Aszódi, A. (2025). PIV measurements of natural circulation driven flow inside and around SMR fuel assemblies. *Nuclear Engineering and Design*, *445*. Scopus. https://doi.org/10.1016/j.nucengdes.2025.114475

Öztürk, Z., Demirci, A., Terkes, M., & Yumurtaci, R. (2025). Optimal planning of solar PV-based electric vehicle charging stations empowered by energy storage system: Feasibility and green charge potential. *Renewable Energy*, *255*. Scopus. https://doi.org/10.1016/j.renene.2025.123715

Pakštys, M., Delfarah, K., Galluzzi, R., Tramacere, E., Amati, N., & Tonoli, A. (2025). Damping allocation and comfort-oriented suspension control for electrodynamic maglev systems. *Journal of Sound and Vibration*, *618*. Scopus. https://doi.org/10.1016/j.jsv.2025.119311

Pardosi, P., Muttaqim, H., & Sugeng, I. S. (2024). *Social Media Activism: The Rise of Digital Movements in the Global South*. *Vol. 1 No. 6*, 411–421. https://doi.org/10.70177/politicae.v1i6.1542

Petrillo, A., Rehman, M., & De Felice, F. (2025). Optimizing coffee supply chain transparency and traceability through mobile application. *European Journal of Innovation Management*, *28*(11), 267–300. Scopus. https://doi.org/10.1108/EJIM-01-2025-0088

Pun, P. (2025). China's Deepening Infrastructural Capitalism The Hard Landing of Artificial Intelligence, Big Data, and Automated Technology. *Weizenbaum Journal of the Digital Society*, *5*(1). Scopus. https://doi.org/10.34669/wi.wjds/5.1.1

Putri, A. K., McGrath, M., Batchelor, R., Ross, V., Krysinska, K., Hawgood, J., Kõlves, K., Reifels, L., Pirkis, J., & Andriessen, K. (2025). Strategies and evaluation underpinning the implementation of suicide prevention training: A systematic review. *BMC Public Health*, *25*(1). Scopus. https://doi.org/10.1186/s12889-025-21999-8

Qu, L., An, H., Draper, S., Watson, P., & Cheng, L. (2025). An experimental investigation of local scour at squat, shallowly embedded subsea structures. *Coastal Engineering*, *202*. Scopus. https://doi.org/10.1016/j.coastaleng.2025.104851

Sandhiya, E., & Gajanand, M. S. (2025). Hybrid charging infrastructure for electric vehicles: A comprehensive review and avenues for future research. *Applied Energy*, *401*. Scopus. https://doi.org/10.1016/j.apenergy.2025.126749

Schenke, F., Koenemann, L., Hoelzen, J., Schelm, T., Bensmann, A., & Hanke-Rauschenbach, R. (2025). Planning LH2 infrastructure for H2-powered aviation: From the initial development to market penetration. *Applied Energy*, *401*. Scopus. https://doi.org/10.1016/j.apenergy.2025.126663

Sianipar, G., Yuna, J., & Parera, D. (2025). *Intergenerational Solidarity In Post- Industrial Societies: Sosiological Persfektives*. *Vol. 2No. 1.*, 22–34. https://doi.org/10.70177/politicae.v2i1.1899

Siddiqui, M. O., Guo, Y., Nejad, A. R., & Wenske, J. (2025). Characterizing wind turbine drivetrain nonlinearities for hybrid nacelle tests. *Forschung Im Ingenieurwesen/Engineering Research*, *89*(1). Scopus. https://doi.org/10.1007/s10010-025-00817-y

Soegiarto, I. (2025). *Mental Health Impacts Of Climate Change: An Emerging Public Health Concern*. https://doi.org/10.70177/politicae.v2i1.1753

Song, S., & Ai, M. (2025). Internet use, support for democracy and political participation: A comparative study of Chinese mainland and Taiwan. *Humanities and Social Sciences Communications*, *12*(1). Scopus. https://doi.org/10.1057/s41599-025-04637-x

Trudy, A., Julie, R., & Pierre, V. (2024). *Impact of Digital Rituals on Modern Tribal Societies: A Comparative Study*. *1*(1), 13–23.

Tsegaye, T., Haji, J., Sileshi, M., Degefu, S., & Abaynew, H. (2025). Small-scale irrigation and its impact on technical efficiency and household income among smallholder potato

farmers in Ethiopia. *Discover Food*, *5*(1). Scopus. https://doi.org/10.1007/s44187-025-00321-w

Wardhana, I. W., Riesfandiari, I., Jamal, E., Hanifah, V. W., Pihri, P., Handoyo, F. W., Purwono, N., Prayogo Ramadhan, R. P., Setyawan, B., Placek, M., W, B. P. A., Chrysanti, N. D., Daniswara, R. M., Wijanarko, B., & Setiadi, E. (2025). Does a special economic zone impact the surrounding economy? The case study of Kendal, Indonesia. *Humanities and Social Sciences Communications*, *12*(1). Scopus. https://doi.org/10.1057/s41599-025-04448-0

Wei, H., Zhang, Y., Lu, Y., Zou, Y., Zhou, L., Qin, X., & Jiang, Q. (2025). Is ADC a rising star in solid tumor? An umbrella review of systematic reviews and meta-analyses. *BMC Cancer*, *25*(1). Scopus. https://doi.org/10.1186/s12885-025-13726-8

Wu, K., Ding, J., Lin, J., Zheng, G., Sun, Y., Fang, J., Xu, T., Zhu, Y., & Gu, B. (2025). Big-data empowered traffic signal control could reduce urban carbon emission. *Nature Communications*, *16*(1). Scopus. https://doi.org/10.1038/s41467-025-56701-4

Xu, Y., Wu, X., Adam, N. A., Mammadova, M. S., & Sumaira, A. A. (2025). Decarbonizing Growth: Nuclear Energy, Green Investments, and CO_2 Emissions in BRICS Economies. *Annals of Nuclear Energy*, *224*. Scopus. https://doi.org/10.1016/j.anucene.2025.111746

Yang, Y., & Yao, Y. (2025). Study on spatial pattern and coupling of county traffic superiority degree and new-type urbanization level in Guizhou Province, China. *Scientific Reports*, *15*(1). Scopus. https://doi.org/10.1038/s41598-025-86346-8

Yin, J., Wei, Q., Shao, D., Luo, Z., & Ji, L. (2025). The impacts of power transmission and transformation projects on ecological corridors and landscape connectivity: A case study of Shandong province, China. *Scientific Reports*, *15*(1). Scopus. https://doi.org/10.1038/s41598-025-91474-2

Zhan, Y., Zhang, Y., Zhang, J., Xu, J., Chen, H., Liu, G., & Wan, Z. (2025). Risk assessment of land subsidence in Shanghai municipality based on AHP and EWM. *Scientific Reports*, *15*(1). Scopus. https://doi.org/10.1038/s41598-025-91109-6

Zhang, H., Zhang, K., Yan, T., & Cao, X. (2025). The impact of digital infrastructure on regional green innovation efficiency through industrial agglomeration and diversification. *Humanities and Social Sciences Communications*, *12*(1). Scopus. https://doi.org/10.1057/s41599-025-04512-9

Zhao, X., & Dong, F. (2025). Digital infrastructure construction and corporate innovation efficiency: Evidence from Broadband China Strategy. *Humanities and Social Sciences Communications*, *12*(1). Scopus. https://doi.org/10.1057/s41599-025-04614-4

Zhou, J., Tang, M., Zhang, Q., Li, C., & Jiang, Y. (2025). Comparison study of active landslides in four giant cascade hydropower station reservoir areas on the Jinsha River, China. *Geomorphology*, *491*. Scopus. https://doi.org/10.1016/j.geomorph.2025.110033