

SOUTH SUMATRA LRT (LIGHT RAIL TRANSIT) DEVELOPMENT PROJECT GOVERNANCE STUDY

Lidia Corry Rumapea, Krishna Suryanto, Arman Jayady

Universitas Persada Indonesia YAI, Indonesia

*e-mail: rumapeacorry@gmail.com kspribadi@gmail.com armanjayady@upi-yai.ac.id

Keywords

*LRT, South Sumatera, development
project*

ABSTRACT

The South Sumatra Light Rail Transit (LRT) is a short-term solution to welcome the 2018 Asian Games, but also as a long-term strategic step to overcome the transportation problem in Palembang, Indonesia. This research aims to understand the effectiveness of project governance and the obstacles faced in the implementation of the project. The data were collected through semi-structured interviews with stakeholders, direct observation at the project site, and document studies involving various official reports and regulations related to project governance. Data analysis was carried out by coding and identifying the main themes, then compared with international governance standards, namely ISO 21500:2012 and ISO 21502:2020, to assess the extent to which the project's governance was in accordance with applicable standards. The findings are expected to provide recommendations for improving project governance in infrastructure development across Indonesia, ensuring projects are completed on time, within budget, and with minimal social impact.

INTRODUCTION

One of the means that can be considered in meeting the transportation needs of the community in terms of the quality of their trips is Light Rail Transit (LRT). Before the LRT, the city of Palembang faced various serious transportation problems. The rapid growth in the number of private vehicles, the lack of adequate public transportation alternatives, and limited road infrastructure, have caused traffic congestion to become an increasingly urgent problem. This situation is exacerbated by the increase in population and urbanization, which is not balanced by the development of efficient public transportation. This condition has a negative impact on residents' productivity, air quality, and living comfort in the city.

In order to welcome the 2018 Asian Games which will be held in Palembang, the need for a more efficient and environmentally friendly transportation system is increasingly urgent. In 2014, in preparation for the Asian Games in Palembang in 2018, it had been planned to build a monorail from Sultan Mahmud Badaruddin II Airport to the Jakabaring Sports Complex as an alternative public transportation solution (Ridho & Buchari, 2023). This monorail is expected to be able to reduce congestion which is expected to get worse, especially ahead of 2019. However, the monorail construction plan was later canceled due to difficulties in finding investors who were able to complete the project on time, and also because the project was considered economically unprofitable. As a result, the plan was replaced by the construction of the Light Rail Transit (LRT) which is considered more efficient and more timely. The LRT is not only seen as a short-term solution to welcome the 2018 Asian Games, but also as a long-term strategic step to overcome the transportation problem in Palembang as a whole.

According to Yunianti et al. (2023), Palembang became the first city in Indonesia to have a South Sumatra Light Rail Transit (LRT). The construction of the South Sumatra LRT not only aims to improve

transportation facilities ahead of the 2018 Asian Games, but also to overcome the problem of congestion and improve the quality of life of Palembang residents in general. In accordance with the Presidential Regulation of the Republic of Indonesia Number 116 (Peraturan Presiden Republik Indonesia Nomor 116, 2015) which was later revised to the Presidential Regulation of the Republic of Indonesia Number 55 (Peraturan Presiden Republik Indonesia Nomor 55, 2016), the Government assigned PT. Waskita Karya (Persero) Tbk. to build Light Rail Transit infrastructure with a track length of 23 kilometers, using state budget funds with a contract value of Rp 12.5 trillion. This project is the government's effort to provide a better and sustainable transportation system in Palembang. With the LRT line stretching from Sultan Mahmud Badaruddin II Airport to the Jakabaring Sports Complex, it is expected to reduce residents' dependence on private vehicles and provide a more reliable alternative to public transportation. In addition, the project is also expected to stimulate local economic growth and increase investment attractiveness in the region. The project uses a large enough budget so it requires good project governance (Dwiky & Ghuzdewan, 2017).

Project governance is often defined as a framework. Too & Weaver (2014) define it as a framework that includes project management management. Müller et al. (2016) emphasizes the framework aspect but distinguishes between project governance (at the board level) and project governance, the latter refers to the active involvement of the managing entity in each project. Ahola et al. (2014) concluded that there are two schools in the literature on project governance, the first school considers the governance framework to be stable throughout the project, while the other school represents the view that the governance framework must be flexible and adapted to a specific project. Müller & Lecoeuvre (2014) distinguish between governance that aims to control outcomes and governance that aims to control behavior. Furthermore, they differentiate between stakeholder-oriented and shareholder-oriented government (Aal, 2022).

However, the governance of this project requires special attention. Good governance is needed to overcome various challenges faced during the development process, such as risk management (Ullah et al., 2021), cost control (Scherer & Voegtlin, 2020), coordination between related parties (Gao & Yu, 2020), fulfillment of licensing requirements (Adu-Baffour et al., 2021), constraints on land acquisition (Repette et al., 2021), and monitoring of environmental and social impacts (Omri & Bel Hadj, 2020). The effectiveness of the project's governance will determine the long-term success of the LRT system in Palembang, as well as its contribution to overcoming transportation problems that have long been an obstacle for the city's residents.

The research contributes to the understanding of project governance in large-scale infrastructure projects by analyzing the governance practices of the South Sumatra Light Rail Transit (LRT) development. It identifies key factors that support or hinder the effectiveness of governance, including risk management, cost control, coordination, licensing, land acquisition, and environmental and social impacts. The study also highlights unresolved issues, such as land acquisition and payment of construction fees, despite the project's completion. The findings are expected to provide recommendations for improving project governance in infrastructure development across Indonesia, ensuring projects are completed on time, within budget, and with minimal social impact.

METHODS

The research approach used in the South Sumatra LRT construction project is qualitative descriptive, which aims to explore the participants' in-depth understanding of project governance. This qualitative method is better suited to capture complexity and nuances that are difficult to quantitatively measure, especially in the context of case studies like this. Data is collected through semi-structured interviews with stakeholders, direct observation at the project site, and document studies involving various official reports and regulations related to project governance. Data analysis was carried out by coding and identifying the main themes, then compared with the international standards ISO 21500:2012 and ISO 21502:2020.

The data collection process involves several techniques, namely documentation studies, interviews, and observations. Documentation studies collect data from various literature, such as project reports and related regulations. Interviews were conducted with key informants such as contractors, supervisory consultants, and local governments to gain a first-hand understanding of the effectiveness and barriers to project governance. The triangulation process is used to ensure the validity of the data by combining information from various sources and methods, and member checking is

carried out to ensure that the researcher's interpretation is in accordance with the participants' intentions.

The stages of gathering information related to project governance practices include important aspects such as project preparation, land provision, funding, regulations, and supervision. This research aims to understand the effectiveness of governance and the obstacles faced in the implementation of the project. Information was obtained from literature studies, documentation, and interviews with various parties involved in the project. The data analysis was then compared with international governance standards, namely ISO 21500:2012 and ISO 21502:2020, to assess the extent to which the governance of the South Sumatra LRT project was in accordance with applicable standards.

RESULTS

South Sumatra LRT Project Governance (South Sumatra)

The South Sumatra LRT project is managed through the direct appointment of PT. Waskita Karya Tbk by the President of the Republic of Indonesia as the main contractor. This project is part of the government's strategy to improve transportation infrastructure in Palembang ahead of the 2018 Asian Games. Project governance includes various stages, from planning to operational supervision, by involving a number of agencies, both at the central and regional levels. In addition, this project involves local resources in construction work to support regional economic growth.

The effectiveness of project governance still faces several challenges. Despite successfully completing the construction on time, project implementers are often faced with limited local resources and suboptimal coordination between agencies. The construction of the LRT project is expected to support long-term economic growth through increasing community mobility. However, governance optimization still needs to be improved, especially in managing operational complexity and the use of technology to support work efficiency.

Project governance also emphasizes the principles of accountability and transparency. Information related to the progress of development is published through official media such as websites and discussion forums involving the community. Daily, weekly, and monthly reporting is an important part of project governance, allowing relevant parties to monitor work progress, resource usage, and problem solving in the field.

Risk management is one of the crucial aspects of this project, especially related to technical and logistical challenges. The South Sumatra LRT project involves strict supervision of construction quality and material movement through a real-time monitoring system. In addition, the project also anticipates challenges in the field through geotechnical surveys to ensure construction stability and land readiness.

In project implementation, stakeholder engagement is a key element. The central and local governments coordinate to provide the necessary regulations, permits, and facilities, while contractors and supervisory consultants work to ensure that construction runs according to technical specifications. In addition, the community is also involved in the socialization process and the involvement of local workers to support the construction of this project.

Obstacles faced in the South Sumatra LRT project include land acquisition problems and delays in the delivery of construction materials. This obstacle is caused by the lack of regulations that support land negotiations and the complexity of material procurement, which is mostly carried out outside Sumatra. Increased costs due to changes in design and technical specifications are also one of the main obstacles.

Another challenge faced is traffic congestion during the construction process which affects community activities. In addition, the project experienced delays at several stages of construction due to changes in technical specifications that affected the schedule and budget allocation. However, the government is trying to overcome this obstacle through coordination with various related agencies.

Audit and supervision are carried out by the Financial Audit Agency (BPK) and supervisory consultants who are responsible for monitoring the quality and progress of development. This audit process ensures that the LRT project runs according to technical standards, is efficient in using the budget, and complies with applicable regulations. BPK's involvement in project supervision is one of the steps to maintain transparency in the management of the state budget.

Policies related to project governance include health, safety, and environment (K3L) aspects. The South Sumatra LRT project must meet the standards set by the Ministry of Manpower and the Ministry of Public Works, especially in terms of occupational safety. In addition, the project is also required to

comply with environmental standards, including the preparation of an Environmental Impact Analysis (EIA) as part of the regulation of large-scale infrastructure projects.

Ultimately, the success of the governance of the South Sumatra LRT project depends on the ability to overcome existing obstacles and maximize the effectiveness of implementation on the ground. With rigorous audits, transparent reporting, and the involvement of all relevant parties, this project is expected to have a positive impact on infrastructure development in South Sumatra, as well as become a model for transportation project governance in Indonesia.

Effectiveness of Governance of the South Sumatra LRT Development Project

The effectiveness of project governance is a crucial aspect that determines the success or failure of a project, especially in large-scale projects such as the construction of the South Sumatra LRT (South Sumatra). The project, which began as a solution to overcome congestion and improve transportation infrastructure in Palembang, South Sumatra, has faced various challenges that affect the effectiveness of its governance. An interview conducted with Contract administration staff to explain the effectiveness of governance in carrying out the construction of the South Sumatra LRT was explained that "the supporting factors for the success of governance in the construction of the South Sumatra LRT are Discipline, Focus in work, and being able to manage the working hours of workers are factors that determine the success of the governance of the South Sumatra LRT project.

As explained in the governance above that communication between teams is a very important part in creating good governance, the author asked how the role of communication between teams was explained that "Communication between teams is very important, because in the governance process of the South Sumatra LRT work requires excellent teamwork"

In supporting effectiveness, of course, a culture and teamwork ethic are needed, the author questions how the influence of these cultures and ethos in supporting work effectiveness is answered "Work culture and team ethos are very influential in project governance, this is because a disciplined work culture and good teamwork can create positive performance in project management". This can be explained that in running or succeeding a project, of course, it is carried out by various elements and teams, therefore it is very important and mandatory to have cooperation and collaboration between teams to achieve the development goals of the South Sumatra LRT.

Influencing Interests

In the implementation of the South Sumatra LRT project, various interests involved play an important role. This interest includes parties such as local governments, communities, and SOEs involved. These interests must be carefully managed so that the project can run as planned and provide maximum benefits.

In general, the implementation of the South Sumatra LRT project has proven to be successful in completing construction on time. However, challenges arise in terms of transparency and accountability. Limited data on project financing and land acquisition hinder a deeper understanding of how these interests affect project implementation. This shows that there are limitations in access to information that can affect the effectiveness of overall project management. In supporting the success of LRT project governance, the involvement of internal and external stakeholders is needed, this is explained that "Internal and External Interests greatly contribute to the success of the project, for example for internal interests such as frequent inspections carried out by internal management both in terms of K3, Quality, Time, etc. so that the project can always be controlled. An example of external interests is the role of KSP which can be a mediator in the event of a dispute with related stakeholders, so that if there are obstacles that are not protracted and can be resolved immediately.

Types of Benefits

The Palembang LRT project is expected to provide various significant benefits. Specifically, the expected benefits include a reduction in travel time from Sultan Mahmud Badaruddin II Airport to DJKA Station, which is expected to save travel time by up to 14 minutes compared to using a private vehicle. In addition, the LRT is also designed to reduce air pollution and provide a more environmentally friendly alternative to transportation as well as increase comfort at affordable fares.

However, these benefits have not been fully realized. One of the main reasons was the lack of in-depth technical and economic studies before the project began. The statement from Jusuf Kalla underlined the importance of a thorough review to ensure that the benefits of the project outweigh the

costs and risks involved. Financial analysis shows that the revenue from the Palembang LRT does not meet the expected target. Operational costs reach IDR 10 billion per month, while revenue is only around IDR 1 billion. As a result, the central government must inject a subsidy fund of Rp150 billion per year to maintain the sustainability of LRT operations.

Degree of Change to Achieve

The Palembang LRT project is designed with the main goal of improving transportation efficiency and reducing congestion in the city. However, the results achieved are not fully in accordance with these goals. Even though the LRT is already operating, congestion in the city of Palembang is still a problem. One of the reasons is the lack of attention to the development of supporting infrastructure such as overpasses or flyovers in areas prone to congestion.



Figure 1. Unraveling the Tangled Threads of Traffic Congestion in Palembang (SwarnaNews)

SwarnaNews' study shows that congestion in Palembang remains significant, especially at points such as the Fountain Roundabout, Simpang IP, and KM.5 Market. The construction of the LRT, although significant, is not balanced with maximum efforts to overcome the wider congestion problem, so the initial goal of reducing congestion has not been fully achieved.

Place Decision Making

The decision making for the Palembang LRT project was driven by a desire to overcome congestion. Initially, the Governor of South Sumatra, Alex Noerdin, planned to build a monorail, but this decision was changed to LRT because it was considered more economically efficient. However, this LRT project is not fully in accordance with Palembang's transportation needs. The decision to continue the project with a budget of Rp10.9 trillion, although not fully supported by a comprehensive needs study, incurred state losses. The lack of in-depth needs analysis documents contributes to problems that arise after the implementation of the project, including the need for large subsidies.

Project Contractor Performance

Presidential Regulation Number 55 of 2016 stipulates that PT Waskita Karya Tbk is responsible for the construction of LRT infrastructure, including the construction of flyovers and stations, while the relevant ministries carry out supervision and coordination. The Governor of South Sumatra is responsible for providing land, while the Mayor of Palembang and the Regent of Banyuasin are in charge of adjusting the Regional Spatial Plan with the LRT project.

Although the implementation of the program has been clearly defined, the implementation of the LRT project still faces problems after completion. Lack of inter-agency connectivity, lack of research and development related to transportation integration, and unaccounted environmental impacts result in low passenger numbers and economic losses. The connectivity between the transportation system and the area around the LRT is not optimal, and the absence of an environmental impact analysis affects the quality and sustainability of the project.

Resources Used

The Palembang LRT project is supported by adequate resources, especially in terms of the use of local labor which reaches 100 percent. However, some raw materials such as machines have to be imported from abroad due to the limitations of domestic production. Although PT Waskita Karya and

related companies have shown a commitment to the use of local resources, the reliance on imports for certain components indicates that there is room for an increase in domestic production capacity.

Overall, the South Sumatra LRT project shows several aspects of success in terms of project completion and use of local resources, but there are still significant challenges in terms of realized benefits, decision-making, and post-implementation management. Limitations in needs assessments, transportation system integration, and environmental impacts require further attention to improve the effectiveness of project governance in the future.

Obstacles Faced in the Practice of Governance of the South Sumatra LRT Development Project

Land Clearance

Land acquisition is one of the significant challenges in infrastructure development projects, including the South Sumatra LRT project. The land acquisition for the South Sumatra LRT project, which began in early December 2015, aims to meet the needs of public transportation facilities to reduce congestion in the city of Palembang. Although land acquisition regulations must prioritize the public interest and uphold the rights of land owners, in practice there are several obstacles that cause delays in the land acquisition process.

The land acquisition process in this project must be carried out by paying attention to who is the legal owner of the land, which is evidenced through legal documents such as land certificates. After the identification of the land owner is carried out, the next step is to inventory the land including the area, location, and other objects that are on or in the land. Land price assessments must also consider the long-term economic impact on landowners and surrounding communities.

In the case of the South Sumatra LRT, there are challenges in resolving land ownership conflicts, which are often caused by differences in perception between the government and the community regarding the value of fair compensation. In addition, regulations that regulate the land acquisition process, such as those regulated in Presidential Decree Number 49 of 2017 which is an amendment to Presidential Decree Number 98 of 2015, are considered to lack space for community involvement in the planning and execution of land acquisition, which causes potential conflicts and delays in projects.

An interview conducted with the South Sumatra LRT Task Force asked about development constraints, it was explained that "there are obstacles to land acquisition, the position of the South Sumatra LRT track is in the city of Palembang, so that it causes many obstacles related to land acquisition, especially for access to go up and down the South Sumatra LRT station as well as the position of the Foundation and Pier".

Changes in Construction Models

Changes in the construction methods that have been agreed upon are a big challenge in the implementation of the South Sumatra LRT project. At the initial stage, construction is planned with a model of a concrete cantilever that will be cast along with the installation of the piles. However, after review, this method has the potential to cause significant traffic congestion, as most of the rail poles are in public road areas. Therefore, a change was made to Hybrid Pier.

This method utilizes welded joints for steel structures produced in the steel contractor workshop of PT. Majestic Bangun Baja Semesta in Tangerang, which is located far from Palembang. The weld joints are designed to be as strong as the profiles they are connected to, with the steel frame system divided into three parts for easy transportation and installation in the field. However, these changes require adjustments in the overall project system, including implementation time, cost budgets, and project governance.

This change in construction methods also requires revision of technical documents and budgets, as well as more intensive coordination between the contractor and the government to ensure the smooth implementation of the project without adding a significant cost burden. An interview conducted with the Supervisory Consultant regarding the obstacles explained that "the South Sumatra LRT is the first LRT in Indonesia, of course, several things technically require design changes/modifications during implementation, adjustments to both design and implementation of conditions in the field are carried out by experts and people competent in their fields. The explanation conveyed by the South Sumatra LRT Task Force stated that "The initial planning of the foundation used Spun pile (piles) but due to the impact of soil lifting in the surrounding area, the method was changed to borepile".

This explanation can be analyzed that with the many challenges such as disrupted public utilities, modeling that is not in accordance with field conditions causes changes in the construction model that has been determined previously, of course this is an obstacle that requires quick handling.

Traffic Congestion

Traffic congestion is the main obstacle during the implementation of the South Sumatra LRT project. The LRT track in the center of Palembang City causes road narrowing due to the use of road lanes by construction equipment. Although the progress of LRT construction is faster than the target, the impact on traffic conditions in the city is very felt.

Some roads under the LRT track have been damaged due to the construction process, causing disruption to motorists and pedestrians. Roads such as Jalan A Rivai, Jalan Angkatan 45, and the Tanjung Api-Api intersection towards SMB II Palembang Airport were severely damaged. In addition, the sidewalks along the LRT line are also damaged and unusable, adding to the difficulties for pedestrians.

The contractor, PT Waskita Karya, has coordinated with the National Road Management Center (BBPJN) to repair damaged roads. However, until now, road repairs have been carried out in stages and have not completely solved the existing problems. Congestion due to road narrowing and road damage is a big challenge in maintaining smooth mobility in Palembang City during the project.

An interview conducted with SMEC Supervisory Consultant (Dr. Zella Paramita) of the SMEC Staff Department explained that the obstacles experienced during the implementation of the South Sumatra LRT construction were the construction carried out on national and provincial roads so that good coordination between stakeholders and related agencies was needed so that the implementation ran smoothly, effectively and efficiently".

Furthermore, an interview was conducted with the South Sumatra LRT Task Force explaining that "Because the South Sumatra LRT track is located in the center of Palembang, so that during the construction there was quite severe congestion due to the reduction of road lanes used by South Sumatra LRT construction equipment which is on the road median". This explains that the implementation of the project disrupts traffic, namely frequent congestion or road diversion until the system opens and closes.

Public Utilities Disrupted

The construction of the LRT line in Palembang, which uses ballastless slabtrack technology, has also caused disruptions to public utilities such as PDAM pipes, telephone cables, and power grids. The removal of this utility is one of the inhibiting factors in the implementation of the project, as it requires close coordination with relevant agencies to ensure that all facilities remain functional during the construction process.

In addition, system changes such as the construction of flyovers also require adjustments in the layout of existing utilities, so as not to interfere with their operations. These challenges require careful planning and proper execution to minimize the negative impact on public services and ensure projects can go ahead as planned.

With various obstacles faced, the success of the South Sumatra LRT project in completing construction on time and within budget is highly dependent on the effectiveness of project governance, coordination between parties, and the ability to adapt to changes and challenges that arise during the implementation of the project.

An interview conducted with the project administration staff questioned what was the obstacle to the project, "The biggest obstacle in the management of the South Sumatra LRT project is the number of underground utilities along the LRT track (23.4 KM) which results in many maneuvers in implementation and design". He also explained how to overcome obstacles by disrupting public utilities, namely "Always intensely coordinate with related stakeholders, so that no party is harmed and the project can still run on time. In addition, the speed and accuracy in determining the work method also affect to overcome these obstacles". The obstacles present are external. Not much different from the explanation of the South Sumatra LRT Task Force which stated that "The number of utilities that must be moved because they intersect with the construction of the South Sumatra LRT such as Provider, PLN, PDAM, GAS, etc.

Accelerating Development

The construction of the South Sumatra LRT is a mega project that aims to unravel congestion in the South Sumatra region, but one of the goals that is not always important is as a means of supporting the implementation of the 2018 ASEAN GAMES, an interview conducted to the supervisory consultant explained that "the South Sumatra LRT was built with the wrong aim to support the 2018 Asean Games activities which were held in the city of Palembang, So that at this time the acceleration of development is being carried out, of course this is a challenge for implementation in the field so that sufficient resources, good coordination and collaboration between stakeholders are needed".

CONCLUSION

The South Sumatra LRT project, funded by the central government, was managed through direct appointment to PT. Waskita Karya Tbk as the main contractor. The project involved various parties, including the central government, local governments, and other institutions, ensuring compliance with regulations. The Directorate General of Railways supervises the project, and project governance ensures its implementation runs according to schedule. Despite being completed on time for the 2018 Asian Games in Palembang, the project's governance is not optimal due to limited local resources and coordination issues. Despite these challenges, the project is expected to positively impact Palembang's economic growth, particularly in improving transportation infrastructure and community mobility. To overcome these obstacles, open reporting, in-depth review of project aspects, and accountable analysis and transparency are recommended. Future research should explore the long-term impacts of large infrastructure projects on local economies, urban mobility, and social development, and investigate improved coordination mechanisms between central and local governments. Comparative studies on governance models across different regions could offer valuable insights for optimizing project management and mitigating risks in future infrastructure developments.

REFERENCES

- Aal, E. B. W. (2022). The significance of Luhmann's theory on organisations for project governance. *Project Leadership and Society*, 3(September), 100070. <https://doi.org/10.1016/j.plas.2022.100070>
- Adu-Baffour, F., Daum, T., & Birner, R. (2021). Governance challenges of small-scale gold mining in Ghana: Insights from a process net-map study. *Land Use Policy*, 102. <https://doi.org/10.1016/j.landusepol.2020.105271>
- Ahola, T., Ruuska, I., Artto, K., & Kujala, J. (2014). What is project governance and what are its origins? *International Journal of Project Management*, 32(8). <https://doi.org/10.1016/j.ijproman.2013.09.005>
- Dwiky, wan gifandi, & Ghuzdewan, T. A. (2017). *Lesson Learned Tata Kelola Penyelenggaraan Proyek (Studi Kasus pada Proyek Light Rail Transit Palembang dan Proyek Flyover Busway Ciledug – Blok M Jakarta SELATAN)*. universitas Gadjah Mada.
- Gao, X., & Yu, J. (2020). Public governance mechanism in the prevention and control of the COVID-19: information, decision-making and execution. *Journal of Chinese Governance*, 5(2). <https://doi.org/10.1080/23812346.2020.1744922>
- Müller, R., & Lecoeuvre, L. (2014). Operationalizing governance categories of projects. *International Journal of Project Management*, 32(8). <https://doi.org/10.1016/j.ijproman.2014.04.005>
- Müller, R., Zhai, L., Wang, A., & Shao, J. (2016). A framework for governance of projects: Governmentality, governance structure and projectification. *International Journal of Project Management*, 34(6), 957–969. <https://doi.org/10.1016/j.ijproman.2016.05.002>
- Omri, A., & Bel Hadj, T. (2020). Foreign investment and air pollution: Do good governance and technological innovation matter? *Environmental Research*, 185. <https://doi.org/10.1016/j.envres.2020.109469>
- Peraturan Presiden Republik Indonesia Nomor 55, 66 PERUBAHAN ATAS PERATURAN PRESIDEN NOMOR 116 TAHUN 2015 TENTANG PERCEPATAN PENYELENGGARAAN KERETA API RINGAN/LIGHT RAIL TRANSIT DI PROVINSI SUMATERA SELATAN (2016).
- Peraturan Presiden Republik Indonesia Nomor 116 (2015).
- Repette, P., Sabatini-Marques, J., Yigitcanlar, T., Sell, D., & Costa, E. (2021). The evolution of city-as-a-platform: Smart urban development governance with collective knowledge-based platform urbanism. *Land*, 10(1). <https://doi.org/10.3390/land10010033>

- Ridho, M. F., & Buchari, E. (2023). Transportasi Light Rail Transit (Lrt) Palembang Sumatera Selatan Berdampak Lingkungan Dan Pengembangan Usaha Perkotaan Sektor Non Fare Box. *Bearing : Jurnal Penelitian Dan Kajian Teknik Sipil*, 8(1), 39. <https://doi.org/10.32502/jbearing.v8i1.6268>
- Scherer, A. G., & Voegtlin, C. (2020). Corporate governance for responsible innovation: Approaches to corporate governance and their implications for sustainable development. *Academy of Management Perspectives*, 34(2). <https://doi.org/10.5465/amp.2017.0175>
- Too, E. G., & Weaver, P. (2014). The management of project management: A conceptual framework for project governance. *International Journal of Project Management*, 32(8), 1382–1394. <https://doi.org/10.1016/j.ijproman.2013.07.006>
- Ullah, F., Qayyum, S., Thaheem, M. J., Al-Turjman, F., & Sepasgozar, S. M. E. (2021). Risk management in sustainable smart cities governance: A TOE framework. *Technological Forecasting and Social Change*, 167. <https://doi.org/10.1016/j.techfore.2021.120743>
- Yunianti, W., Buchari, E., & Agustien, M. (2023). Monitoring dan Evaluasi Light Rail Transit (LRT) Sumatera Selatan. *Jurnal Rekayasa Sipil Dan Lingkungan*, 7(November 2023), 225–235.