

How to Cite

Auliya, R. R., Nurkholis, N., & Sabirin, M. T. (2023). Public-private partnership water supply project in Indonesia: A public sector review. *International Journal of Business, Economics & Management*, 6(2), 214-222.
<https://doi.org/10.21744/ijbem.v6n2.2150>

Public-Private Partnership Water Supply Project in Indonesia: A Public Sector Review

Reisi Rizqie Auliya

Student of Master of Accounting Study Program, Faculty of Economics and Business, Universitas Brawijaya, East Java, Indonesia
Corresponding author email: reisirauliya@gmail.com

Nurkholis

Lecturer in the Master of Accounting Study Program, Faculty of Economics and Business, Universitas Brawijaya, East Java, Indonesia
Email: nurkholis@ub.ac.id

MT. Sabirin

Lecturer in the Master of Accounting Study Program, Faculty of Economics and Business, Universitas Brawijaya, East Java, Indonesia
Email: sabirin@ub.ac.id

Abstract---Water supply system management for providing proper services to the community is a challenge for the Government of Indonesia. The Indonesian government through the Public-Private Partnerships (PPPs) scheme involves the role of the private sector in decent, quality, and cost-effective water supply system infrastructure. This study aims to describe problems faced by the Regional water supply system PPP project initiated by business entities (unsolicited) in Indonesia. Also, describes the application of Critical Success Factors as a problem-solving strategy in the implementation of the water supply system PPP project. To express this, This research uses a case study qualitative method involving Government Contracting Agency (GCA) informants from the Ministry of X. Data were collected through semi-structured interviews and documentation studies. It was found that in this case, the water supply PPP project has gone through the stages of PPP agreement signing which still faced problems in land provision, the certainty of raw water sources, inflation, tariff setting, and downstream infrastructure development. GCA seeks to resolve the problem with intensive coordination between related parties, financial and non-financial compensation, alternative sources of raw water, and support from the GCA Budget for downstream development.
Keywords---public sector, public-private partnership, risks, water supply system.

Introduction

Infrastructure development is an important effort for a country's economic growth. Infrastructure spending policy is a strategy implemented by countries around the world to increase the long-term growth of the country/region (Coyle, 2022). The infrastructure spending policy is also implemented by the Government of Indonesia through the National Medium-Term Development Plan (RPJMN, 2020-2024) which targets the availability of infrastructure stock of 49.4% in 2024. However, the availability of the State Budget (APBN) that can be made available is only 37% of the total infrastructure spending needs (Coordinating Ministry for Economic Affairs, 2022), as mandated in Presidential Regulation No. 18/2020 it is necessary to have an alternative new financing scheme for infrastructure development by using the state/local government budget as the last resource. Due to the problem of limited availability of state/local government budget in meeting Indonesia's infrastructure stock target, the Government implemented a

policy of creative and innovative financing schemes through the implementation of Public-Private Partnerships (PPP) schemes.

In the PPP scheme, the government acts as a policy distributor, while the private sector plays a role in providing innovation and financial resources, infrastructure resources, research resources, and others (Links, 2006). PPP is a scheme that is often implemented for infrastructure development in the Southeast Asia region because it can increase investment, efficiency, and competitiveness of the infrastructure market, as well as reduce government monopoly on infrastructure development (Wisuttisak et al., 2021). The Indonesian government is committed to implementing the PPP scheme through Minister of National Development Planning Regulation No. 2/2020 which regulates the feasibility of project preparation to be able to provide proper services to the community. Based on this regulation, one of the project developments under the PPP scheme is the water supply system. The success of the Indonesia Government in developing PPP projects in the water supply system sector for the 2020 and 2021 time periods is the National Strategic Project (PSN) for water supply systems with a total investment value of IDR 5,948 billion, namely the Bandar Lampung Water Supply System, West Semarang Water Supply System, and Umbulan Water Supply System (Committee of Acceleration of Priority Infrastructure Delivery/KPPIP, 2021).

Based on the RPJMN 2020-2024, the Indonesia Government requires investment in the development of access to water supply infrastructure reaching Rp. 123.4 trillion, while the state budget and local government budget are only available at Rp. 36.6 trillion, so there is a financing gap reaching Rp. 86.8 trillion. As mandated in the 1945 Constitution of The Republic of Indonesia Article 33, the government is responsible for providing adequate drinking water infrastructure to the community so that any financing gap requires the involvement of the private sector. Providing adequate and safe water quality through a water supply system involves many parties and challenges. Water projects are characterized by high capital requirements, a sector subject to institutional arrangements, and vulnerability to conflicting public policy objectives (Ameyaw & Chan, 2015). An adequate water supply system intersects with climate change issues, demographic pressures, natural disasters, and quality issues, and the amount of water supply is affected by the quality of distribution channels (Nizkorodov, 2021). The challenges of providing a water supply system in Indonesia using the PPP scheme are related to setting water rates, financing mechanisms, availability of raw water, and decreasing the quality of raw water (Perum Jasa Tirta I, 2022).

PPP projects demand a specific approach according to the sector, and each PPP project is influenced by the characteristics of the sector, and the political, social, and economic conditions of the country concerned (Ngullie et al., 2021). The problems faced by water supply infrastructure projects are quite complex and involve many parties in handling them. In addition, investment in the infrastructure sector under the PPP scheme is a long-term investment (up to 50 years) that has a high-risk profile until the end of the concession period (Wibowo, 2016). For this reason, this research will identify the obstacles faced by the water supply system PPP project in Indonesia. The water supply system PPP projects in Indonesia that are considered successful are limited to certain projects, so this research will focus on water supply system implementation which is included in the National Strategic Project (PSN) with the initiation of business entities (unsolicited).

Literature review

Public-private partnership

PPP is a financing scheme that has been implemented in many countries in the world. PPP is a transfer of risk between the public and private sectors in a complex and long-term agreement (Hatmoko & Susanti, 2017). Cooperation that shares risks between the government and business entities for the benefit of providing infrastructure with the use of business entity resources whose specifications are approved by the Minister/Head of Institution/Head of Region/State Owned Enterprise/Regional Owned Enterprise (Mudiparwanto & Gunawan, 2022). PPP is a manifestation of the New Public Management (NPM) to increase cost-effectiveness by involving the private sector as a government partner to build and operate projects so that cost-effective, reliable, timely services are obtained at agreed prices, by agreed quality standards set in the contract, and guaranteed (Rakić & Radenovic, 2011). The PPP scheme is a strategy implemented by the Government of Indonesia against the challenges of high financing for the provision of quality services for the community (Wibowo, 2016). PPP stated in Presidential Regulation No. 38/2015 aimed at meeting the need for the provision of quality, effective, efficient, on-target, and timely infrastructure with the participation of private funding.

Based on Presidential Regulation No. 38/2015, there are two PPP project proposal schemes, namely Government Initiatives (Solicited) and Business Entity Initiatives (Unsolicited). The difference between the two schemes is in the

incentives that can be received by the business entity initiating the project. The incentives received by the project initiator are as follows:

- 1) Right to Match
In the auction process, if other bidders have better bidding proposals and after evaluation wins the bidding process, the Project Initiator can submit a comparative bid to adjust their proposal.
- 2) Additional Points on Procurement Score
The Project Initiator gets an additional 10% score during the proposal evaluation process.
- 3) Selling the initiative to the GCA
The GCA can purchase and own the Feasibility Study intellectual property at an agreed price from the Project Initiator. Then, the Project Initiator can decide whether to participate without additional incentives or not to participate in the bidding process.

The state has an important role in maintaining the availability of water as an element of national defense because water is included as a strategic item. The implementation of a project under the PPP scheme is inseparable from the obstacles encountered at each stage of its implementation. PPP projects in the water supply sector often face risks: socio-political, institutional, regulatory, income, foreign exchange, administration, construction, and operations (Viljoen, 2019). According to Ameyaw & Chan (2015), the heaviest risk factors for water supply system PPP projects are poor contract design, uncertainty over water prices and tariff reviews, political interference, public resistance to PPPs, construction time and cost overruns, non-payment of bills, lack of PPP experience, financing risks, poor demand forecasts mistakes, high operational costs and conflicts between partners. However, these risks can be faced with mitigation prepared based on the characteristics of the project sector and considering Critical Success Factors (CSF) in previous PPP projects. Chou & Pramudawardhani (2015), believe that the CSF that applies to PPP infrastructure projects in Indonesia is related to a stable macroeconomic environment, shared responsibility between the public and private sectors, a transparent and efficient procurement process, a stable political and social environment, and prudent government control. Osei-Kyei & Chan (2015), also concluded that the development of PPP projects from 1990 to 2013 was influenced by the five most important factors related to adequate risk allocation, strong private consortia, political support, public support, and a transparent procurement system.

Method

This study applies a qualitative research method with a case study approach. Qualitative research takes facts based on detailed and in-depth observations (Kholifah & Suyadnya, 2018). Case study research captures uncontrollable phenomena or events by analyzing how or why they occur (Yin, 2018). This case study research explores the phenomenon of problems in the implementation of the water supply system PPP Project within the Ministry of X in Indonesia.

This qualitative research was conducted using a semi-structured interview format, and a documentation study. The interview was addressed to the internal party of the Ministry of X as the Government Contracting Agency (GCA) for unsolicited water supply system PPP projects. Informants are addressed to individuals who have experience directing, assisting, and monitoring the unsolicited water supply system PPP project. Interview data collection was carried out using previous research instruments related to CSF as a guide to the main questions. The question instrument is based on previous research as in Table 1.

Table 1
Question themes related to critical success factors (CSF)

Code	Indication of Critical Success Factors	Previous Research
C1	Good governance/government support	
C2	Well-organized and committed Government Committees/Bodies	
C3	Policy and legal support for PPP in the drinking water sector	Ameyaw et al. (2017); Chou & Pramudawardhani (2015); Osei-Kyei & Chan (2015); Debela (2022); Ngullie et al. (2021)
C4	A competitive, adequate, and transparent procurement system	
C5	Government involvement by providing guarantees,	

Code	Indication of Critical Success Factors	Previous Research
	feasibility support, and land acquisition	
C6	Stable macroeconomic conditions	Ameyaw et al. (2017); Chou & Pramudawardhani (2015); Osei-Kyei & Chan (2015); Debela (2022)
C7	Public acceptance and support for the water sector	Ameyaw et al. (2017); Chou & Pramudawardhani (2015); Debela (2022); Ngullie et al. (2021)
C8	There is a sustainable water tariff and people's purchasing power	Ameyaw et al. (2017); Osei-Kyei & Chan (2015); Ngullie et al. (2021)
C9	Public and private sector commitment and responsibility	Ameyaw et al. (2017); Chou & Pramudawardhani (2015); Osei-Kyei & Chan (2015); Ngullie et al. (2021)
C10	The technical and financial feasibility of the project	Chou & Pramudawardhani (2015); Osei-Kyei & Chan (2015); Debela (2022); Ngullie et al. (2021)
C11	A well-designed PPP contract without irregularities/weaknesses	Ameyaw et al. (2017); Chou & Pramudawardhani (2015)
C12	Appropriate and mutually acceptable allocation of public and private risks	Chou & Pramudawardhani (2015); Osei-Kyei & Chan (2015); Debela (2022); Ngullie et al. (2021)

Results and Discussion

PPP involves various parties with different roles and functions as stated in the contract. Thus, the implementation of a PPP project must be supported by qualified resources. PPP needs to be implemented by the political leadership and public awareness of the principles of cost advantage, benefit, and risk sharing (OECD, 2012). The GCA in the implementation of water supply PPP infrastructure prepares a risk allocation as a reflection of the matters listed in the PPP Agreement. The risk allocation is prepared by taking into account the distribution of the risk burden between the GCA and the Special Purpose Vehicle (SPV). Risk allocation is mapped and mitigation is provided as a preventive measure in dealing with risks that arise. Based on risk mapping by the GCA, the water supply system PPP project faces risks that are divided into eleven aspects. These aspects relate to location, design, construction, test operation, sponsorship, finance, operations, revenue, interface, politics, force majeure, and asset ownership. The risk aspects discussed by the GCA are mapped out during the pre-construction, construction, and operation phases of the project (Johannessen et al., 2014; El-Gohary et al., 2006; Chung et al., 2009; Thyagaraju, 2016). Risks that have been mitigated under field conditions still hinder the implementation of the water supply system PPP project. The informant mentioned that the water supply system PPP Project handled by Ministry X faced problems related to the land provision, certainty of raw water sources, inflation problems, and regulation of drinking water rates.

1) Provision of Project Land

Based on Minister of National Development Planning Regulation No 2/2020, the PPP Project land is implemented by the GCA, and the land acquisition process has already begun when the project starts the procurement stage. The problem of providing land for the water supply system PPP project should be a risky responsibility for the public (government) because it can hamper project implementation (Hatmoko & Susanti, 2017). Property rights and project site acquisition are the responsibility of the public authorities so that investment costs for the private sector do not increase and Value For Money (VFM) may not occur (Yescombe, 2007). The GCA is committed to providing land for the water supply system PPP project, but it is hampered by administrative processes that take a long time. So, until the tendering process for the water supply system PPP project is completed, the process of land acquisition is still going on. Delays in providing land for the PPP project are the responsibility of the GCA. The delays in land acquisition cause delays in project construction which can result in compensation to SPV. Arrangements for land acquisition that are carried out in parallel with construction are a high risk which has implications for delays in the construction period so the GCA must consider extending the construction period (PT Penjaminan Infrastruktur Indonesia, 2022). GCA seeks to resolve problems in the water supply system PPP project with intense coordination with stakeholders. In addition, the GCA also seeks a joint decision by reimbursing SPV for financial losses by the existing PPP rules and practices.

2) Raw Water Source

One of the main problems faced by the water supply system PPP project in Indonesia is the problem of availability and management capability of raw water resources (Asian Development Bank, 2020). The raw water source for the case of the water supply system PPP projects is a dam that is still under construction, likewise, the responsibility of the Ministry of X. Delays in raw water infrastructure construction hindered the implementation

of the related water supply system PPP project. The informants said that the delay in the supply of raw water was constrained by coordination between Ministry X and external parties. The GCA faces this raw water source problem as a risk that has not been mapped by the GCA and SPV, so the mitigation that can be done is in the form of intensive coordination with related parties. The affected water supply system PPP project is currently at the stage of fulfilling the preliminary requirements. Barriers to raw water affect the delay in construction time and implementation of the water supply system PPP project. Location and permit to use raw water is one of the preliminary requirements. In this condition, the SPV submitted negotiations with the GCA due to the changing requirements of Lenders. SPV is submitting financial compensation for the delay in supplying raw water. The delay in the progress of this project is being monitored by the Coordinating Ministry for Maritime Affairs and Investment as the regulator that pointed out the monitoring team for PSN. Issues related to raw water in the water supply system PPP project are the responsibility of the GCA, so the GCA has the responsibility to provide compensation to the SPV. In facing the unpreparedness of raw water sources, GCA has a plan to solve the problem by finding alternative sources of raw water. If other sources of raw water cannot be studied further, the option to postpone the Commercial Operation Date (COD) is the GCA's choice which contains the burden of financial compensation for the SPV. The COD delay has an impact on water supply system construction, or if it does not have an impact on construction, there will be an idle water supply system infrastructure. This brought financial losses to SPV. GCA seeks to coordinate the acceleration of raw water supply with related parties to immediately obtain certainty on project completion time.

3) Inflation

In the water supply system PPP project, Indonesia's macroeconomic conditions affect the project's financial assumptions that have been prepared. The macroeconomic conditions that are considered to affect the project are related to inflation. The financial modifications faced by the water supply system PPP project due to delays in the start of construction have an impact on the financial burden borne by the SPV. The cumulative effect of inflation has an impact on the costs incurred on capital expenditure and operating expenditure projects so the role of public authorities is needed to control inflation risk exposure to the water supply system PPP project (Yescombe, 2007). The inflation rate is considered to have an impact on the implementation of PPP projects which reduces the interest of private investors, but this does not apply if the project has full guarantees and support from the government (Yurdakul et al., 2022). As mentioned by the Informants, the SPV is responsible for the inflation issue, but the GCA may also be liable for significant and unpredictable financial losses.

4) Drinking Water Tariff Setting

Policies and legal regulations related to PPP that are implemented in Indonesia in the current conditions are still constrained by gradual changes and adjustments to regulations. This has had an impact on PPP projects that have experienced implementation progress in the range of years of transition to changes in legal policy. One of the risks that must be borne and corrected by the Central and Regional Governments relates to the legal basis as a reference for project preparation and implementation (Hاتمoko & Susanti, 2017). Until now, drinking water tariffs do not have standard rules that regulate the maximum or minimum limits for regulating water supply operations in Indonesia. Municipal waterworks in Indonesia face difficulties due to low tariffs and obstacles to increasing tariffs due to the tiered local government bureaucratic system (Asian Development Bank, 2020). One of the occupied talks in the Drinking Water Supply Agreement that affects how readily projects are implemented in Indonesia is the variety of nominal rates in water supply system PPP projects. Inconsistencies in pricing systems, lack of options for private infrastructure ownership, and misdirection as a result of inadequate government restrictions can all undermine PPP governance performance (Mouraviev & Kakabadse, 2015). The issue of water tariffs can be mitigated in the Cooperation Agreement, as well as mitigated by regulations related to tariff mechanisms and their adjustments (PT Penjaminan Infrastruktur Indonesia, 2022). To ensure stability and attract and retain investors, national and local authorities must adopt a clear strategic approach for the water sector to address these issues (Lima et al., 2021). This problem needs to be the concern of the Central and Regional Governments so that the diversity of tariffs does not create disparities for the community as users of water supply system services.

5) Downstream Infrastructure Development

In 2019, the world experienced a disaster in the form of the Corona Virus pandemic (COVID-19). This condition closes all access to direct meetings for citizens of the world. The impact of economic and social losses is also felt in Indonesia. In the implementation of the water supply system PPP project, there are problems related to downstream infrastructure development. The downstream development infrastructure that connects the water supply system to customers is part of the investment development that is avoided by private sector partners (Asian Development Bank, 2020). The COVID-19 pandemic has had a financial impact on the project, namely on

the downstream development side. The water supply system PPP project in this case has the scope of development on the upstream side only, for the downstream side it is the responsibility of the local Government. Inappropriate upstream-downstream business plans are risks that can be mitigated by coordinating, maintaining shared commitments, and monitoring periodically (PT Penjaminan Infrastruktur Indonesia, 2022). Municipal waterworks as distributors of buying and selling drinking water are companies whose bureaucracy is strongly influenced by the local Government (Asian Development Bank, 2020). This influence causes municipal waterworks to not be free to plan investments in the future. Under these conditions, municipal waterworks do not have the power to regulate downstream financing and it is exacerbated by the COVID-19 condition which limits the movement of the local government budget because it is not a priority for the local Government's main handling. Ultimately it has an impact on project implementation delays due to disrupted downstream development financing. The Ministry of X is continuing to work on a project to synchronize upstream-downstream water supply by incorporating many GCAs, known as the Source to Tap concept. The GCA on the upstream-downstream water supply system PPP concept is not only limited to the Central Government but also involves Regional/Local Governments. A Memorandum of Understanding and Integration Agreement will serve as the legal foundation for implementing the Upstream-Downstream Water Supply System PPP project (Daniel et al., 2023; Ameyaw & Chan, 2015; Grimsey & Lewis, 2002; Eljawati et al., 2022). The partnership agreement was created to prevent future upstream-downstream issues in the water supply system PPP project. On other concerns, the principal obstacle that is projected to occur in this notion is connected to the cooperation of all parties.

Application of critical success factors to accelerate project implementation

1) Good governance/government support

The complexity of the parties involved in the water supply system PPP Project causes governance problems that tend to be bad with poor management capacity that hinders the implementation of the PPP Agreement (Asian Development Bank, 2020). The involvement of many parties has caused obstacles to the water supply system PPP project related to administrative matters. Based on the project structure, the governance involved in the project has involved agencies according to their duties and functions. The agencies involved are quite diverse, this proves the complexity of the project on the government's side as the party responsible for the project. The involvement of various parties has been included in the project structure in the Preliminary Study document. The involvement of many parties in the PPP project is a challenge for all parties to maintain their commitment. The management of the water supply system PPP project is considered good enough. Every problem encountered undergoes discussion between parties to obtain a mutual agreement.

2) Policy and legal support for PPP in the water sector

PPP projects in Indonesia are carried out by involving Ministries and Institutions as regulators of legal policies. Regulations and policies that apply in Indonesia already exist, are in effect, and are complied with, but these regulations need to be readjusted because each PPP project has different characteristics and risks. In addition, sector characteristics greatly affect PPP project risk. Currently, the Government of Indonesia has implemented Presidential Regulation No. 38/2015 which regulates the mechanism for implementing PPPs in Indonesia. Sectoral regulations related to drinking water, the Government of Indonesia has implemented Presidential Regulation No. 121/2015 concerning Water Resources and No. 122/2015 concerning Drinking Water Supply Systems. These regulations serve as a reference for water supply system implementation, both PPP and non-PPP. As the implementation of the water supply system in Indonesia develops, related regulations will be updated to adapt to the latest conditions and risks. Transparency, efficiency, and effectiveness of the PPP business entity procurement mechanism have also been regulated in Regulation of The National Public Procurement Agency No. 19/2015 and No. 29/2018.

3) Public acceptance and support for the water sector

In its implementation, the water supply system PPP project did not encounter any obstacles related to public rejection. One of the stages in implementing a PPP project refers to Minister of National Development Planning Regulation No 2/2020, namely Public Consultation. This activity has assured that the water supply system PPP Project has been implemented with the support of the surrounding community. In addition, the water supply system PPP Project Initiative Business Entity has conducted a Real Demand Survey as stated in the Preliminary Study document. This illustrates the demand for community water supply that can be met through the construction of water supply system infrastructure.

4) Commitment and availability of public and private sector experience

The commitment of the GCA and SPV is not a problem for the water supply system PPP project implementation. The PPP agreement has bound the rights and responsibilities of the GCA and SPV in implementing the SPAM PPP project. Violation of the PPP Agreement carries a penalty for SPV and GCA. To strengthen the commitment of the GCA and SPV, a Control and Monitoring Team was formed from parties related to the project. The duties and functions of establishing the Control and Monitoring Team refer to Minister of National Development Planning Regulation No 2/2020.

5) A competitive, adequate, and transparent procurement system

The water supply system PPP project, the initiation of the tender process business entity refers to Regulation of The National Public Procurement Agency No. 19/2015. The bidding process for the water supply system PPP project is considered competitive, transparent, and adequate because it refers to applicable regulations and provides an opportunity for bidders to be able to clarify matters related to project tenders. The Auction Committee is also fully committed to maintaining neutrality and confidentiality during the auction process. A procurement system that is already transparent, adequate and competitive still has challenges in the future related to the dissemination of information to wider media and covers an international scale. This is due to the limited capital of business entities in Indonesia while the project investment value is very large. In addition, ownership of more effective, efficient, and economical water supply technology is still owned by foreign parties. The challenge for the government to be able to form an advertising medium to offer PPP projects is not limited to water supply sector projects that can be easily accessed by foreign investors (Wibowo & Mohamed, 2010; Maryati et al., 2022; Al Djono & Daniel, 2022).

Limitations

This research still has many shortcomings, which are expected to be input for further research. This research faced the limitations of informants who allowed them to be involved in this research. As a result, the perspective of the problem in this research is limited only to the Central Government. In addition, this research is limited to case studies of water supply system PPP projects of the Business Entity Initiative type so certain obstacles cannot be accommodated in this research. The data used in this study are also limited to certain documents, while many other supporting documents cannot be studied in more depth. In addition, the informants involved in the water supply system PPP projects are very diverse so further research might have depth information on water supply system PPP projects from other agencies/institution informants.

Conclusion

The water supply system infrastructure is one of the defense infrastructures of a country. Water is a product of all human needs, the quality of the water affects the condition of the people of a country. The Indonesian government in providing quality drinking water services faces the challenge of limited infrastructure funding with the state budget. For this reason, the PPP scheme was developed in Indonesia and applied to important sectors for the sustainability of Indonesia's infrastructure development. The water supply system PPP project is complex and vulnerable to the influence of various parties. This study describes the obstacles to the water supply system PPP project on a regional scale, namely the water supply system Initiated Business Entity (Unsolicited) project study. The obstacle that is still being faced by the unsolicited water supply system PPP Project is related to time. The joint commitment to accelerate the implementation of the water supply system PPP project is a mitigation strategy that continues to be pursued. Problems related to land acquisition and raw water sources are the result of the time target not being fulfilled, in other words, exceeding the target time available. Consequently, delay compensation is the best option for now.

The second problem is related to the availability of raw water infrastructure, which is one of the water supply system's operating capital. The source of raw water in the case study water supply system project is still experiencing problems with construction completion which is hampered due to problems caused by parties outside the GCA. The fourth problem is tariffs. This is a joint problem for the Central and Regional/Local Governments. Water tariffs are directed to standardize so that there are no tariff gaps that lead to losses for the community. The last problem is related to uncharted risks. The existence of extraordinary conditions, COVID-19 has resulted in financial losses for all infrastructure projects. In this case study, the water supply system PPP project experienced an impact on downstream infrastructure readiness. The pandemic has resulted in limited use of the local budget as capital for downstream infrastructure development. For this reason, with world economic conditions that have improved in

2023, the financial conditions associated with the water supply system PPP Project are also getting stronger. Support and commitment from the Central and Regional/Local governments are needed to accelerate the implementation of the water supply system PPP project. In the implementation of the water supply system PPP project, there are still risks that have not been mapped and mitigated at the project preparation stage. There needs to be coordination between parties to immediately mitigate these risks. The intended risk mitigation includes the application of the party that bears the risk allocation. So that if a condition occurs beyond the control of the parties, the owner of the loss and/or profit from the risk can be found.

Acknowledgments

This paper is part of the requirements for completing the Master of Accounting Study Program, at Universitas Brawijaya.

References

- Al Djono, T. P., & Daniel, D. (2022). The effect of community contribution on the functionality of rural water supply programs in Indonesia. *Groundwater for Sustainable Development*, 19, 100822. <https://doi.org/10.1016/j.gsd.2022.100822>
- Ameyaw, E. E., & Chan, A. P. (2015). Evaluation and ranking of risk factors in public–private partnership water supply projects in developing countries using fuzzy synthetic evaluation approach. *Expert Systems with Applications*, 42(12), 5102–5116. <https://doi.org/10.1016/j.eswa.2015.02.041>
- Ameyaw, E. E., & Chan, A. P. C. (2015). Risk ranking and analysis in PPP water supply infrastructure projects. *Facilities*, 33(7–8), 428–453.
- Ameyaw, E. E., Chan, A. P. C., & Owusu-Manu, D. G. (2017). A survey of critical success factors for attracting private sector participation in water supply projects in developing countries. *Journal of Facilities Management*, 15(1), 35–61.
- Asian Development Bank. (2020). *Public–Private Partnership Monitor: Indonesia*. <https://doi.org/10.22617/SGP210069-2>
- Chou, J. S., & Pramudawardhani, D. (2015). Cross-country comparisons of key drivers, critical success factors and risk allocation for public-private partnership projects. *International Journal of Project Management*, 33(5), 1136–1150.
- Chung, G., Lansley, K., & Bayraksan, G. (2009). Reliable water supply system design under uncertainty. *Environmental Modelling & Software*, 24(4), 449–462. <https://doi.org/10.1016/j.envsoft.2008.08.007>
- Committee of Acceleration of Priority Infrastructure Delivery. (2021). *Laporan KPPIP Semester 2 2021*.
- Coordinating Ministry for Economic Affairs. (2022). Pemerintah Kembangkan Strategi Skema Alternatif Pembiayaan Infrastruktur. In *Siaran Pers HM.4.6/306/SET.M.EKON.3/6/2022*. Siaran Pers HM.4.6/306/SET.M.EKON.3/6/2022.
- Coyle, D. (2022). Shaping successful mega-project investments. *Oxford Review of Economic Policy*, 38(2), 224–236.
- Daniel, D., Al Djono, T. P., & Iswarani, W. P. (2023). Factors related to the functionality of community-based rural water supply and sanitation program in Indonesia. *Geography and Sustainability*, 4(1), 29–38. <https://doi.org/10.1016/j.geosus.2022.12.002>
- Debela, G. Y. (2022). Critical success factors (CSFs) of public–private partnership (PPP) road projects in Ethiopia. *International Journal of Construction Management*, 22(3), 489–500.
- El-Gohary, N. M., Osman, H., & El-Diraby, T. E. (2006). Stakeholder management for public private partnerships. *International journal of project management*, 24(7), 595–604. <https://doi.org/10.1016/j.ijproman.2006.07.009>
- Eljawati, E., Tefa, G., Susilawati, S., Suwanda, S. N., & Suwanda, D. (2022). Leadership in the quality public service improvement. *Linguistics and Culture Review*, 6(S1), 252–263.
- Grimsey, D., & Lewis, M. K. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International journal of project management*, 20(2), 107–118. [https://doi.org/10.1016/S0263-7863\(00\)00040-5](https://doi.org/10.1016/S0263-7863(00)00040-5)
- Hatmoko, J. U. D., & Susanti, R. (2017). Risk Management of West Semarang Water Supply PPP Project: Public Sector Perspective. *IPTEK Journal of Proceedings Series*, 0(1), 48.
- Johannessen, Å., Rosemarin, A., Thomalla, F., Swartling, Å. G., Stenström, T. A., & Vulturius, G. (2014). Strategies for building resilience to hazards in water, sanitation and hygiene (WASH) systems: The role of public private partnerships. *International Journal of Disaster Risk Reduction*, 10, 102–115. <https://doi.org/10.1016/j.ijdrr.2014.07.002>

- Kholifah, S., & Suyadnya, I. W. (2018). *Metodologi Penelitian Kualitatif Berbagi Pengalaman dari Lapangan*. Rajawali Pers.
- Lima, S., Brochado, A., & Marques, R. C. (2021). Public-private partnerships in the water sector: A review. *Utilities Policy*, 69.
- Link, A. N. (2006). *Public/Private Partnerships : Innovation Strategies and Policy Alternatives*. Springer.
- Maryati, S., Firman, T., & Humaira, A. N. S. (2022). A sustainability assessment of decentralized water supply systems in Bandung City, Indonesia. *Utilities Policy*, 76, 101373. <https://doi.org/10.1016/j.jup.2022.101373>
- Minister of National Development Planning Regulation Number 2/2020 Regarding an amendment of Minister of National Development Planning Regulation Number 4/2015, (2020).
- Mouraviev, N., & Kakabadse, N. K. (2015). Legal and regulatory barriers to effective public-private partnership governance in Kazakhstan. *International Journal of Public Sector Management*, 28(3), 181–197.
- Mudiparwanto, W. A., & Gunawan, A. (2022). Urgensi Pembentukan Peraturan Daerah tentang Kerja Sama Pemerintah Dengan Badan Usaha dalam Penyediaan Infrastruktur. *Diversi Jurnal Hukum*, 8(Nomor 1), 111–138.
- Ngullie, N., Maturi, K. C., Kalamdhad, A. S., & Laishram, B. (2021). Critical success factors for PPP MSW projects—perception of different stakeholder groups in India. *Environmental Challenges*, 5, 100379. <https://doi.org/10.1016/j.envc.2021.100379>
- Nizkorodov, E. (2021). Evaluating risk allocation and project impacts of sustainability-oriented water public–private partnerships in Southern California: A comparative case analysis. *World Development*, 140.
- OECD. (2012). Recommendation of the council on principles for public governance of public-private partnerships. *Paris: Organization for Economic Cooperation & Development (OECD)*.
- Osei-Kyei, R., & Chan, A. P. C. (2015). Review of studies on the critical success factors for public-private partnership (PPP) projects from 1990 to 2013. *International Journal of Project Management*, 33(6), 1335–1346.
- Perum Jasa Tirta I. (2022). *Laporan Tahunan 2021*.
- Presidential Regulation Number 121/2015 Regarding Water Resources, (2015).
- Presidential Regulation Number 122/2015 Regarding Drinking Water Supply Systems, (2015).
- Presidential Regulation Number 18 Tahun 2020 Regarding National Medium-Term Development Plan (RPJMN) 2020-2024, (2020).
- Presidential Regulation Number 38/2015 Regarding Public-Private Partnership on Infrastructure Provision, (2015).
- PT Penjaminan Infrastruktur Indonesia (Persero). (2022). *Acuan Alokasi Risiko KPBU di Indonesia 2022*.
- Rakić, B., & Rađenović, T. (2011). Public-Private Partnership as an Instrument of New Public Management. *Economics and Organization*, 8(2), 207–220.
- Regulation of The National Public Procurement Agency Agency of The Republic Of Indonesia Number 19/2015 Regarding Procedures For Implementing Business Entity Procurement In Infrastructure, (2015).
- Regulation of The National Public Procurement Agency Agency of The Republic Of Indonesia Number 29/2018 Regarding Procedures For Implementing Business Entity Procurement In Infrastructure Provision Through Public Private Partnership Initiated By Ministers/Heads Of Agencies/ Heads Of Region, (2018).
- Thyagaraju, N. (2016). Water pollution and its impact on environment of society. *International Research Journal of Management, IT and Social Sciences*, 3(5), 1-7.
- Viljoen, G. (2019). *Factors limiting public-private partnerships in South Africa's water sector*.
- Wibowo, A. (2016). Perkembangan Terkini Dalam Pembiayaan Infrastruktur Yang Melibatkan Partisipasi Badan Usaha. *Konferensi Nasional Teknik Sipil 10*.
- Wibowo, A., & Mohamed, S. (2010). Risk criticality and allocation in privatised water supply projects in Indonesia. *International Journal of Project Management*, 28(5), 504-513. <https://doi.org/10.1016/j.ijproman.2009.08.003>
- Wisuttisak, P., Kim, C. J., & Rahim, M. M. (2021). PPPs and challenges for competition law and policy in ASEAN. *Economic Analysis and Policy*, 71, 291–306. <https://doi.org/10.1016/j.eap.2021.05.006>
- Yescombe, E. R. (2007). *Public-Private Partnerships: Principles of Policy and Finance* (1st ed.). Elsevier Ltd.
- Yin, R. K. (2018). *Case Study Research and Applications Design and Methods* (Sixth Edition). SAGE Publications, Inc.
- Yurdakul, H., Kamaşak, R., & Yazar Öztürk, T. (2022). Macroeconomic drivers of Public Private Partnership (PPP) projects in low income and developing countries: A panel data analysis. *Borsa Istanbul Review*, 22(1), 37–46.