



## The Challenges and Opportunities of Small-Scale Public-Private Partnership Scheme to Finance Indonesia Local Street Lighting Equipment Projects : The Case of the Madiun Regency

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Received : September 7, 2023

Accepted : October 24, 2024

Published : October 31, 2023

Citation: Suhendra, M., Handayani, D., Prabowo, S., Iqbal R, M. (2023). The Challenges and Opportunities of Small-Scale Public-Private Partnership Scheme to Finance Indonesia Local Street Lighting Equipment Projects : The Case of the Madiun Regency. *Ilomata International Journal of Management*, 4(4), 645-662.

<https://doi.org/10.52728/ijm.v4i4.945>

**ABSTRACT:** The Public-Private Partnerships Scheme (PPP) has become an important option in overcoming the gap in infrastructure financing needs. From the total number of PPP projects implemented in several countries, it was found that the number of small-scale PPP projects was relatively greater than mega PPP projects. In line with this, in the Indonesian context, regional governments are expected to be able to innovate infrastructure financing, including by using the PPP scheme. The Madiun Regency Street Lighting Equipment (APJ) PPP project is the first small-scale PPP that has completed the auction process and signed the Cooperation Agreement in Indonesia. Using the qualitative method through the relevant case study approach, this research succeeded in identifying several challenges as well as opportunities for more massive implementation potentials of small-scale PPP in APJ in the future as follows: (1) optimal risk allocations; (2) the strong commitment of the regional government as the party responsible for the cooperation project; (3) financial aspects/parameters accepted by the market; and (4) doable projects.

**Keywords:** Small-Scale PPP, APJ, Challenges, Opportunities



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## INTRODUCTION

Among the various motivations for using private involvement schemes in Indonesia's infrastructure procurement is encouraging the realization of reliable public services amidst limited government budgets. In the New Order era, private involvement was commonplace in several sectors, such as toll roads and electricity (independent purchase of power). The Public-Private Partnership (PPP) scheme was introduced in Indonesia to catch up with public infrastructure provision after the 1997 monetary crisis which triggered the reform era ([Andrews & Entwistle, 2015](#); [Gao, 2014](#); [Surachman et al., 2020](#)).

The end of the New Order also triggered demands for decentralization which not only covers regional territorial powers but also the authority to manage their finances. The urgency of infrastructure development at the regional level is increasingly emerging amidst the large demands for public services and limited regional capacity. As stated by ([Bel et al., 2013](#); [Bond et al., 2012](#); [Leland & Read, 2013](#)), trends toward decentralization and regional economic development have strengthened local needs for small-scale infrastructure financing. In the international world, awareness has emerged in many countries that there is a need to build new small-scale Public-Private Partnership (PPP) models and structures ([Ahmad & Shukla, 2014](#); [Power et al., 2016](#); [Yukhymenko et al., 2022](#)).

The PPP scheme for small scale infrastructure provision (small-scale PPP) has not been defined in Indonesia and there are no specific regulations regarding its implementation. Presidential Decree Number 38 of 2015 concerning Government Cooperation with Business Entities in Providing Infrastructure as the main legal guideline for PPP implementation does not specifically discuss small-scale PPP schemes. On the other hand, the government's encouragement to carry out regional development and development is felt to be increasing. For example, the Government issued Presidential Decree Number 79 of 2019 and Presidential Decree Number 80 of 2019 concerning the Central Java and East Java Regional Development Acceleration Program. In implementing this program, the Committee for the Acceleration of Priority Infrastructure Provision (KPIP, 2021) identified the need to open opportunities for local investors to be involved in infrastructure development in the region.

Street Lighting Equipment (APJ) is one of the supporting infrastructure for road infrastructure whose existence provides significant benefits not only for road users but also the local area. From a social perspective, APJ improves safety and reduces traffic accident rates by increasing visibility for road users at night. The existence of APJ not only adds to the aesthetic appearance of the road, but also minimizes the level of crime on the road. Increasing periods of conducive community activity is in turn expected to produce multiple economic growth whose impacts will also be felt by local residents ([Feng et al., 2021](#); [Osei-Kyei et al., 2022](#); [Wardhana & Pradigdo, 2022](#); [Yuan et al., 2021](#)).

In line with the Government's commitment to contribute to handling the impacts of climate change, the current revitalization and development of APJ is also intended to support energy conservation policies. Energy conservation or saving is an action to reduce the amount of new, renewable and non-renewable energy used for the sustainability of human life and the surrounding environment. The achievement of APJ revitalization is expected to bring benefits in terms of more efficient energy use through energy efficiency mechanisms ([Kopańska & Asinski, 2019](#); [Shabani et al., 2021](#); [Wardhana & Pradigdo, 2022](#); [Zhang et al., 2019](#)).

However, achieving the various benefits of APJ is a challenge, especially in developing countries. As argued by ([Wardhana & Pradigdo, 2022](#)), limited regional capacity also influences alternative creative financing schemes that can be implemented. APJ provision itself is the responsibility of the regional government. APJ revitalization requires technology that is not cheap and the fiscal capacity of local governments is still an issue, especially after the pandemic. The PPP scheme is

one option that is often considered, however the relatively high transaction costs while the value of the APJ project is not as large as other infrastructure projects is still an obstacle to implementing a PPP scheme in a smaller size (small-scale PPP). Apart from the various potential benefits, implementing the PPP scheme also has challenges that are not easy. The PPP scheme has more complex requirements than traditional procurement. In the planning process, a feasibility study must be carried out first to see whether the PPP scheme is the right answer for procuring the project. The feasibility study also contains a comprehensive study including legal, institutional, technical, economic, commercial, environmental and risk studies. As a long-term cooperation contract involving various public and private parties, contract preparation cannot necessarily be replicated from one project to another, due to the uniqueness contained in each project.

Meanwhile, pressing needs have encouraged several local regions to implement PPP schemes for APJ procurement. According to the PPP Book 2022 ([Ministry of National Development Planning/National Development Planning Agency of Republik of Indonesia, 2022](#)) - a book containing information on PPP projects which can be used as a reference for potential investors - there are three APJ projects in the regions that will be offered to parties investors, namely APJ Surakarta, APJ Madiun, and APJ West Lombok.

In connection with the background description above, the research team intends to conduct research on the challenges and opportunities and of small-scale PPP schemes to finance street lighting equipment projects in Indonesia local regions. So far, the team have not found many scientific papers that specifically discuss the research theme. Through a case study of the APJ project, this research will try to explore opportunities that can encourage the implementation of the small-scale PPP scheme as well as elaborate on the challenges that arise in the implementation of small-scale PPP in the APJ project.

### **PPP and Regional Development Needs**

Limited fiscal space but the urgency of infrastructure development encourages the government to continue to innovate and be creative in finding sources of infrastructure financing, including involving the private sector through the Public-Private Partnership (PPP) scheme. The definition of PPP as per Presidential Decree Number 38 of 2015 is cooperation between the government and business entities in providing infrastructure for the public interest by referring to specifications previously determined by the government, which partly or wholly use the resources of business entities by taking into account the distribution of risks between the parties. Through this scheme, both the government and business entities with their respective expertise work together and share risks according to their capacity. Not only can the government's fiscal limitations be overcome by implementing PPP as an infrastructure procurement scheme in Indonesia, but also through this scheme the government has the opportunity to implement smart spending by focusing more on the availability of public services rather than just procuring public assets.

PPP is an infrastructure provision contract agreement between the government and business entities to provide public services. In this contract, the government focuses on the goal of providing public services while business entities by their nature aim to make a profit. The involvement of business entities in infrastructure procurement using the PPP scheme is an effort

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to encourage efficiency in public service procurement. Business entities are believed to have a better reputation in terms of capability and expertise in designing, implementing construction, operating and maintaining projects. Moreover, business entities can also be actively involved in financing. Financing within the PPP framework can come from equity investment from investors or loans. The freedom to form a consortium for the investors involved makes the opportunity to obtain financing relatively greater.

Implementing PPP projects also has several advantages compared to traditional procurement schemes through the National Budget (APBN)/Local Budget (APBD). By using the PPP scheme, the government does not bear the risk of implementing a project itself, because some of the risk will be transferred to business/private entities. Private parties who already have experience in building infrastructure facilities are expected to be able to manage costs as efficiently as possible. In this way, a PPP project is expected to achieve optimal value for money conditions for the government. Meanwhile, if there is a risk in demand, the government can share in the risk, so that the private sector can carry out project procurement without worry because there is an element of government guarantee in return on investment.

Currently, the number of mega projects completed under the Public-Private Partnership (PPP) scheme is far behind small-scale projects. Between 1990 and 2015, more than five hundred projects in Europe closed with deal sizes under EUR 50 million, compared to less than 120 projects larger than EUR 1,000 million. The number of projects with a deal value below EUR 50 million almost quadrupled between 2008 and 2012 ([Thierie & De Moor, 2017, 2018](#)).

The wave of urbanization will create demand for small-scale infrastructure. One of the priority infrastructure sectors in this case is APJ. The public service of public street lighting has undergone major institutional, regulatory and technological transformation. Technological advances such as LED luminaires are being used on a large scale in cities around the world. Its use allows relatively large energy savings, increased performance and durability, as well as relatively lower maintenance costs. This sector stands out as one of the most attractive sectors to implement the PPP scheme (Global Infrastructure Facility, n.d.).

Local small-scale PPP projects are relatively closer to (end-users) and therefore can be better designed to meet end-user needs. ([Ahmad & Shukla, 2014](#)) notes that several small-scale PPP projects with promising results have been carried out, especially at the local government level. In Indonesia, Law Number 1 of 2022 concerning Central and Regional Financial Relations (HKPD Law) reaffirms the implementation of regional governments which regulate and manage their own government affairs in accordance with the principle of autonomy - namely the rights, authority and obligations of regions to regulate and manage their own government affairs and the interests of local communities in accordance with statutory regulations. Meanwhile, the existing arrangements are not yet optimal in encouraging the realization of public services for the welfare of regional communities, which can be seen from the not yet optimal utilization of Transfers to Regions and Village Funds where most of the General Allocation Funds, namely 30 to 65 percent, are used for personnel spending, as well as regional dependency towards the Special Allocation Fund as a source of capital expenditure ([Habibah, 2022](#)).

For this reason, local governments need to be given adequate instruments so that they can work more optimally in providing public services. Optimal public services can be realized through infrastructure development in the regions in order to increase public access to basic services and increase regional productivity and competitiveness. With the HKPD Law, regional governments have alternatives for carrying out financing through debt or PPP. The benefits of the PPP scheme to encourage the acceleration of infrastructure procurement in the regions are confirmed by (Thierie & De Moor, 2018). The inclusion of the PPP scheme, even on a small scale, is expected to increase economic activity in the regions which will ultimately reduce economic and welfare disparities between regions and big cities (Thierie & De Moor, 2018).

### **Transaction Cost Theory in Public Private Partnerships**

Transaction costs theory expressed by (Williamson, 1979) states that the optimal organizational structure is one that achieves economic efficiency by minimizing exchange costs (cost of exchange). This theory shows that each type of transaction generates coordination costs for monitoring, controlling and managing transactions. In economics and related disciplines, decision makers determine corporate strategy by measuring production costs and transaction costs. Moreover, (Dahlman, 1979) states that transaction costs are the total costs of carrying out transactions which are divided into three large categories, namely search and information costs, bargaining and decision costs, and police and law enforcement costs.

(Dudkin & Väilä, 2006) for the first time explained the context of transaction costs in the PPP or PPP scheme. According to them, transaction costs in this scheme refer to the costs of building and maintaining partnerships, specifically covering legal, financial and technical consultation costs incurred by the public and private sectors in the procurement and operational stages of a project. Not only that, transaction fees also include costs for managing the bidding process; participate in it; negotiating contracts between the public sector and winning bidders; monitoring private sector partners' compliance with contracts; and also renegotiating contracts throughout their life cycle. Examining 59 PPP bridge and combination bridge-roadway projects in Oregon that were completed during 2005–2015, (Gultom, 2019) finds the use of PPP scheme significantly increases the efficiency score by 46 percentage points. This suggests that the transaction costs economizing motive underlies the choice of governance structure in public service deliveries.

In the PPP infrastructure market, search and information costs are the planning stage costs of determining what, where, and how a project is needed. At the same time, bargaining and decision costs are the costs required to complete appropriate contracts and reach acceptable agreements between the government, the private sector and the communities affected by the transaction. Next, police and law enforcement costs are the costs of ensuring that other parties comply with contract requirements and take action through the applicable legal system (Haqq & Gultom, 2021).

A transaction cost economic perspective has been carried out in several studies regarding PPPs, which are essentially contractual relationships between the public and private sectors. With regard to this, (Bygautane et al., 2018) emphasize the importance of smooth cooperation and collaboration between public and private sector entities, as well as speed and accuracy of bureaucratic processes to minimize the risk of delays can reduce transaction costs associated with PPP administration. (Haqq & Gultom, 2021) who examined the use of PPP contracts found



transaction cost efficiency compared to traditional procurement contracts in cases where the transaction was complex, the assets in the transaction were specific, and the transaction size was large. The popularity of small-scale PPPs shows that there is a paradox between theory and reality.

The literature shows that the PPP model is not feasible for relatively small projects because transaction costs outweigh the benefits ([Thomassen et al., 2016](#)). However, the reality shows that the number of small-scale PPP projects continues to show increasing growth. Preparing a PPP project is an expensive and time-consuming process, resulting in significant upfront costs. Because for small-scale projects the transaction and bidding costs are relatively greater than for large-scale projects, standardizing documents can support the growth of small-scale PPP projects in the long term ([Thierie & De Moor, 2017](#)).

### **Road Infrastructure Sector (Street Lighting Equipment) in Development Planning**

One of the issues in development activities is how infrastructure development and development can reduce disparities between regions. Connectivity development is the focus of the government's attention to create the desired multiplier effect. The provision of transportation facilities and infrastructure between regions really determines the development and growth point of a region. Community accessibility to social service centers such as education, health and government services; as well as economic centers such as markets, must be served well and smoothly. Street Lighting Equipment (APJ) is infrastructure that supports the use of road infrastructure, so that roads can be passed when there is a lack of sunlight, such as at night. The existence of APJ allows for better security from criminal acts in the road area.

Seeing the benefits that can be felt by many people, APJ can be said to be a public good, where the presence of the government is needed to provide these facilities. According to economics, a good can be said to be a public good if it has non-rival and non-excludable characteristics. Non-rival means that consumption or receipt of benefits by an individual does not result in other individuals losing or reducing the opportunity to consume or receive benefits from the goods. While non-excludable, it can be understood that no individual can be excluded from consuming or receiving benefits from these goods. APJ has the characteristic of non-rivalry, where everyone can receive the benefits of street lighting without causing other people to lose the opportunity to receive the same benefits. APJ also has non-excludable properties where everyone who passes through the road will get the benefits of street lighting without exception.

As a public good, local governments have a responsibility to provide APJ facilities properly. In accordance with Law Number 23 of 2014 concerning Regional Government, regions, in accordance with their authority, prepare regional development plans as one unit in the national development planning system. Apart from referring to Law Number 23 of 2014, regional planning and budgeting refers to Law Number 25 of 2004 concerning the National Development Planning System (SPPN), Law Number 17 of 2003 concerning State Finance, and Government Regulation Number 17 of 2017 concerning Synchronization of the Planning Process and National Development Budgeting. Some of the principles of regional development planning that apply are that its preparation is carried out together with stakeholders based on their respective roles and authorities, and implemented based on the conditions and potential of each region, in accordance with the dynamics of regional, national and global development.

The issuance of Minister of Transportation Regulation Number PM 27 of 2018 concerning Road Lighting Equipment is the Government's effort to optimize road equipment facilities. These facilities include street lighting equipment to ensure safety, security, order and smooth traffic, as well as convenience for road users in traffic. The criteria for a good APJ can be understood from several scopes, including the length of the road provided with lighting, the quality of the lighting, and also the level of maintenance. In terms of lighting quality, the Government pays serious attention to energy saving efforts and efforts to minimize the greenhouse effect as a form of sustainable development. In accordance with Presidential Instruction Number 13 of 2011 concerning Energy and Water Saving, one of the government's efforts to increase energy efficiency is to use energy-friendly lighting devices.

The fifth National Priority (PN5) in the 2020 – 2024 RPJMN is Strengthening Infrastructure to Support Economic Development and Basic Services. PN5 has five main agendas, namely Basic Service Infrastructure, Economic Infrastructure, Urban Infrastructure, Digital Transformation, and Energy and Electricity Development (by paying attention to the trilemma, namely three important factors that must be considered in managing energy, namely energy security, equitable energy, and environmental sustainability). The provision of energy-friendly public street lighting is included in the National Priority Program of the Ministry of Energy and Mineral Resources (ESDM) in the context of fulfilling and equalizing energy access for all regions of the Republic of Indonesia.

The 2020 – 2024 RPJMN narrative states that the economic growth target is an average of 5.7–6 percent per year. Infrastructure has a strategic role in spurring economic growth, both at the national and regional levels. To achieve this growth target, infrastructure spending of up to IDR 6,445 trillion is required, while the government's ability to fund it is only around 37 percent of the total need. In order to achieve the expected development, innovative efforts are needed to encourage the participation of community and business entities, both through PPP schemes and other creative financing schemes. This is in line with the new paradigm of infrastructure funding which makes APBN/APBD the final alternative source of funding.

## **METHOD**

This research uses a qualitative approach with a case study where the scope studied is the APJ project. Case studies are empirical studies that investigate contemporary phenomena in real life contexts ([McCormle & Bell, 1986](#)). As a research strategy, researchers in case studies carefully investigate a program, event, activity, process, or group of individuals (Stake, 1995). Considering that a PPP project has characteristics that may be relatively different from other PPP projects, a case study approach is considered more appropriate to use in this research.

The data sources used are primary data in the form of focus group discussion (FGD) results from resource persons and secondary data resulting from literature studies. Resource persons in this research were presented to provide relevant information from the regulator and practitioner side. Resource persons are representatives of institutions that have authority and experience in implementing PPP, including the Directorate General of Financing and Risk Management

(DJPPR), Indonesia Infrastructure Guarantee Fund (PT PII (Persero)), and the Government Contracting Agency (GCA/PJPK) Consultant for the APJ project in Madiun. The APJ Madiun Project was chosen because of the three APJ projects prepared, only the APJ Madiun Project succeeded in completing the auction process and signing the PPP agreement. The other two APJ projects, namely in West Lombok and Solo, are currently not continuing. The selection of resource persons, namely DJPPR as the PPP regulator, PT PII (Persero), and Project Consultants who are also experienced in preparing the APJ project in Solo, is expected to provide more precise insight regarding the implementation of PPP in the APJ project.

In answering the problem formulation, this research uses two data collection methods. First, the literature study method is to obtain the theoretical basis, legal basis and knowledge related to the formulation of the problem being discussed through observation/search for documents, books, articles, journals or related archives. Second, interview and FGD methods to obtain information and views from sources who understand the issues being studied. As a first step, a literature exploration of small-scale infrastructure development practices, especially street lighting equipment, was carried out in various countries. Apart from that, exploration was also carried out regarding various legal regulations currently in force regarding infrastructure development, especially street lighting equipment. Based on the results of the initial study, we obtained an understanding of the general picture of small-scale infrastructure development practices in various countries and the position of small-scale infrastructure development in Indonesia, both in practice and legal regulations.

In the next stage, interviews and FGDs were conducted with DJPPR, PT PII (Persero), and PJPK consultants for the APJ Madiun project. It is hoped that the information obtained from the DJPPR as the party that has regulatory authority regarding infrastructure development using the PPP scheme can provide the right perspective in obtaining an overview of the opportunities and challenges of implementing small-scale infrastructure development using the PPP scheme. Meanwhile, information from PT PII (Persero) and the PJPK consultant for the Madiun APJ Project is expected to provide a perspective from the practitioner's side regarding the challenges and opportunities of implementing the development of small-scale APJ infrastructure projects using the PPP scheme.

In the next stage, data processing and analysis is carried out to produce conclusions regarding the opportunities and challenges in small-scale PPPs in APJ projects in Indonesia. It is hoped that these conclusions can be used as consideration for relevant policy makers regarding APJ provision using the PPP scheme in Indonesia.

## **RESULTS AND DISCUSSION**

The implementation of the APJ project in Madiun Regency refers to Madiun Regency Regional Regulation Number 6 of 2021 concerning Amendments to Regional Regulation Number 1 of 2019 concerning the Regional Medium Term Development Plan (RPJMD) of Madiun Regency for 2018-2023. The availability of infrastructure in Madiun Regency still does not meet the needs of



the community, including APJ or Public Street Lighting (PJU), even though improving this infrastructure is really needed to encourage growth in other sectors.

According to the Madiun Regency Regional Spatial Planning Plan for 2009–2029 (Madiun Regency Regional Regulation Number 9 of 2011), policies and strategies for determining regional spatial structure include the development of a regional infrastructure network system that creates the main infrastructure network system. Included in this scope is the development and consolidation of road networks to support urban systems, encouraging regional growth and equality by taking into account service levels, environmental carrying capacity and disaster-prone characteristics. In this case, the Madiun Regency Government has adopted a policy to implement a road network development strategy, one of which is through strengthening the existing road network. In accordance with the 2018 – 2023 RPJMD, one solution that can be implemented is through accelerating infrastructure development using the PPP scheme.

Furthermore, through Madiun Regency Regional Regulation Number 2 of 2022 concerning the Implementation of Regional PPP in Providing Public Street Lighting Infrastructure, it is emphasized that public street lighting is part of the basic services to support security, safety and order. The basis for these considerations is that procurement needs to be carried out efficiently, effectively, meet technical and security requirements, and be carried out responsibly. The APJ project in Madiun Regency is implemented based on Presidential Decree Number 38 of 2015 concerning PPP in Providing Infrastructure. The aim of implementing the project is to improve safety, security, order, and comfort of traffic for road users. Moreover, the APJ Project also supports the acceleration of economic development in East Java Province in accordance with Presidential Decree Number 80 of 2019 concerning the Acceleration of Economic Development in the Gresik - Bangkalan - Mojokerto - Surabaya - Sidoarjo - Lamongan Region, the Bromo - Tengger - Semeru Region, and the Selingkar Region Wilis as well as Lintas Selatan.

This project applies the Design, Build, Fund, Operate, Maintain and Transfer scheme (Design – Build – Finance – Operate – Maintenance – Transfer or DBFOMT). The cooperation period is one year of construction and ten years of operation. The investment cost is estimated at IDR 97.8 billion and the project is proposed to obtain a government guarantee through PT PII (Persero). The scope of the cooperation includes the construction of new APJ on non-environmental roads and non-environmental roads including luminaires, poles and foundations, electricity and metering installation, as well as operations and maintenance until the end of the cooperation period ([www.kpbu.madiunkab.go.id](http://www.kpbu.madiunkab.go.id)). Since the provision of the APJ project was determined to use the PPP scheme, the project preparation process was relative short. Minister of National Development Planning Regulation Number 2 of 2020 concerning Amendments to Minister of National Development Planning Regulation Number 4 of 2015 concerning Procedures for Implementing Public-Private Partnership in Providing Infrastructure states that PPP projects can also be implemented to support energy conservation in the Street Lighting Equipment sector. Preparation of the Preliminary Study was carried out in the first quarter of 2020, followed by an Initial Pre-Feasibility Study (Outline Business Case or OBC) facilitated by Ministry of National Development Planning in the following quarter. The Final Business Case (FBC) was prepared by the Madiun Regency Government independently in 2021.

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On March 1 2022, the pre-qualification process for procurement of the Executing Business Entity was completed. Implementation of procurement for Implementing Business Entities follows the provisions of the Government Goods/Services Procurement Policy Agency Regulation Number 29 of 2018 concerning Procedures for Procurement of Implementing Business Entities for Infrastructure Provision through Public-Private Partnership on the Initiative of Ministers/Heads of Institutions/Regional Heads. The Request for Proposals was published in July 2022 and was updated. This project uses a Service Availability Scheme (Availability Payment or AP) as a form of investment return to private partners. The approved AP value is IDR 20.8 billion (tax included). In its offer to the prospective private partners, the Madiun Regency Government opened opportunities to participants who were able to complete as many street lighting points as possible. In the end, the winning bidder was awarded to the one who was able to build, operate and maintain 7,459 new APJ points as can be seen in Figure 1.

**Figure 1. Map of the Street Lighting Equipment PPP Project Offering Section for Madiun Regency**



Source: Valoreem Indonesia, 2022

Caption:

Road Type	Length (km)	Points of APJ
National (Arterial) Roads – red	80,20	1.604
Main District Roads (Local) – blue	224,12	5.603
Urban Street (Neighborhood)	7,56	252
<b>Total</b>	<b>311,88</b>	<b>7.459</b>

Source: Valoreem Indonesia, 2022

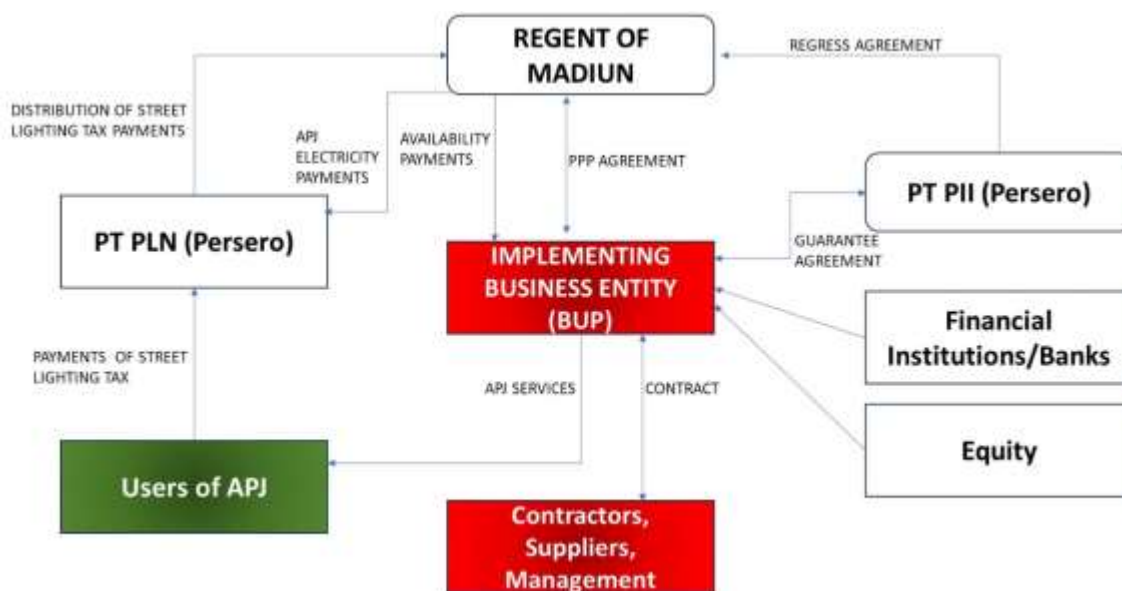
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On August 18 2022, the Procurement Committee for the Business Entity Implementing the Madiun Regency APJ PPP Project through letter Number 027-KPBU-APJ/57/402.021/2022 announced the results of the auction where the winner of the auction was the Evercross Perwira Focus Consortium which will procure 7,459 points of Street Lighting Equipment with the total CAPEX value is IDR 100.65 billion and the total OPEX value is IDR 13.52 billion. The cooperation period is nine months of construction and ten years of service. The signing of the PPP Agreement will be held on September 21 2022.

The PPP structure for this project can be seen in Figure 2. After winning the auction, the Implementing Business Entity (BUP) signed a PPP agreement with the Regent of Madiun as the Person in Charge of the Cooperation Project (GCA). The GCA signed a regress agreement with PT PII (Persero) and BUP signed a guarantee agreement with PT PII (Persero). The GCA will pay Availability Payment (AP) to BUP according to the services provided according to the agreed criteria. BUP will provide APJ services to the community, where the community pays Street Lighting Tax (PPJ) through PT PLN (Persero). PT PLN (Persero) will pay the PPJ to the Madiun Regency Government and the Madiun Regency Government will pay the electricity bill sourced from the PPJ.

Figure 2. Structure of the APJ PPP Project in Madiun Regency



Source: Valoreem Indonesia, 2022

With regard to the structure above, determining investment returns is strongly influenced by demand risk for public services. If demand risk is borne by the government, then the appropriate return scheme is availability payment. However, if the demand risk is borne by the business entity, then the appropriate return scheme is a user charge. This information was conveyed by a source from the APJ Madiun project consultant who stated that:

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*"If the demand risk is with the GCA, it means AP. If demand risk is in BUP, that means it is a user charge."*

The APJ sector can be directed towards a user charge scheme, if the business entity has a comprehensive calculation of the potential revenue from road use which will be used as an indicator of the level of demand for APJ. However, these calculations will affect the preparation time for auction proposals that will be submitted by business entities to take longer. Thus, transaction costs will be greater when using user charges.

When a contractual agreement has been reached, every risk will be a consequence of the party who bears it. In the AP scheme, business entities receive certainty of better returns on investment as long as service provision can be fulfilled. On the other hand, with user charges, business entities will bear the risk if it turns out that road users are not greater than expectations. Therefore, the project value in the user charge scheme is usually higher than in the AP, to compensate for the risks borne by the business entity. This can be excluded if there are force majeure conditions. If there is an emergency, the agreement in the contract can be reviewed and a new agreement can be made between the business entity and the GCA.

Each project will have specificities in the project details, so that each PPP project, whether small scale or not, tends to be tailor made. Political risks for each project can also vary, and this cannot be said to be directly influenced by whether the project scale is small or not. However, the massive coordination which must be carried out by the GCA with all related parties makes small-scale PPP projects more politically vulnerable. So, relatively speaking, political risks give rise to the potential for greater transaction costs in small-scale PPPs. However, the Regent of Madiun has proven to be able to anticipate this and make every party, especially the DPRD, support the APJ Madiun project. The APJ project is unique, in that the project's service output will be felt by the community directly and can represent the performance output of the regional executive and legislative. The low political risk in the APJ project was conveyed by consultant sources as follows:

*"Actually, APJ, a type of street lighting device, is infrastructure which, in quotation marks, is very politically sexy, why, because it is infrastructure that is really visible directly to the public and felt directly by the public on a road that was previously dark, yes, there were lots of robbers, for example".*

Therefore, the APJ project tends to easily get support from the local parliament (DPRD). Thus, in general, political risks in small-scale projects have the potential to be greater, thereby increasing transaction costs, however, for APJ projects, political risks tend to be small, thereby reducing transaction costs.

The communication process in regional government PJK tends to be more complex. In the Madiun APJ PPP project, the PJK had to coordinate with many parties, including the central government such as Ministry of National Development Planning, Government Goods/Services Procurement Policy Agency, Ministry of Finance, Committee for the Acceleration of Priority Infrastructure Provision, and others. Apart from that, the GCA also needs to coordinate with the DPRD and other regional government organizations. Referring to this complexity, it can be said

that a more complex coordination process indicates higher transaction costs compared to PPP projects implemented by the central government. Meanwhile, small scale-PPP projects can be linked to projects organized by local governments. Hence, it can be said that small-scale PPP projects have the potential to have higher transaction costs in terms of coordination with all related parties.

The GCA for the APJ Madiun project carries out intensive communication with each related party. The form of communication carried out is also very flexible and is often carried out using local wisdom or informal methods. In this way, the Regent of Madiun as chairman of the PJPK can establish good communication with the DPRD, Ministry of National Development Planning and other related parties. The APJ Madiun consultant explicitly stated that:

*"The Regent and his staff, that means yes, they always work extra to accommodate or involve all relevant stakeholders."*

In particular, the Madiun Regent as the GCA has relative good relations with the Madiun DPRD. On many meetings and coordination occasions, the Madiun Regent's GCA always invites the DPRD to participate, so that the implementation of the project receives good support from the DPRD. Apart from the DPRD, the GCA also held a meeting forum with banks as prospective lenders to convey details of the APJ Madiun project plan. By holding this forum, the GCA tries to help business entities to obtain loans from banks after the banks receive clarity regarding project details. So GCA Madiun can reduce the potential for large transaction costs relatively well in the APJ Madiun project.

A high GCA commitment is a must for the success of a PPP project, both on a small-scale and PPP projects in general. The GCA of APJ Madiun has a high commitment, where the GCA manages adequate coordination and communication with relevant parties. When coordination is needed with Ministry of National Development Planning or other central government agencies, the Regent of Madiun invites the relevant team to Jakarta to coordinate with these agencies. The GCA team is actively managing to make the APJ project a success, and this indicates the GCA's strong commitment. The GCA team also carries out an orderly administrative process so that each stage of the PPP process and the preparation of related schedules is carried out neatly. Administrative compliance in the implementation of PPP APJ Madiun was conveyed by consultant sources as follows:

*"Really step-by-step, what administration needs to be completed, what teams need to be formed, everything is arranged according to the schedule according to the winner's provisions. So it's pretty neat."*

The magnitude of transaction costs related to GCA commitments is not greatly influenced by the scale of the PPP project. For small or large scale projects, GCA commitment is absolutely necessary for project success.

On the using of financial model, changes in the financial model due to changes in economic conditions may occur and this in turn may result in changes in the value of the project. Several



things that can influence changes in economic conditions include force majeure conditions, excessively high inflation, or changes in world oil prices. In the Madiun APJ Project process, changes in economic conditions were caused by changes in value added tax (VAT) from 10 percent to 11 percent (Law Number 7 of 2021). For the GCA, the project value in the OBC to determine the amount of project investment needs to be readjusted because it is no longer in line with the expected project value of the business entity. For business entities, changes in economic conditions also have an impact on recalculating the project value which will be stated in the auction proposal.

This condition applies to all types of projects, whether small-scale PPP or not. In absolute frequency, the possibility of financial model changes does not differ between small-scale PPP projects and PPPs in general, but in relative terms, the burden of financial model changes in small-scale PPPs is felt to be heavier. Because the project value is relatively smaller, many business entities are thinking twice about participating in the auction process and bidding on the project. Some prefer not to participate in the further auction process. Thus, transaction costs due to changes in financial models and business entity offerings have the potential to be relatively greater in small scale PPP projects.

In the APJ Madiun PPP project, due to changes in economic conditions, the request for proposal (RfP) process was carried out twice. In the first process, there were no feasible offers because there was a large price difference between the price calculated in the OBC and the price in the e-catalog. So the GCA is carrying out the RfP process again in the expectation that there are potential business entities that can take part in the bidding process. In the second RfP process, several business entities submitted proposals. However, there are still business entities that withdraw and do not submit bids again, because according to their calculations, it is difficult to make a profit from the project. They consider that adjustments following the bid proposal process again provide too much effort and are not commensurate with the value of the project provided. So, relatively speaking, the RfP bidding process and auction process provide greater transaction costs than PPP projects in general.

Due to the smaller value and term of the project in small-scale PPP, the nominal profits obtained by business entities will be smaller compared to general PPP projects. However, proportionally this is balanced by simpler types of services and shorter service periods. So that the comparison of costs and profits is felt no differently by business entities. Assuming transaction costs do not differ significantly, business entities do not have much influence in determining whether a PPP project is small scale or not. What they consider is how much potential profit they will receive. As long as it is felt to be profitable enough, business entities will still have an interest in participating in small scale PPP auctions. Business entities simply want their Internal Rate of Return (IRR), but not limited to, to match their expected calculations.

Small-scale PPP projects have a smaller investment value and simpler construction. The same applies to the APJ PPP project. With a smaller investment value and simpler construction compared to other PPP projects, transaction costs for preparing investment calculations and construction techniques are relatively lower.

Small-scale PPP project procedures such as those experienced by the APJ Madiun project do not have significant differences compared to PPP projects in general. In the APJ Madiun project, the stages of a PJKP project must be carried out in an orderly manner. Even though APJ Madiun can be classified as a small-scale PPP, the stages carried out remain the same, starting from preliminary studies, OBC, FBC, to the auction process. Between these stages, the allocated time span is quite long. For example, in the bidding process for the construction process, the time span can be up to 6 or 7 months. According to the GCA, this time span can be shortened for small-scale projects. The PPP project procedures that must be carried out currently on small-scale projects can lead to relatively larger transaction costs.

## **CONCLUSION**

From the total number of PPP projects implemented in various European countries from 1990 to 2015, it was found that the number of small-scale PPP projects was relatively greater than mega PPP projects. In line with this, in the Indonesian context, the HKPD Law has also opened up wide space for regional governments to innovate infrastructure financing, including using the PPP scheme. The Madiun Regency APJ PPP Project has successfully completed the auction process and signed the Cooperation Agreement. The APJ Madiun project uses an availability payment (AP) scheme as a scheme for returning investment for business entities. The implementation of this scheme positively influences the preparation time for auction proposals submitted by business entities because business entities do not need to carry out comprehensive studies related to demand risks which in this case are borne by the GCA. Regarding political risks, the PJKP of the APJ Madiun Project was relatively successful in communicating so that it received political support from the DPRD. The focus of the substance of communication is that project services will reflect both executive and legislative performance.

The GCA's commitment to the APJ Madiun Project in this case is reflected, among other things, in harmonious communication and appropriate institutional support. The GCA of Madiun APJ Project has a good communication relationship with the DPRD. Regarding this project, the GCA also held a meeting forum with prospective lenders so that later they could assist business entities in financing the project. In terms of institutional support, the GCA team also oversees the orderly administration of the Madiun Regency APJ PPP process in accordance with applicable regulations in such a way that all stages of the PPP can be fulfilled as they should. In terms of financial aspects/parameters, the request for proposal RfP process for the APJ Madiun Project auction was carried out 2 (two) times to accommodate the difference in the OBC prices which are very different from e-catalog prices. These adjustments resulted in the submission of bid proposals from several potential business entities. Overall, the APJ Madiun Project in terms of scope, investment and construction techniques is relatively simple so that it can be implemented well at the level of a district local government. Based on the experience of the APJ Madiun PPP Project, several challenges and opportunities have been identified in implementing the small-scale PPP scheme for the implementation of the Street Lighting Equipment project, as follows:

- 1) Optimal risk allocation. The nature of the APJ road supporting infrastructure as a public good places this project as a social project. The AP scheme reduces the risk of requests from the business entity side. In the context of regional infrastructure, the role of the DPRD is very important in obtaining approval for the use of the AP scheme. Strong political support is also attached to this project considering that the real and direct benefits of APJ can be enjoyed by the community, making this project politically easy for stakeholders to accept.
- 2) GCA's strong commitment. The commitment of regional government leaders to realize regional development accompanied by regulatory support in the HKPD Law is an opportunity for the success of this regional infrastructure project. This strong commitment requires a supportive ecosystem not only in terms of regulations but also support from the central government which encourages the acceleration of regional development and development of regional human resource capacity.
- 3) Financial aspects/parameters accepted by the market. The APJ project's simple financial model, accompanied by guaranteed sources of return on investment and relatively low service risk, makes this project quite attractive to the market. Market education is still needed to attract more market players to participate in this investment.
- 4) Projects that are "doable" (can be implemented). APJ's simple project structure makes cooperation and risk allocation schemes easier to map and realize. The National Development Planning Ministerial Regulation which allows the construction process to begin before financial close has minimized the risk of project delays and price escalation.

## REFERENCES

- Ahmad, A., & Shukla, S. (2014). *A Preliminary Review of Trends in Small-Scale Public-Private Partnership Projects*.
- Andrews, R., & Entwistle, T. (2015). Public-private partnerships, management capacity and public service efficiency. *Policy and Politics*, 43(2), 273–290. <https://doi.org/10.1332/030557314X13917703359707>
- Bel, G., Brown, T., & Marques, R. C. (2013). Public-Private Partnerships: Infrastructure, Transportation and Local Services. *Local Government Studies*, 39(3), 303–311. <https://doi.org/10.1080/03003930.2013.775125>
- Biygautane, M., Hodge, G., & Gerber, P. (2018). The Prospect of Infrastructure Public-Private Partnerships in Kuwait, Saudi Arabia, and Qatar: Transforming Challenges into Opportunities. *Thunderbird International Business Review*, 60(3), 329–346. <https://doi.org/10.1002/tie.21853>
- Bond, D., Platz, D., & Magnusson, M. (2012). Financing small-scale infrastructure investments in developing countries. *United Nations Department of Economic ...*, 114.
- Dahlman, C. J. (1979). The Problem of Externality. *The Journal of Law and Economics*, 22(1), 141–162. <https://doi.org/10.1086/466936>

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- Dudkin, G., & Väilä, T. (2006). Transaction Costs in Public-Private Partnerships: A First Look at the Evidence. *Competition and Regulation in Network Industries*, 1(2), 307–330. <https://doi.org/10.1177/178359170600100209>
- Feng, H., Grifoll, M., Yang, Z., & Zheng, P. (2021). Latest challenges to ports in public-private partnership: Case of Dandong Port (China)'s bankruptcy. *Transport Policy*, 110, 293–305. <https://doi.org/10.1016/j.tranpol.2021.06.011>
- Gao, H. (2014). Public-private partnership: The Chinese dilemma. *Journal of World Trade*, 48(5), 983–1005. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84907276055&partnerID=40&md5=0efb497b2c1766f4503014ef3adfb8ec>
- Global Infrastructure Facility. (n.d.). *PUBLIC STREET LIGHTING PPP - PROJECT STRUCTURE PRACTICAL GUIDE EXEC SUMMARY*. Retrieved November 14, 2023, from <https://www.globalinfrafacility.org/knowledge/public-street-lighting-ppp-project-structure-practical-guide-exec-summary>
- Gultom, Y. M. L. (2019). Transaction Costs and Efficiency in Design-Build Contracting: Empirical Evidence from the Transportation Infrastructure Sector in Oregon. *Public Performance and Management Review*, 42(5), 1230–1258. <https://doi.org/10.1080/15309576.2019.1572020>
- Habibah, A. F. (2022). *Sri Mulyani: UU HKPD akan bereskan tantangan desentralisasi fiskal*. <https://www.antaranews.com/berita/2750837/sri-mulyani-uu-hkpd-akan-bereskan-tantangan-desentralisasi-fiskal>
- Haqq, A. M., & Gultom, Y. M. L. (2021). The challenge of implementing public-private partnerships: a transaction costs perspective on waste to energy projects in Indonesia. *Journal of Financial Management of Property and Construction*, 27(3), 365–386. <https://doi.org/10.1108/JFMPC-09-2020-0058>
- Kopańska, A., & Asinski, R. (2019). Fiscal and political determinants of local government involvement in public-private partnership (PPP). *Local Government Studies*, 45(6), 957–976. <https://doi.org/10.1080/03003930.2019.1635016>
- KPPIP. (2021). Laporan KPPIP Semester 2021. In *Kppip.Go.Id*.
- Leland, S., & Read, D. C. (2013). Representative bureaucracy, public-private partnerships, and urban development. *Journal of Place Management and Development*, 6(2), 86–101. <https://doi.org/10.1108/JPMD-04-2012-0015>
- McCorcle, M. D., & Bell, E. L. (1986). Case study research: Design and methods. *Evaluation and Program Planning*, 9(4), 373–374. [https://doi.org/10.1016/0149-7189\(86\)90052-2](https://doi.org/10.1016/0149-7189(86)90052-2)
- Ministry of National Development Planning/National Development Planning Agency of Republik of Indonesia. (2022). *Public Private Partnership Infrastructure Projects Plan in Indonesia*.
- Osei-Kyei, R., Tam, V., & Ma, M. (2022). Risk Assessment of Retirement Village Public-Private Partnership Homes. *Journal of Aging and Environment*, 36(3), 289–303. <https://doi.org/10.1080/26892618.2021.1932010>

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---

- Power, G. J., Burris, M., Vadali, S., & Vedenov, D. (2016). Valuation of strategic options in public-private partnerships. *Transportation Research Part A: Policy and Practice*, 90, 50–68. <https://doi.org/10.1016/j.tra.2016.05.015>
- Shabani, H., Berisha, V., & Hajdari, V. (2021). Impact of the ownership form on cost management: A public-private partnership perspective. *Problems and Perspectives in Management*, 19(1), 305–316. [https://doi.org/10.21511/ppm.19\(1\).2021.26](https://doi.org/10.21511/ppm.19(1).2021.26)
- Stake. (1995). The art of case study research. *Journal of Financial Regulation and Compliance*, 3(4), 49–68. <https://doi.org/10.1108/eb024859>
- Surachman, E. N., Suhendra, M., Prabowo, S., & Handayani, D. (2020). *Dinamika Penyiapan Proyek Kerja Sama Pemerintah dan Badan Usaha di Indonesia* (F. Rizki, Ed.). Elek Media Komputindo.
- Thierie, W., & De Moor, L. (2017). Constraints related to developing small-scale PPPs and how to reduce them. *International Journal of Managing Projects in Business*, 10(1), 109–120. <https://doi.org/10.1108/IJMPB-04-2016-0037>
- Thierie, W., & De Moor, L. (2018). Size-dependent features of public-private partnerships: geographical and sectorial differences, deal size and structuring, and transaction costs. *International Journal of Public Policy*, 14(3–4), 206–223. <https://doi.org/10.1504/IJPP.2018.091954>
- Thomassen, K., Vassbø, S., Solheim-Kile, E., & Lohne, J. (2016). Public-Private Partnership: Transaction Costs of Tendering. *Procedia Computer Science*, 100, 818–825. <https://doi.org/10.1016/j.procs.2016.09.230>
- Wardhana, Y. M. A., & Pradigdo, Z. A. (2022). *G20 MEMBER COLLABORATION TO ACCELERATE ENERGY CONSERVATION THROUGH PUBLIC STREET LIGHTING PPP*.
- Williamson, O. (1979). The Journal of Law and Economics-Transaction cost economics. *Journal of Law and Economics*, 22(2), 233–261.
- Yuan, J., Ding, H., Huang, Z., Deng, B., Li, S., & Huang, W. (2021). Influence of market structures on concession pricing in Public-Private-Partnership utilities with asymmetric information. *Utilities Policy*, 69. <https://doi.org/10.1016/j.jup.2020.101162>
- Yukhymenko, P., Sokolska, T., Grinchuk, J., Zubchenko, V., Khakhula, B., Dzhegur, G., & Lobachova, S. (2022). Public-and-Private Partnership Institutionalization of Ukrainian Natural Resource Potential Capitalization in Decentralization. *Journal of Environmental Management and Tourism*, 13(5), 1493–1502. [https://doi.org/10.14505/jemt.v13.5\(61\).24](https://doi.org/10.14505/jemt.v13.5(61).24)
- Zhang, B., Zhang, L., Wu, J., & Wang, S. (2019). Factors affecting local governments' public-private partnership adoption in urban China. *Sustainability (Switzerland)*, 11(23). <https://doi.org/10.3390/su11236831>