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A Study of Governance and Public Participation in Indonesian Megaprojects: A Comparative Analysis with International Practices

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ABSTRACT

This research analyzes governance and public participation in infrastructure megaprojects in Indonesia, exemplified by MRT Jakarta and Trans-Java Toll Road, by comparing national practices with international benchmarks. Despite the increasing body of literature on megaproject challenges and governance, a significant research gap exists in the integrated analysis of governance models and public participation strategies specifically within the Indonesian context, characterized by unique socio-cultural dynamics and developmental stage. This study addresses this gap by evaluating the effectiveness of implemented governance and public participation models in Indonesia, comparing them with international best practices identified through case study analysis. Megaprojects in Indonesia frequently face challenges including cost overruns, schedule delays, social conflicts, and significant social, environmental, and economic impacts. The study employs a literature review and international case analysis to explore governance models, such as Public-Private Partnership (PPP), and inclusive public participation approaches. The findings reveal that transparent, accountable governance, deeply involving communities from project inception, significantly enhances public acceptance and project sustainability. Comparative analysis provides insights for adapting global best practices to Indonesia. Strategic recommendations encompass financing innovations, digital technology utilization, and a holistic approach considering a full spectrum of impacts. This study contributes to both theory and practice by introducing an integrated analytical framework for participatory and sustainable megaproject governance in Indonesia. Practically, the framework offers a structured approach for policymakers and project implementers to assess and enhance governance and public participation mechanisms, ultimately aiming to improve megaproject effectiveness and contribute to sustainable development legacies for future generations.

Keywords: Governance, Public Participation, Megaprojects, Infrastructure, Sustainability

ABSTRAK

Penelitian ini menganalisis tata kelola dan partisipasi publik dalam pembangunan megaproyek infrastruktur di Indonesia, contohnya MRT Jakarta dan Jalan Tol Trans-Jawa. Analisis dilakukan dengan membandingkan praktik di Indonesia dengan standar internasional. Walaupun sudah banyak penelitian tentang masalah dan tata kelola megaproyek, masih ada celah penelitian penting, yaitu kurangnya kajian mendalam yang menggabungkan analisis tata kelola dan strategi partisipasi publik, khususnya di Indonesia yang punya keunikan budaya dan tahap pembangunan tersendiri. Penelitian ini mengisi celah tersebut dengan mengevaluasi efektivitas model tata kelola dan partisipasi publik yang diterapkan di Indonesia, lalu membandingkannya dengan praktik terbaik dari negara lain. Megaproyek di Indonesia sering menghadapi masalah seperti biaya membengkak, jadwal molor, konflik sosial, serta dampak sosial, lingkungan, dan ekonomi yang besar. Penelitian ini menggunakan studi literatur dan analisis kasus internasional untuk mempelajari berbagai model tata kelola, misalnya Kemitraan Pemerintah-Swasta (KPS), dan cara meningkatkan partisipasi publik dengan lebih melibatkan masyarakat. Hasil penelitian menunjukkan bahwa tata kelola yang transparan, bertanggung jawab, dan melibatkan masyarakat sejak awal proyek, secara signifikan meningkatkan penerimaan publik dan keberlanjutan proyek. Perbandingan dengan kasus internasional memberikan ide untuk menerapkan praktik terbaik di Indonesia. Rekomendasi strategis meliputi inovasi pembiayaan, penggunaan teknologi digital, dan pendekatan menyeluruh yang mempertimbangkan semua jenis dampak. Penelitian ini memberikan sumbangan pada teori dan praktik dengan memperkenalkan kerangka kerja analitis terpadu untuk tata kelola megaproyek yang partisipatif dan berkelanjutan di Indonesia. Dalam praktiknya, kerangka kerja ini bisa menjadi panduan bagi pemerintah dan pelaksana proyek untuk menilai dan memperbaiki cara mereka mengelola tata kelola dan partisipasi publik, agar megaproyek lebih efektif dan memberikan warisan pembangunan yang berkelanjutan bagi generasi mendatang.

Kata kunci: *Tata Kelola, Partisipasi Publik, Megaproyek, Infrastruktur, Keberlanjutan.*

1. INTRODUCTION

The development of megaprojects in Indonesia, such as the Jakarta MRT and Trans-Java Toll Road, has become an essential part of efforts to drive economic growth, enhance regional connectivity, and accelerate urbanization. However, the success of these megaprojects is measured not only by their technical and economic aspects but also by their impact on the local community's socio-environmental-cultural aspects, public participation in decision-making, and the governance models implemented. Megaprojects are large-scale projects that involve various complexities and encompass multiple disciplines, such as project management, public policy, and civil engineering. These projects differ from regular projects due to their specific characteristics, such as very high costs, extended implementation periods, and high levels of risk and uncertainty (Pitsis et al., 2018).

Global megaproject development has shown significant trends in the last decade. The Global Infrastructure Hub Report (2023) indicates that the number of recorded transactions increased by 29% in 2022, while overall investment value rose by 41% compared to the previous five-year average (2017-2021). Private investment in the primary market showed remarkable growth, increasing by 46% to reach USD 424 billion, ending an eight-year period of stagnation. These investment levels have also far exceeded pre-pandemic levels, signaling a strong recovery and growing interest in global infrastructure projects.

Megaprojects frequently encounter challenges, such as schedule delays, cost overruns, and failure to deliver anticipated social and economic benefits. Extensive prior research has documented these challenges globally. For instance, Lehtonen (2014) emphasizes the limitations of traditional 'iron triangle' metrics (cost, time, scope) in evaluating megaproject success, advocating for a broader perspective encompassing social and environmental impacts. Similarly, Locatelli et al. (2017) in their European transport infrastructure study, highlight the complexity of stakeholder management and the influence of political and economic factors on project performance. While these studies provide valuable insights into the global landscape of megaproject challenges, they often lack specific focus on the governance and public participation dynamics in developing countries, particularly within the Southeast Asian context and Indonesia. Research focusing on Indonesia, such as Wijaya et al. (2018) which identifies poor governance and minimal community involvement as drivers of conflict in transportation megaprojects in Purwokerto, demonstrates the local relevance of governance and participation issues but tends to be case-specific and less comparative with international best practices and theoretical frameworks.

This research addresses these limitations by systematically comparing Indonesian megaproject governance and public participation practices with international benchmarks. This comparative approach is crucial because Indonesia, as a developing nation with distinct regulatory frameworks, socio-political culture, and levels of civic engagement, faces unique challenges in megaproject governance. Regulatory differences, varying levels of public participation, and diverse project outcomes across nations necessitate a context-specific analysis to identify effective governance strategies for Indonesia. Therefore, this research seeks to answer the following key research question: How can megaproject governance and Public Participation in Indonesia be improved to enhance project effectiveness, stakeholder satisfaction, and long-term societal benefits? and what lessons can be learned from international experiences in megaproject governance and public participation to address the specific challenges faced in Indonesia? To address these question and bridge the identified research gaps, a comprehensive and multidisciplinary research approach is essential. This approach focuses not only on technical and financial aspects but also on social, political, and environmental aspects. Furthermore, megaproject evaluation must go beyond the traditional focus on costs and schedules and consider broader impacts on society and the environment. Therefore, this literature review explores various important aspects in megaproject studies, including definitions, characteristics, research methodologies, stakeholder involvement, project performance, evaluation, governance, and sustainability. The evaluation of governance and public participation has become increasingly crucial to ensure the sustainability of these megaprojects

The research aims to evaluate governance models applied to megaprojects in Indonesia, analyze the level of public participation in project planning and implementation processes, and compare practices in Indonesia with international case studies to identify best strategies that can be adopted. This research is expected to provide policy recommendations for more inclusive and sustainable infrastructure governance. Additionally, this research also provides lessons from global best practices that can be applied according to local contexts in Indonesia. This research makes significant contributions to the field of megaproject studies, offering several novel aspects that differentiate it from prior work. Unlike previous studies that primarily focus on financial and technical aspects of megaprojects, or examine governance and public participation in isolation, this research develops an integrated analytical framework that comprehensively combines these two critical dimensions. This framework is specifically tailored to consider Indonesia's unique characteristics as a developing country with high socio-cultural diversity, a context often under-explored in existing international literature.

Furthermore, this study presents a systematic comparative analysis between megaproject governance practices in Indonesia and current international case studies, providing new perspectives in adapting global best practices to local contexts. Finally, this research offers an in-depth evaluation of socio-cultural impacts in implementing public participation models in Indonesian megaprojects, filling a critical gap in understanding the effectiveness of various participation models within local Indonesian contexts.

a. Governance in Megaprojects

Governance in megaprojects is a control system that regulates communication, reduces risks, secures investments, and supports the sustainability of relationships between parties involved in the project. This involves managing relationships between stakeholders, including government, private sector, civil society, and other interested groups (Bourne et al., 2023). Effective project governance is crucial for the success of megaprojects as these projects involve many stakeholders with various interests, take a long time, and require very high costs (Alqershy et al., 2024). Effective governance is essential to avoid project failures, including delays, cost overruns, and conflicts between stakeholders (Han et al., 2009). Poor governance can lead to poor project performance, stagnation, and even corruption.

Public-Private Partnership (PPP) has emerged as one of the effective governance models in megaprojects. The implementation of governance models based on the COBIT 5 framework can enhance transparency and accountability in large project execution (Oktaviyanti, 2018). In the international context, the Réseau express métropolitain (REM) Project shows indications of PPP elements although not explicitly discussed. Its funding by Caisse de dépôt et placement du Québec (CDPQ-Infra), a public investment institution in Quebec, demonstrates public sector involvement. This project aims to improve public transportation services, emphasizing public benefits that can influence private investment around REM stations (Imrani & Champagne, 2023). Additionally, land use and transportation patterns in Montreal are projected to change, opening potential for property development involving the private sector. The involvement of third parties, such as Leger in data surveys, also indicates potential external cooperation in the project (Dent et al., 2021). According to research by Tanaamah et al. (2021), the implementation of governance-based information technology supports bureaucratic reform and effective infrastructure project planning. This approach is relevant for application in Indonesia, which is developing many megaprojects. The governance model of megaprojects, particularly in the context of public-private partnerships (PPP), plays a crucial role in determining project success. The dynamics in PPP projects are heavily influenced by initial agreement

requirements, which determine the level of private party autonomy (Benitez-Avila & Hartmann, 2023).

Studies on megaproject governance have demonstrated various perspectives regarding the role of government, public-private partnerships (PPP), managerial autonomy, and collaborative governance. Imrani & Champagne (2023) discuss the important role of government in selecting governance models for public transportation megaprojects, particularly through public-private partnerships (PPP). They highlight how government decisions in choosing this model affect project success and effectiveness, especially in terms of resource management and risk sharing between public and private sectors. Hudon (2013) as cited by Imrani & Champagne, also explores the administrative performance and democratic effects of the PPP model in Quebec, emphasizing how this model can influence public participation and transparency in decision-making processes. This is because good governance also includes transparency in decision-making processes and accountability of project managers (Bourne et al., 2023).

Furthermore, Benitez-Avila & Hartmann (2023) highlights the importance of managerial autonomy in the context of PPP projects, focusing on how project managers use their autonomy within contract boundaries and interact with parent organizations. Benitez-Avila reveals that public project managers often have the power to influence PPP policy by operating outside the project's boundaries, thus creating a balance of power in public organizations. On the other hand, in the context of natural resource governance, good governance plays an important role in ensuring that megaprojects provide sustainable socio-economic benefits (Bourne et al., 2023). This includes job creation, improved access to public services, and local economic development. A decentralized and participatory approach is considered to improve efficiency and equity in resource management, which is also relevant in the governance of large projects such as transportation megaprojects.

Overall, these studies highlight the complexity and importance of an integrated and collaborative approach in megaproject management. Other research emphasizes that megaproject evaluation must go beyond traditional metrics such as cost and schedule, and consider broader social, economic, and environmental impacts. A "network mapping" approach can be used to explore various accountability relationships in projects and encourage learning (Lehtonen, 2014).

b. Public Participation Models in Megaprojects

Public participation is a key element in the success of megaprojects. Stakeholder involvement, including affected communities, is crucial to ensure that the project meets public

needs and aspirations. However, there is often information asymmetry between authorities and the public, leading to lack of trust and project rejection (Pitsis et al., 2018). Previous studies have identified barriers to public participation, including lack of legal and administrative support, negative attitudes, lack of knowledge, paternalistic culture, ineffective information dissemination, inequality of opportunities, and lack of time and resources (Ye et al., 2023). Public participation in Environmental Impact Assessment (EIA) is important to ensure that communities are involved in megaproject decision-making processes. Kusumadewi et al. (2023) note that the implementation of community-based programs, such as Corporate Social Responsibility (CSR), can help reduce negative impacts while increasing public acceptance of these projects.

Ye et al. (2023) categorize barriers to public participation in environmental impact assessment (EIA) for transportation megaprojects in China into individual barriers, such as negative attitudes and lack of knowledge, and institutional barriers, including paternalistic culture, ineffective information dissemination, and resource limitations. They also developed a Public Participation Index (PPI) based on six main dimensions: participation duration, information accessibility, information completeness, participation methods, participant identification, and feedback, which showed that most projects had low scores despite improvements. Additionally, the role of media is considered important in increasing public awareness regarding projects. Meanwhile, Jankowski et al. (2019) compare traditional methods, such as public meetings, with online methods, such as geo-questionnaires and geo-discussions, which proved to be more inclusive by reaching previously less active groups. These findings indicate the need to enhance public participation mechanisms by utilizing technology to create more inclusive and effective processes in planning and decision-making.

Stakeholder involvement plays a crucial role in the success of megaprojects, as revealed by Pitsis et al. (2018), who emphasize the importance of strong involvement and collaborative learning among stakeholders to achieve optimal results. Additionally, effective information exchange among stakeholders is also highly necessary in this process. However, challenges arise in terms of this involvement. Locatelli et al. (2017) note that decision-making in megaprojects often involves many stakeholders who are difficult to identify, which complicates the dissemination of research results and transparent decision-making. Furthermore, perception of uncertainty also becomes an important factor in megaproject management. A study by Machiels et al. (2023) shows that how stakeholders view uncertainty can significantly affect project progress, influencing decisions made and perceptions of existing risks.

c. Socio-Economic-Environmental Impacts of Megaprojects

Megaprojects often have significant impacts on the social and economic aspects of surrounding communities. Transportation infrastructure development such as toll roads can have varying impacts on economic growth in the regions they pass through. Research by Nouri et al. (2024) has shown that some toll sections can increase economic growth, while others actually decreased it. In their study, they found that several regions experienced different outcomes. Factors such as poor accessibility, high toll costs, and lack of supporting infrastructure can be the causes. For example, the Jabodebek Light Rail Transit (LRT) development has positive impacts such as improved public transportation, time and cost efficiency, and potential economic growth. However, its negative impacts include reduction of green open spaces (GOS), traffic congestion, pollution, and land use changes. Of the total 130,000 m² of GOS used for phase 1 along 26 km, only a small portion can be restored (Bachtiar & Pasaribu, 2023).

Megaprojects face major challenges that negatively impact various aspects. Budget and cost overruns become one of the main problems due to poor planning, design changes, and corruption practices. This condition has been observed in transportation infrastructure projects in the Netherlands, where poor planning and uncontrolled design changes caused significant budget overruns (Denicol et al., 2020). Additionally, according to Flyvbjerg (2014), project delays are also a common constraint, with causes such as technical problems, bureaucratic obstacles, and social conflicts, all of which impact cost increases and schedule disruptions. From an environmental perspective, megaprojects can provide adverse environmental impacts, such as habitat destruction, deforestation, and pollution. Large projects such as the "water grid" in Thailand show how major changes to ecosystems can occur (Brunet & Aubry, 2016), while the Mega Rice Project (MRP) in Indonesia becomes a real example of how megaprojects can trigger massive forest fires and carbon emissions (Simanjuntak & Erwinsyah, 2020). Furthermore, megaprojects often require extensive land acquisition, which triggers land grabbing and local community displacement. Unfair and less transparent processes in land acquisition often give rise to social conflicts and dissatisfaction (Bachtiar & Pasaribu, 2023; Simanjuntak & Erwinsyah, 2020).

Lesutis (2022) provides an example of how megaprojects can marginalize local communities. In the case of the Lamu port, the project ignored traditional fishermen and triggered organized social resistance. This study shows that megaprojects are often inserted into unequal socio-political landscapes, and negative impacts are often felt by indigenous peoples

or marginal groups. According to Flyvbjerg (2017), megaprojects can provide significant socio-economic impacts, such as creating jobs, increasing investment, and reducing poverty, increasing productivity, and improving quality of life. However, these impacts are not always evenly distributed and can vary depending on various factors. Transportation infrastructure development, such as high-speed rail (Shinkansen), can transform society and become a symbol of modernization. Additionally, megaprojects can also trigger entrepreneurial growth and increase regional income through taxes (Hood, 2006).

2. METHOD

This research employed a systematic literature review method to analyze and evaluate governance and public participation in megaprojects. To ensure a rigorous and focused literature selection, specific inclusion and exclusion criteria were applied. Inclusion criteria encompassed: peer-reviewed articles published in scientific journals and trusted academic publications between 2006 and 2024; articles focusing on governance and/or public participation in infrastructure megaprojects; and articles relevant to the Indonesian context or providing international comparative perspectives. Exclusion criteria comprised: articles not in English or Indonesian; grey literature (unless from reputable research institutions); articles focusing solely on technical or financial aspects without governance or public participation dimensions; and articles lacking empirical evidence or robust analysis.

Data were obtained from various sources including scientific journal articles, books, technical reports, and publications from leading research institutions within the 2006-2024 timeframe. Search keywords in both Indonesian and English were utilized in databases such as Scopus, Web of Science, and Google Scholar, with inclusion criteria encompassing peer-reviewed articles relevant to megaproject governance. The data collection stages included article identification, screening, and eligibility assessment. To enhance the validity and comprehensiveness of the literature review, a triangulation approach was employed. This involved cross-referencing information across multiple sources, comparing findings from different studies, and seeking convergence or divergence in perspectives to ensure a balanced and nuanced understanding of the literature landscape.

The esearchh connected findings from international case studies with the context of megaprojects in Indonesia. Relevance was analyzed by comparing governance factors such as institutional structures, community involvement, and approaches to project complexity. The analysis was conducted through content analysis, narrative synthesis, and comparative analysis approaches to identify themes, patterns, and gaps in the literature. Content analysis was

implemented manually, involving a systematic process of coding and categorizing data from selected articles. This manual approach allowed for a deep and nuanced interpretation of textual data, focusing on identifying recurring themes, key concepts, and theoretical frameworks related to governance and public participation in megaprojects. Validity was maintained through source triangulation and peer review, while the research was limited to Indonesian and English literature within the 2006-2024 period. Research ethics were upheld through proper citation, methodological transparency, and respect for copyright.

3. RESULT AND DISCUSSIONS

a. Governance of Megaprojects in Indonesia

The implementation of megaprojects in Indonesia reflects the government's ambitious efforts to improve public welfare and accelerate economic growth. This centralized, top-down approach to megaproject governance is consistent with findings from other developing nations. For instance, Mendoza et al. (2018) documented the Bataan Nuclear Power Plant in the Philippines, highlighting similar issues of centralized control and the potential for negative consequences. Flyvbjerg (2014) analysis of global megaproject trends also supports this pattern, while Obiozo et al. (2014) discussed megaproject management in Vietnam. This suggests a common pattern among developing countries, where strong state involvement is seen as necessary to drive large-scale infrastructure development, often prioritizing speed and efficiency over broader stakeholder engagement. Projects like the Trans-Java Toll Road, LRT Jabodebek, and MRT Jakarta have yielded significant benefits, particularly in transportation efficiency and connectivity, aligning with intended development goals. However, in contrast to more decentralized governance models observed in some Western nations, such as the collaborative governance described in Europe by Sørensen & Torfing (2009) and in the US by Ansell & Gash (2007), Indonesian megaprojects often face challenges in local community integration and responsiveness to diverse stakeholder needs, as evidenced by social conflicts and land acquisition issues detailed in Table 1. This divergence highlights a key difference. The Indonesian approach, similar to that observed in the Philippines and Vietnam, appears to prioritize centralized control, potentially at the expense of social and environmental considerations and worker well-being. While projects like SPAM Umbulan demonstrate positive impacts on public health, these successes are often overshadowed by broader governance challenges. These challenges, including cost overruns, benefit shortfalls, and social conflicts, are not unique to Indonesia but echo patterns seen in other large-scale infrastructure developments globally, as exemplified by Flyvbjerg (2017) analysis of cost overruns and

benefit shortfalls. Furthermore, the Philippine case serves as a cautionary tale, demonstrating how the pursuit of large-scale projects without adequate safeguards against corruption and rent-seeking can lead to "white elephant" projects with long-term negative consequences. Even the potential for positive branding from megaprojects, as seen in Ethiopia's case (Girma et al., 2019) are difficult to be useful when taking into account the numerous governance problems.

Table 1. Impact of Megaprojects in Indonesia

Project Type	Negative Impact	Positive Impact	Notes	Source
Trans-Java Toll Road	Decreased economic growth in some regions, increased land prices, loss of green space	Improved connectivity, accelerated goods distribution, job creation	Earlier socialization and coordination can minimize conflicts of interest	Nouri et al. (2024)
LRT Jabodebek	Reduction of green open spaces, dust and noise during construction	Transportation efficiency, greening in station areas	Early public participation is important to reduce conflicts and social impacts	Bachtiar & Pasaribu (2023)
MRT Jakarta	Rule violations by users during trial period	Travel time efficiency, changes in transportation behavior	Need for increased socialization and user behavior analysis using big data	Pambudi & Hidayati (2020)
SPAM Umbulan	Project delays	Improved access to clean water, improved public health	Government and business entity partnerships are key to project success	Kemenkeu (2023)
Mega Rice Project (MRP)	Peatland damage, social conflicts, crop failures, forest fires	No significant impact	Project shows the need for careful planning and sustainable environmental management	Simanjuntak & Erwinsyah (2020)
Merauke Integrated Food and Energy Estate (MIFEE)	Land grabbing, farmer exploitation, social conflicts	No significant impact	Private investment requires oversight to protect local community rights	Simanjuntak & Erwinsyah (2020)
Ketapang Food Estate (KFE)	Social conflicts, environmental damage	No significant impact	Need for evaluation of commodity priorities and project approach to smallholder farmers	Simanjuntak & Erwinsyah (2020)
P3SON Hambalang	Corruption, state losses, poor building quality	No significant impact	Strict supervision needed to ensure budget transparency and efficiency	Kurdi (2018), Sapto Saputro & Pribadi (2022)

Source: *Analysis Results, 2025*

Based on Table 1, various challenges faced by Indonesian megaprojects underscore recurring governance weaknesses. The failures of the Mega Rice Project (MRP) and Ketapang

Food Estate, resulting in environmental damage and social conflicts, mirror similar outcomes in other megaprojects with inadequate risk assessment and community engagement, as highlighted by Flyvbjerg (2017) work on megaproject pitfalls and 'iron law' of cost overruns and benefit shortfalls. The P3SON Hambalang project's issues with corruption and poor quality align with broader concerns about public choice theory (Buchanan & Tullock, 1999), where self-interest and rent-seeking behaviors within public sector decision-making can undermine project governance and accountability. While positive impacts like accelerated goods distribution from the Trans-Java Toll Road and modern transportation from MRT Jakarta are evident, these are often achieved despite, rather than because of, robust governance frameworks. The limited positive impact of projects like MIFEE, prioritizing export commodities over domestic needs, can be interpreted through an institutional theory lens (North, 1990), suggesting that misaligned institutional priorities and policy frameworks.

A primary challenge remains the lack of meaningful public participation, a finding consistent with participatory governance theory (Fung, 2006; Fung & Wright, 2001) which emphasizes stakeholder involvement as crucial for project legitimacy and success, and deliberative democracy (Habermas, 1984; Innes & Booher, 2004), where the quality of participation matters. While MRT Jakarta's public consultation efforts are a step forward, the persistent feeling of insufficient representation among citizens suggests limitations in the depth and effectiveness of participation, rather than its mere presence. This points toward a need for more authentic and deliberative engagement, as discussed by Innes & Booher (2004) in their framework for collaborative participation for 21st Century. Institutional complexity, particularly coordination difficulties between levels of government and sectors, further exacerbates these challenges. This aligns with institutional theory's emphasis on the importance of clear regulatory structures, inter-organizational coordination, and overcoming "silos" (Ostrom, 1990) for effective governance. It also speaks to challenges highlighted in the network governance literature (Castells, 1996) that arise from coordinating across multiple, interdependent actors. While technological adoption like big data analysis in MRT Jakarta is promising, it is insufficient to overcome fundamental governance deficits in community engagement and inter-agency collaboration. Effective community involvement, therefore, remains paramount, not only as a matter of procedural fairness but as a critical factor for mitigating risks and ensuring equitable benefit distribution, as advocated by participatory governance frameworks.

b. Learning from International Case Studies

International case studies, such as the Lyon-Turin high-speed rail project and EXPO 2010 Shanghai, offer valuable comparative insights for addressing governance challenges observed in Indonesia. Consistent with theory of participatory governance (Fung, 2006), which emphasizes stakeholder engagement in decision-making, the Lyon-Turin project's struggles with rigid bureaucracy hindering public participation demonstrate that neglecting early-stage public engagement can undermine project legitimacy and exacerbate social conflict. This resonates with institutional challenges in Indonesia, highlighting the universal difficulty of balancing bureaucratic efficiency with participatory governance – a tension explored in institutional theory (Di Maggio & Powell, 2005; North, 1990) which explains how norms, rules, and routines shape behavior within organizations and societies. Conversely, EXPO 2010 Shanghai's successful cross-sector coordination through a dedicated organization provides a potential model for Indonesia to overcome inter-agency complexities, demonstrating a practical application of network governance principles (Castells, 1996), emphasizing the importance of networks as a primary organizational form in the information age. This also aligns with institutional theory, suggesting that well-designed organizational structures can effectively navigate complex institutional landscapes. Furthermore, both cases can be analyzed through the lens of deliberative democracy and theory of communicative action (Bohman, 1996; Habermas, 1984), where the Lyon-Turin failure indicates a lack of authentic and inclusive deliberation, while the EXPO 2010 success can be attributed to the potential for deliberation facilitated by the established organizational structure.

Table 2. *International Megaproject Case Studies*

Case Study	Location	Studied Aspects	Relevance to Indonesia	Source
Lyon-Turin High-Speed Rail	Europe	Public participation in decision-making	Strengthening public participation models for megaprojects	Esposito et al. (2021)
Panama Canal	Central America	Cultural practices in project governance	Adaptation of organizational structure to local culture	Marrewijk & Smits (2016)
Hong Kong-Zhuhai-Macao Bridge	East Asia	Management of institutional complexity	Alignment of cross-sector regulations and stakeholders	Qiu et al. (2019)
EXPO 2010 Shanghai	China	Direct government intervention in megaproject governance	Relevant for government involvement in large megaprojects	Zhai et al. (2017)
Beijing Stadium Project (Bird's Nest)	China	Relational governance as a complement to formal contracts	Improving cooperation between local stakeholders	Chi et al. (2011)

Case Study	Location	Studied Aspects	Relevance to Indonesia	Source
Lyon-Turin High-Speed Rail	Europe	Public participation in decision-making	Strengthening public participation models for megaprojects	Esposito et al. (2021)
Mega Transport Projects (OMEGA)	Europe, America, Asia	Project evaluation using multi-criteria framework	Adopting holistic assessment framework for large projects	Dimitriou et al. (2013)
Delhi MRT Project	India	Use of innovative financing mechanisms like land value capture	Potential alternative financing models in Indonesia	Bon (2015)
Lamu Port Project	Lamu, Kenya	Socio-economic impacts, marginalization of fishing communities, social resistance, importance of bio-cultural protocols	Social conflicts with indigenous peoples or local communities, particularly regarding marginalization and lack of community participation	Lesutis (2022)
Øresund Bridge	Between Denmark and Sweden	Cost-benefit evaluation, economic sustainability, traffic analysis, and post-project socio-economic impact evaluation	Analysis of transportation project feasibility, traffic evaluation, and economic sustainability for infrastructure projects in Indonesia	Montrimas et al. (2021)
Brenner Base Tunnel	Austria and Italy	Cost-benefit evaluation, economic sustainability, and comparison with similar projects	Feasibility of large-scale tunnel or transportation projects, including economic sustainability analysis in Indonesia	Montrimas et al. (2021)
Rail Baltica	Eastern Europe	Cost-benefit evaluation, economic sustainability, traffic forecasting, and post-project analysis	Railway projects, traffic forecasting, and economic sustainability evaluation in Indonesia	Montrimas et al. (2021)
A102 Project	Flanders, Belgium	Stakeholder perceptions, stakeholder involvement, and influence of social uncertainty on project decisions	Relevant to projects involving multiple stakeholders in Indonesia, including uncertainty management and community involvement	Machiels et al. (2023)
European Transport Infrastructure	Various locations in Europe	Project characteristics affecting cost and schedule performance, stakeholder influence, and government financial support	Identification of transportation project success factors in Indonesia, including stakeholder management and government support	Locatelli et al. (2017)

Case Study	Location	Studied Aspects	Relevance to Indonesia	Source
Lyon-Turin High-Speed Rail	Europe	Public participation in decision-making	Strengthening public participation models for megaprojects	Esposito et al. (2021)
Public Participation in EIA	China	Evaluation and classification of public participation in EIA, and participation dilemmas in existing policies	Improving EIA effectiveness in Indonesia, including evaluation of public participation and identification of challenges in involving communities	Ye et al. (2023)
REM (Réseau électrique métropolitain)	Montreal, Canada	Role of governance models in megaproject transportation agenda-setting stages	Selection of appropriate governance models for public transportation projects in Indonesia	Li et al. (2018)
Spatial Planning in Poznań	Poznań, Poland	Comparison of face-to-face and online public participation in spatial planning, participant demographics, and scalability	Effectiveness of public participation methods in Indonesia, both online and face-to-face, to reach wider communities	Jankowski et al. (2019)
Shinkansen	Japan	Relationship between high-speed rail and Japanese society, challenges of cultural generalization, and importance of deep understanding (haragei)	Providing lessons about the influence of large infrastructure on society and the importance of contextual understanding in case studies	Hood (2006)
London Olympics 2012	London, UK	Management of megaproject complexity, breaking projects into smaller parts, and importance of thorough planning	Providing lessons about large project management, relevant for complex projects in Indonesia, including data validation with experts	Davies & Mackenzie (2014)
Korea Train Express (KTX)	South Korea	Analysis of schedule delay causes in high-speed rail projects using "zoom-in" approach and as-built method	Providing lessons for analyzing and addressing delays in large projects, relevant for infrastructure in Indonesia	Han et al. (2009)
Bataan Nuclear Power Plant	Philippines	Megaproject failure, white elephant projects, rent-seeking, infrastructure governance	Lessons in avoiding corruption, ensuring project viability, and strengthening governance of large-scale projects.	Mendoza et al. (2018)

Case Study	Location	Studied Aspects	Relevance to Indonesia	Source
Lyon-Turin High-Speed Rail	Europe	Public participation in decision-making	Strengthening public participation models for megaprojects	Esposito et al. (2021)
ECOPARK Eco-City	Vietnam	Biophilic construction site model, worker well-being, psychosocial stress	Improving worker conditions and productivity on megaproject sites, particularly in relation to social impacts.	Obiozo et al. (2014)
Various Megaprojects and Destination Branding	Ethiopia	Impact of megaprojects on cognitive, affective, and unique destination image.	Examining the potential (and limitations) of megaprojects to enhance Indonesia's image, and related development	Girma et al. (2019)

Source: Analysis Results, 2025

Table 2 highlights further international experiences relevant to Indonesia. The Lyon-Turin Rail and Panama Canal cases reinforce the critical role of inclusive public participation and culturally adapted organizational structures. This underscores the principles of participatory governance as articulated by Fung et al. (2003), emphasizing the empowerment of underrepresented groups and the need for context-specific institutional design, highlighting how rules, norms, and routines shape behavior in organizations and societies. These cases suggest that successful megaproject governance requires not only formal participatory mechanisms but also informal cultural adaptation to ensure genuine community ownership and reduce social resistance. The success of the Øresund Bridge and Rail Baltica in achieving economic sustainability through robust cost-benefit analysis demonstrates the importance of rational planning and data-driven decision-making, aligning with principles of public choice theory (Buchanan & Tullock, 1999) in promoting efficient resource allocation. Esposito et al. (2021) analysis of the Lyon-Turin Rail further emphasizes the structural barriers to effective public participation in large infrastructure projects, a challenge Indonesia must proactively address. Marrewijk & Smits (2016) work on the Panama Canal highlights the crucial role of cultural practices in governance, reminding Indonesia to consider its own socio-cultural context when adapting international best practices. This is particularly relevant for Indonesia, given its diverse political culture and varying levels of civic capacity across regions. Moreover, these cases can be linked to the collaborative participation framework for the 21st century proposed by Innes & Booher (2004), where the success of these projects hinges significantly on authentic dialogue, network building among stakeholders, and enhancing institutional capacity to manage diverse interests.

The relevance to Indonesia is evident in the need to adopt innovative financing models such as land value capture from the Delhi MRT Project and the necessity for sustainability evaluation as conducted on the Brenner Base Tunnel. Studies from the London 2012 Olympics and the A102 Project demonstrate that project complexity management and stakeholder engagement are key elements in large project governance. Overall, these studies provide deep insights into how Indonesia can improve megaproject governance through adaptation of international approaches while considering local challenges such as resource limitations and the need for broader community involvement. Dimitriou et al. (2013) evaluated 30 international case studies of transport megaprojects in Europe, the United States, and Asia Pacific. They emphasized the need for a policy-based multi-criteria framework to assess the success of megaprojects involving multiple stakeholders with diverse needs. In Asia, Qiu et al. (2019) highlighted institutional complexity in the Hong Kong-Zhuhai-Macau bridge project. This study found that managing internal and external institutional complexity became key to successful governance of large projects in multi-cultural and multi-regulatory environments.

Overall, these international case studies provide a rich comparative basis for Indonesia to learn and adapt, not just in adopting technical solutions but in fundamentally strengthening its governance frameworks through principles of participatory governance, institutional design, and rational public choice. However, it is crucial to recognize that simply transplanting Western models of public participation may not be effective in Indonesia due to differences in political culture, regulatory environments, and civic capacity. A nuanced and context-sensitive approach is required, focusing on building trust, enhancing public literacy, and leveraging digital technologies to overcome technical barriers to information access and participation.

c. Key Success Factors

Indonesia has significant opportunities to adopt collaboration-based governance models such as Public-Private Partnerships (PPP). The Delhi MRT case study in India (Bon, 2015), which uses land value capture financing mechanisms, can inspire the utilization of land assets as a funding source for megaprojects in Indonesia. Megaprojects are large-scale initiatives involving substantial investment, multiple parties, and extended implementation periods. The success or failure of these projects depends on various factors that can be grouped into planning, governance, contracts, finance, and human and social factors. The following table shows a summary of factors supporting the success and failure of megaprojects in Indonesia and other countries (Table 3).

Table 3. Success and Failure Factors of Megaprojects

Factor	Success	Failure	Source
Planning & Preparation	Mature and realistic planning, including clear goal-setting and standards	Unrealistic planning, lack of project complexity understanding	Han et al. (2009), Flyvbjerg (2017)
	Detailed scheduling with clear milestone establishment	Lack of appropriate scheduling tools	Flyvbjerg (2014), Davies & Mackenzie (2014)
	Clear definition of deliverables, schedule, and costs	Route changes due to inter-agency conflicts or community rejection	Flyvbjerg (2014)
Governance & Management	Clear division of roles and responsibilities among stakeholders	Project owner's lack of capability in managing large high-tech projects	Alqershy et al. (2024),Davies & Mackenzie (2014)
	Effective governance mechanisms, including formal control and monitoring	Ineffective project governance leading to poor performance	Joslin & Müller (2016), Brunet & Aubry (2016)
	Good communication and knowledge sharing between teams and stakeholders	Lack of coordination between involved parties	Djajawinata et al. (2023)
	Strong leadership and support from top management	Design changes and change orders in main structure	Brunet & Aubry (2016)
Contract & Finance	Flexible contracts with effective dispute resolution mechanisms	Inaccurate cost estimates due to optimism bias or invalid data	Dirgahayani et al. (2020)
	Appropriate risk allocation and suitable incentive mechanisms	Project revenue losses and unexpected additional costs	Navalersuph & Charoenngam (2021)
Human & Social Factors	Trust between stakeholders and public participation	Public rejection of projects due to environmental or social issues	Li et al. (2018)
	Commitment from all involved parties	Conflicts of interest between stakeholders	Flyvbjerg (2017)
	Adequate team training and workshops	-	Han et al. (2009)

Source: *Analysis Results, 2025*

Thorough planning and preparation form an essential foundation for megaproject success. Realistic planning and clear objectives contribute significantly to project success. Conversely, inadequate planning, lack of understanding of project complexity, or frequent changes in objectives can become major causes of failure. Detailed scheduling with clear milestones is also an important element of success. However, failure often occurs due to the lack of appropriate scheduling tools, especially in linear projects such as railways. This indicates that planning concerns not only the big vision but also technical and operational details. This aligns with principles of rational planning emphasized in public choice theory, where clear goal-setting and efficient resource allocation are crucial for project success.

Good governance is key in managing megaprojects involving multiple parties. Clear role distribution and strong accountability are important success factors. Conversely, project owners' limited ability to manage high-technology projects becomes a significant barrier. Additionally, effective oversight and control mechanisms are needed to maintain project performance. The inability to implement good governance often leads to delays or failure. Good coordination and communication among stakeholders become other supporting success factors. These findings strongly support principles of network governance, where effective communication, collaboration, and clear accountability mechanisms among diverse stakeholders are paramount for managing complex projects.

Flexible contracts and effective dispute resolution mechanisms are crucial in megaproject management. Clear mechanisms can help manage risks that emerge during project implementation. However, inaccurate cost estimates, especially due to excessive optimism, often cause project failure. Appropriate risk allocation between project owners and contractors is also an important element of success. This highlights the importance of robust institutional frameworks and contractual arrangements, as emphasized by institutional theory, to mitigate risks and ensure fair and efficient project delivery.

Trust among stakeholders forms the foundation of success in megaprojects. Good relationships between parties can facilitate project implementation. Conversely, conflicts of interest or public rejection of projects due to social and environmental issues often become major obstacles. Joint commitment from all involved parties, training, and team capacity development also contribute significantly to megaproject success. The human factor is often the most difficult element to manage but also the most decisive in project success. Another opportunity lies in utilizing digital technology to enhance transparency and accountability. Digital platforms can be used to monitor project progress, involve communities in real-time, and resolve conflicts that may arise. This underscores the core tenets of participatory governance theory, where trust-building, stakeholder engagement, and addressing social and environmental concerns are essential for achieving project legitimacy and long-term sustainability. However, in the Indonesian context, low public participation may stem from a combination of factors, including limited government transparency, lower levels of public literacy regarding complex infrastructure projects, and technical barriers to information access. Addressing these contextual factors is crucial for fostering meaningful public participation.

d. Recommendations for Improving Governance and Public Participation

The following recommendations aim to enhance governance and public participation in megaprojects in Indonesia. These recommendations have been formulated based on learning

from international best practices, case studies, and local challenges faced in megaproject implementation:

1. Strengthening Transparency and Accountability: The government must provide easy access to information about project budgets, schedules, and impacts to the public, accompanied by independent monitoring mechanisms.
2. Enhancing Public Participation: The government must adopt deliberative public participation mechanisms, such as structured consultation forums, to actively involve communities from the planning stage through implementation. Additionally, providing clear access to project information can increase community ownership and reduce the risk of social conflict.
3. Establishment of Special Project Organizations: Based on practices such as EXPO 2010 Shanghai, establishing specialized organizations focused on megaprojects can improve governance efficiency and ensure quick and directed decision-making, with clear responsibilities at every level.
4. Multi-Criteria Approach in Project Evaluation: Megaproject evaluation must use a multi-criteria approach that holistically considers social, economic, and environmental impacts, not just focusing on time and cost. This includes comprehensive feasibility studies to minimize both technical and social risks.
5. Innovation in Project Financing: To reduce dependence on state budgets, the government can adopt innovative financing mechanisms such as land value capture, green bonds, or Public-Private Partnership (PPP) schemes. This can strengthen project financial sustainability and expand private sector involvement.
6. Utilization of Digital Technology and Human Resource Capacity Building: Digital technology must become a primary tool in improving project transparency and oversight. Implementation of real-time data-based systems enables effective monitoring of budgets, schedules, and risks, while helping project managers be accountable for their actions. Investment in human resource capacity building and modern technology implementation needs to be carried out to improve project execution efficiency and effectiveness.
7. Enhanced Inter-Agency Coordination: Megaproject governance requires effective coordination between central government, regional authorities, and other stakeholders. Institutional roles must be clearly defined to prevent overlapping responsibilities and accelerate project implementation.
8. Proactive Risk Management: The government needs to identify and mitigate social, economic, and environmental risks from the early stages of projects. Effective mitigation

strategies must be supported by regular risk monitoring to ensure long-term megaproject success.

9. Focus on Sustainability and Equity: Megaprojects must be designed to provide equitable benefits for all community groups, including vulnerable groups. Additionally, special attention must be given to environmental sustainability, such as ecosystem protection and the use of environmentally friendly technology.

By integrating public participation, financing innovation, digital technology, and sustainability into megaproject governance, Indonesia can adopt international best practices while still considering the local context. These steps will ensure megaprojects are not only technically successful but also serve as sustainable development legacies for future generations.

5. CONCLUCION

This study confirms that inadequate governance structures and a lack of early, meaningful, and inclusive public engagement are significant and interconnected barriers to the success of Indonesian megaprojects. Addressing the central research question, the findings demonstrate that the level and quality of public participation significantly influence the governance performance and overall outcomes of Indonesian megaprojects. Comparative analysis with international best practices and theoretical insights reveals that while Indonesian megaprojects contribute to infrastructure development, persistent challenges in cost control, schedule adherence, social acceptance, and environmental sustainability are directly linked to weaknesses in current governance frameworks and limitations in public participation mechanisms. This conclusion directly addresses the research objectives by providing empirical evidence for the crucial role of governance and public participation in the Indonesian megaproject context.

Theoretically, this study extends prior research on megaproject governance by introducing an integrated analytical framework for participatory and sustainable megaproject governance in Indonesia. This framework, synthesized from empirical findings, international best practices, and established governance theories (Participatory Governance Theory, Institutional Theory, Public Choice Theory, Network Governance Theory), offers a novel conceptual contribution by holistically integrating governance and public participation as key determinants of megaproject success within the specific socio-political and developmental context of Indonesia. Unlike previous studies that often examine governance and participation in isolation or focus primarily on technical and financial aspects, this framework provides a

more comprehensive and context-sensitive approach to understanding and improving megaproject outcomes.

Practically, this research offers concrete and actionable recommendations for policymakers and project implementers in Indonesia to enhance megaproject governance. To foster more effective public participation, the government should move beyond tokenistic consultation towards deliberative and participatory approaches, leveraging digital platforms for wider outreach and employing structured consultation forums to ensure meaningful stakeholder input from the early stages of project planning through implementation. To strengthen governance structures, recommendations include establishing specialized project organizations to improve inter-agency coordination, implementing robust transparency and accountability mechanisms, adopting innovative financing models such as land value capture and green bonds, and integrating multi-criteria sustainability assessments into project evaluation. Furthermore, capacity building programs for both government officials and community stakeholders are crucial to foster a more participatory and collaborative megaproject governance culture.

Future research should focus on several key directions. First, in-depth longitudinal case studies are needed to empirically test the effectiveness and impact of the proposed integrated analytical framework and the recommended participatory governance mechanisms in real-world Indonesian megaprojects. Second, further research is needed to explore the specific contextual factors that shape public participation dynamics in Indonesia, including the role of political culture, regulatory frameworks, civic capacity, and digital literacy. Third, comparative studies with other Southeast Asian developing countries facing similar megaproject governance challenges would provide valuable regional insights and facilitate knowledge sharing. Finally, research on innovative financing models and sustainability assessment methodologies tailored to the Indonesian context is crucial to promote more financially viable and environmentally responsible megaproject development.

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