



CRITICAL SUCCESS FACTORS IN THE IMPLEMENTATION OF THE PPP SCHEME IN THE WOSUSOKAS SPAM PROJECT (WONOGIRI, SURAKARTA, SUKOHARJO, AND KARANGANYAR)

Jun Rifky Prayuda¹

Diploma 4 Program of Public Sector Accounting, Polytechnic of State Finance STAN

Amrie Firmansyah²

Faculty of Economics and Business, Universitas Pembangunan Nasional Veteran Jakarta

Rozano Fikri Andana³

Diploma 4 Program of Public Sector Accounting, Polytechnic of State Finance STAN

Rossa Kurnia Sasongko⁴

Diploma 4 Program of Public Sector Accounting, Polytechnic of State Finance STAN

Maman Suhendra⁵

Correspondence Email: 4132210019_jun@pknstan.ac.id, amriefirmansyah@upnvj.ac.id,
4132210041_rozano@pknstan.ac.id, 4132210027_rossa@pknstan.ac.id, msuhendra@pknstan.ac.id

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ABSTRACT

Infrastructure development is one of the Indonesian government's programs in the RPJMN stage 4 for 2019–2024. The need for significant infrastructure development cannot be met with the state budget alone. Fiscal limitations narrow the space for the government to carry out infrastructure development. Therefore, to overcome these problems, one of the efforts made by the Indonesian government is to implement a PPP scheme. The Wosusokas SPAM project is a drinking water supply infrastructure project in the Wonogiri, Surakarta, Sukoharjo, and Karanganyar areas that uses a PPP scheme. This study uses the scoping review method to collect and analyze critical success factors that play a role in implementing PPP projects. Based on previous studies, implementing the Wosusokas SPAM project can pay attention to five critical success factors: the commitment of partners, the strength of consortiums, asset quality, the political environment, and the national PPP unit. By implementing the five critical success factors from the planning stage to contract execution, the Wosusokas SPAM project is hoped to be implemented more effectively and efficiently.

1. INTRODUCTION

The Indonesian government is currently intensively carrying out infrastructure development. The total investment needs for infrastructure development in Indonesia for 2020–2024 have reached IDR 6,445 trillion (Liputan6.com, 2021). Of course, if all infrastructure development is carried out using the state budget, it will not be fulfilled, given Indonesia's limited fiscal capacity. As a result, the Indonesian government is also trying to obtain funding that is not too burdensome to the state budget to meet the needs for infrastructure development.

One financing method the Indonesian government applies is the cooperation mechanism between the government and business entities or what can be called the Public Private Partnership or PPP. PPP is a form of collaboration between the government and private parties. It is becoming popular to apply worldwide, along with the development of New Public Management in the 1980s (Mandasari & Wahyuni, 2019).

In Botswana, for example, an Orapa and Mmashoro IPP power plant construction project was funded using the PPP mechanism in 2011. The project value reached US\$104 million; at that time, a PPP needed to fund it to be adequately implemented (UN-OHRLS, 2021). Apart from Botswana, several ASEAN countries, including Vietnam, apply the PPP mechanism in infrastructure development projects. Vietnam's transportation sector funding reached VND 672,345 billion for 230 contracts. Then, the investment value made through the PPP mechanism reaches VNC 39,568 billion for the other technical infrastructure development projects for 32 contracts (Hai et al., 2022).

In Indonesia itself, there are already several PPP contracts in progress. For 2022, there are already 30 PPP projects, one of which is the Wosusokas SPAM project (Wonogiri, Surakarta, Sukoharjo, and Karanganyar) (Kementerian PUPR, 2021). According to the Minister of Public Works and Housing, the Drinking Water Supply System (or Sistem Penyediaan Air Minum (SPAM) in Indonesian) project "...is a priority to fulfill domestic needs so that people enjoy quality drinking water at affordable prices, continuously for 24 hours, and improve public health related to clean water" (Kementerian PUPR, 2023).

Seeing the importance of the Wosusokas SPAM development project, especially for the people of Wonogiri, Surakarta, Sukoharjo, and Karanganyar, the success of project implementation is the main thing the government must achieve. Moreover, this project was carried out using the PPP mechanism. By analyzing the critical success factors of PPP projects running worldwide, especially in Indonesia,

specifically those related to SPAM development, we try to provide an overview of what factors greatly influence the accomplishment of the Wosusokas SPAM project, which uses PPP. In the end, the implementation of the project is expected to be carried out more effectively and efficiently.

2. LITERATURE REVIEW

2.1 Public-Private Partnership

The development of the use of PPP schemes in infrastructure construction by the government has been experiencing growth over the last two decades. This growth is due to the government's limited resources to finance public infrastructure projects (Iossa & Martimort, 2015). Certainly, governments will find it difficult to finance public infrastructure projects if they rely only on classical funding sources such as taxes and public debt instruments, where the government bears all the risks (Engel et al., 2014).

The World Bank (2019) defines PPP as a long-term contract between governments and the private sector to provide public infrastructure. Private parties are burdened with higher responsibilities and risks in the PPP mechanism than the government. However, the government must compensate private parties for such responsibilities and risks by providing remuneration. The Government of Indonesia has issued special PPP rules in "*Peraturan Presiden Nomor 38 Tahun 2018 tentang Kerjasama Pemerintah dengan Badan Usaha dalam Penyediaan Infrastruktur*".

In Article 1 number (6) Presidential Decree Number 38/2018, PPP is defined as "co-operation between the government and the Enterprise Agency in the provision of infrastructure for the general interest by reference to the specifications previously established by the Minister/Head of the Institution/Heads of the District/State-owned enterprise agency/Regional Enterprise, which partly or entirely uses the resources of the enterprise Agency taking into account the risk sharing between the parties." With the PPP, the government can raise capital and increase efficiency in constructing public infrastructure (Yurdakul et al., 2022).

Chileshe et al. (2022) showed that most PPP issues were within the scope of risks, critical success factors (CSFs), the relationship between the government and the private sector, challenges in implementing the PPP scheme, and value for money. The problem arises due to long-term contracts that require high costs. However, these issues do not preclude the government

from taking steps to provide the public infrastructure through the PPP scheme. Several studies show that the PPP scheme benefits the economy, especially in developing countries (Yurdakul et al., 2022).

Given the potential risk of failure associated with implementing public infrastructure construction projects, the Indonesian government must remain cautious in its implementation. To address this, the Indonesian government must conduct extensive research and evaluation when selecting an enterprise, considering various factors, such as political and economic factors.

2.2 Critical Success Factors

One of the key factors in the successful implementation of PPP projects is Critical Success Factors (CSFs). For projects funded using the PPP scheme to be implemented more effectively, it is necessary to identify CSF first (Chou & Pramudawardhani, 2015). CSFs need to be considered, implemented, and achieved by management for a project to be performed properly (Chou & Pramudawardhani, 2015).

Chou & Pramudawardhani (2015) mapped and compared CSFs in 5 countries (Indonesia, Taiwan, Singapore, China, and the UK). In Indonesia, there are 17 CSFs identified as shown in Table 1.

Indonesia has a higher number of CSFs when compared to Taiwan and Singapore, with 15 and 8 indicators, respectively. In contrast, the UK and China have almost the same number of CSFs as Indonesia, with as many as 18 indicators.

Chou & Pramudawardhani (2015) also stated that CSFs considered most important by Indonesia are favorable legal framework, commitment and responsibility of public and private sectors, transparency procurement process, clearly defined responsibilities and roles, and good governance/government support. In Taiwan, only two CSFs are considered the most important: stable macroeconomic conditions and adequately organized and committed public agency.

On the other hand, Singapore assessed that adequately organized and committed public agencies, appropriate risk allocation and sharing, and a strong private consortium as CSFs are most important (Hwang et al., 2013). The UK and China equally rated only 3 CSFs that were considered most important with each: a strong private consortium, appropriate risk allocation and sharing, and available financial market for the UK (Li et al., 2005) as well as a favorable legal framework; adequate risk allocation and share; and commitment and responsibility of the public and private sector for China.

With the presence of varied CSFs between countries, the smooth implementation of the PPP

project becomes distinctly adapted to the conditions and conditions of the country. It means that interested parties should be able to identify and implement CSFs that are most suitable for implementation in a particular country in Indonesia. Of course, by enabling them to do so, the implementation process of the construction project using the PPP scheme can run effectively.

3. RESEARCH METHODOLOGY

A scoping review is used as a method in conducting this research. We use a scoping review approach to identify and analyze the literature or research that has been done before which has a similar topic to this research. The literature that we use is the result of studies or research on the implementation of PPP and the key factors that support the success of its implementation, both from Indonesia and other countries.

Brien et al. (2010), Prayuda et al. (2022), and Rumrill et al. (2010) provided an overview of scoping reviews in the form of a method used in research or studies by collecting and analyzing various types of research or related studies so that new knowledge is obtained. This research attempts to collect study results from critical success factors in the implementation of PPP schemes in the development of a country. Then, we conduct further analysis to discover the critical success factors in implementing the PPP scheme in SPAM so that later, it can provide recommendations for constructing the Wosusokas SPAM based on the results of studies or research compiled.

The process of collecting literature is carried out by searching the journal database using several keywords related to the topic of this research on the internet so that the obtained search results are shown in Table 2.

From the search results with the help of the Publish or Perrish application, we obtained 3,928 previous studies based on predetermined keywords. Of all the previous studies found, we carry out further sorting to detail the research or previous studies to obtain the most relevant results to this issue. The ten most relevant studies are shown in Table 3.

4. RESEARCH RESULTS

4.1 Overview of SPAM Wosusokas

Wosusokas SPAM is a project built to realize the acceleration and equity of clean water supply in Central Java. The Provincial Government of Central Java is planning the construction and development of Phase II of the Wosusokas Regional SPAM. The Wosusokas Regional SPAM

Phase II construction was carried out to increase the raw water discharge in the Sukoharjo Regency and Surakarta City, which have a planned capacity of 700 lps with natural water sources from the Gajah Mungkur Reservoir. The total investment value of this project is IDR 836 billion, with a concession period of 20 years. Phase II of the Wosusokas Regional SPAM Project is preparing the Final Business Case (FBC) document through the Ministry of Finance's Project Development Facility (PDF).

The construction of the Wosusokas SPAM is an effort to provide raw water and achieve the Millennium Development Goals (MDGs) targets. Coverage of Safe Access to Drinking Water services in 2016: Wonogiri $\pm 78.38\%$, Sukoharjo $\pm 70.97\%$, Solo 81.85% and Karanganyar 70.97% which are expected to be increasingly needed in the future. The construction of the Wosusokas Regional Drinking Water Supply System (SPAM) will serve the needs of urban communities in the field of healthy, safe, and secure drinking water in five regencies and cities in Central Java, such as Wonogiri Regency, Sukoharjo, Solo City (Surakarta), Karanganyar Regency and Sragen. The parties involved in constructing the Wosusokas Regional SPAM are Cipta Karya, the Provincial Government of Central Java, and the PDABs and PDAMs of the districts or cities involved.

4.2 PPP Critical Success Factors in Drinking Water Supply Projects

A study by Ameyaw & Chan (2016) offered a theoretical framework to examine the factors responsible for a successful water supply PPP project. They identified five critical success factors: Commitment of Partners, Strength of Consortium, Asset Quality, Political Environment, and National PPP Unit.

The first factor is the commitment of partners. This factor consists of four indicators. The first indicator is strong and competent project partners. In this case, commitment refers to the dedication and interest of all key stakeholders in a PPP project (Toor & Ogunlana, 2008). The second indicator is a Strong and Competent Public Partner. All public partners must be able to facilitate capacity-building programs to increase the knowledge and skills of the public sector about the PPP projects that are undertaken. The third indicator is Internal Coordination within the Government. Internal coordination between agencies in government is needed to make the PPP program run well. The fourth indicator is Flexible Contracts with Fair Risk Allocation. Well-managed and fair risk allocation is an integral part of a PPP contract to increase the efficiency of project success (Marques & Berg, 2010).

The second factor is the strength of the consortium. This factor consists of three indicators. The first indicator is Strong and Competent Private Partners. Private partners should be selected based on experience and expertise. Partners have always carried out most PPP projects that have been successful in several countries with a wealth of experience and expertise (Li et al., 2005). The second indicator is Effective Regulation and Legal Structure. An established legal and regulatory framework will enhance public benefits by ensuring that contracts operate efficiently and provide adequate protection to private partners. The third indicator is a profitable drinking water supply project. For a PPP project to run well, a PPP project must be driven by profit incentives that the private sector can utilize.

The third factor is asset quality. This factor consists of two indicators. The first indicator is the quality of water assets and labor. This indicator is significant when the private partner takes over the water supply system and operates it. This method is known as the Transfer-Operate-Transfer (TOT) PPP scheme, which is usually used in China (Meng et al., 2011). The second indicator is adequate funding. The private partner project must provide long-term capital, demonstrated by its ability to close financially in time to start the project.

The fourth factor is the political environment. This factor consists of three indicators. The first indicator is the capacity building of existing staff. It is important for PPP projects such as SPAM (Meng et al., 2011). The second factor is the Competitive Tender. The participation of several strong bidders can offer strong bargaining power to the PPP committee while providing the opportunity to select the most experienced and competent consortium with a proven track record in managing other PPP projects in similar sectors (Meng et al., 2011). The third indicator is Government Commitment. A committed government is undoubtedly needed to guarantee against certain risks (Adiyanti & Fathurrahman, 2021).

The fifth factor is the National PPP Unit. This factor is needed to coordinate and oversee all PPP activities, connect foreign investors with local governments, resolve conflicts, promote accountability, and advocate for legislative changes. This factor can carry out four essential functions: project support, framework development, knowledge management, and policy (Ameyaw & Chan, 2016).

4.3 Analysis

4.3.1 Commitment of Partners

Project partners and the Government Contracting Agency (GCA) must commit to allocating their best financial and human resources in all PPP stages (Ameyaw & Chan, 2016). Based on research conducted by Adiyanti & Fathurrahman (2021) on the West Semarang SPAM, the commitment shown by the Mayor remains the most fundamental asset for the success of the West Semarang SPAM PPP. Based on "Peraturan Menteri PUPR Nomor 19/PRT/M/2016 tentang Pemberian Dukungan oleh Pemerintah Pusat dan/atau Pemerintah Daerah Dalam Kerjasama Penyelenggaraan Sistem Penyediaan Air Minum", the Regional Government must assign BUMD to become the GCA to carry out the project under the PPP Scheme.

The GCA for the Wosusokas SPAM PPP project is still in the hands of the Governor of Central Java. To comply with the provisions that have been regulated, the Governor of Central Java must appoint a CEO in one of the PDAMs as the GCA for the Wosusokas SPAM PPP project. BPPSPAM classifies PDAMs into three categories based on their performance: Healthy PDAMs, Unhealthy PDAMs, and PDAMs are Sick. Based on the categories mentioned above, PDAMs that may be appointed as GCAs are healthy PDAMs.

The second indicator is the existence of a Strong and Competent Public Partner. To be a competent partner, the government must facilitate capacity-building programs to increase public sector knowledge and skills about PPP projects and hire professional advisors. The strategic role of related professionals, such as legal advisors, asset valuation experts, and investment/financing consultants, will significantly help the government add to its minimal previous PPP experience (Meng et al., 2011).

The third indicator is internal coordination in government. The SPAM project will involve many interrelated stakeholders, including central government agencies, local government agencies, and BUMD. All relevant stakeholders need to coordinate routines to solve problems and challenges in project development. In addition, all relevant stakeholders also need a solid leading sector to lead the coordination between these ministries (Adiyanti & Fathurrahman, 2021). Presidential Decree No.3/2016 states that the Coordinating Ministry for the Economy monitors and evaluates PPPs at least twice a year. However, coordination with the Coordinating Ministry for the Economy has not been carried out routinely.

The fourth indicator is flexible contracts with equitable risk allocation. Flexible contracts with fair risk allocation between all PPP partners can be

measured by clearly defining the risk allocation between the government and the private sector to be carried out somewhat based on their respective responsibilities (Ameyaw & Chan, 2016). In this case, the Wosusokas SPAM PPP is preparing the FBC document through the Ministry of Finance's PDF facility, so it is still being determined whether there has been a risk analysis of the Wosusokas SPAM project. Risk analysis is very important for the success of a PPP project. For this reason, for the success of the Wosusokas SPAM PPP project, a risk analysis must be made properly.

4.3.2 Strength of Consortium

The PDAM selected as the GCA of the Wosusokas SPAM PPP project must choose a strong and competent private partner. Private partners should be selected based on experience and expertise. The bidding project for phase I development implementers is still in process. Partners have always carried out the most successful PPP projects in several countries with a wealth of experience and expertise (Li et al., 2005). There is an example in another SPAM PPP project in Central Java, namely the West Semarang SPAM, where PT Air Semarang Barat or PT ASB, a consortium between the Moya Group and PT Medco Infrastructure Indonesia, is an essential factor for the success of the West Semarang SPAM. Moya Group, a consortium member, has experience where it previously carried out a similar PPP project at PT Aetra Air Tangerang (Aetra Tangerang). One of the advantages of a project with a PPP scheme is the form of government support that can be obtained. One form of government support is a PT Penjaminan Infrastruktur Indonesia (PT PII) guarantee. Some of PT PII's duties include selecting Legal Consultants for Preparation and Transactions and Financial and Technical Consultants for Project Preparation and Transactions. With support from PT PII in selecting the best consultants, the Wosusokas SPAM project succeeded.

Effective regulations and legal structures are one of the supports for the success of the Wosusokas SPAM project. In various studies, legal structures, especially changes in funding policies for PPP projects in various countries, are risky and must be mitigated. However, Indonesia currently has a solid commitment to PPP stipulated in Presidential Decree No. 38 of 2015. The existence of an established legal and regulatory framework will enhance public benefits by ensuring that contracts operate efficiently and provide adequate protection to private partners. There are three forms of government support for PPP projects; the

first is project preparation facilities regulated by Minister of Finance Regulation Number 180/PMK.08/2020. The second is feasibility support, and the third is infrastructure guarantees carried out by PT Penjaminan Infrastruktur Indonesia (PT PII). With a solid legal basis, the GCA and the private sector should utilize these three forms of support later in implementing the Wosusokas SPAM PPP project.

The Drinking Water Supply Project must have a profitable scheme. SPAM Wosusokas will use a *user tariff scheme* or tariffs, which will then be charged to users. This scheme has also been used in SPAM projects with previous PPP schemes, such as the Umbulan SPAM PPP project, which uses a *user payment* or *user tariff scheme*.

4.3.3 Asset Quality

Asset Quality has two indicators: Asset and labor Water Quality and Adequate Financing (Ameyaw & Chan, 2016). However, if SPAM Wosusokas uses the Build-Operate-Transfer (BOT) mechanism, then the indicator that can be used as measuring material is adequate financing.

Partners from the private sector must be able to provide long-term capital to finance their projects. Based on the Regulation of the Minister of PPN/Head of Bappenas No.4/2015 concerning Procedures for Implementing the Infrastructure Provision PPP, private partners as SPVs must conduct a financial close 12 months after signing the agreement. So, private partners who can participate in the Wosusokas PPP project are private partners who can make financial closures 12 months after signing the agreement. Alternatively, in other words, private partners who have good funding.

4.3.4 Political Environment

Capacity building for existing staff is critical to the success of water supply services projects (Meng et al., 2011). The drinking water supply system project is technical, complex, and sophisticated and requires special skills. Before the project starts, the GCA, as the government's representative in implementing the PPP project, must at least have the capacity in three key areas: project, assignment, and personal analysis.

The government should adopt a competitive tender protocol supported by efficient procurement systems and institutions, multiple bidding, and a transparent process that does not give way to collusion (Ameyaw & P.C. Chan, 2016). The tender process for the Wosusokas SPAM PPP project takes four to five months and is on an international scale. Tenders carried out transparently and openly to all qualified potential participants will attract potential bidders. The more qualified potential bidders, the easier it is to select a qualified winner. Therefore, a

competitive tender is a crucial factor in determining the success of future projects.

In this case, local government support is necessary for the Provincial Government of Central Java and the District Governments of Wonogiri, Surakarta, Sukoharjo, and Karanganyar. Coordination and synergy are needed between regional governments and the Central Government, in this case, the Ministry of Finance and the Ministry of Public Works and Public Housing as providers of PPP facilities.

4.3.5 National PPP Unit

The National PPP Unit is needed to coordinate and supervise all PPP activities in a country. The PPP unit links foreign investors with local governments, resolves conflicts, promotes accountability, and advocates for legislative changes (Ameyaw & Chan, 2016). PPP units can carry out four main functions: project support, framework development, knowledge management, and policy functions.

Indonesia has a National PPP Unit called the Joint PPP Office. Members of the Indonesian PPP joint office consist of the Ministry of National Development Planning (BAPPENAS), the Coordinating Ministry for Economic Affairs, the Ministry of Finance, the Ministry of Home Affairs, the Investment Coordinating Board, the National Public Procurement Agency, PT Sarana Multi Infrastruktur, and PT Penjaminan Infrastruktur Indonesia. Based on kpbu.kemenkeu.go.id, the PPP Joint Office is a *front office* connecting Private Financing with the Government.

5. CONCLUSIONS AND SUGGESTIONS

The need for infrastructure development in Indonesia based on the 2020–2024 RPJMN reaches IDR 6,445 trillion. Of course, this development is not entirely funded by the APBN solely due to fiscal constraints. There are three funding mechanisms for infrastructure development carried out by the Indonesian government, namely a combination of APBN + APBD, BUMN / D, and the private sector. The private sector is currently in the first place, reaching 42% of the total investment requirement.

One of the projects the Indonesian government will carry out is the construction of SPAM Wosusokas, with a total investment value of Rp 836 billion. This project will be funded using the PPP mechanism with a concession period of 20 years. Several critical success factors can be implemented to guarantee the successful implementation of the Wosusokas SPAM PPP project.

Based on a study by Ameyaw and Chan (2016), the Wosusokas SPAM project implementers can pay attention to five critical success factors. First, partners' commitment. A strong commitment is needed between the government, authorized by the PJPK (appointed PDAM), and the private sector to guarantee the implementation of the Wosusokas SPAM construction project. Second, the strength of consortium. A strong consortium of private parties with competence and qualified experience must support the committee formed. The government, through PT PII, is obliged to be able to guarantee the smooth running of the investments made. Third, asset quality. The quality of assets in the form of water and supporting infrastructure needs to be given proper attention so that water needs in the Wonogiri, Surakarta, Sukoharjo, and Karanganyar regions can be met. In addition, determining the quality of assets in the contract can encourage both parties to manage and supply drinking water more optimally. Fourth, the political environment. Conducive political conditions can guarantee the successful implementation of the PPP project, especially the Wosusokas SPAM project. It can be done by the Central Java Provincial Government through the selected PDAM as the GCA by guaranteeing a clean and competitive tender. It will trigger a healthy and transparent process of competition between private parties and encourage the selection of partners with the best quality as project implementers. Fifth, National PPP units. In Indonesia, there is a single window policy to ensure the smooth running of the PPP scheme by PT PII (Indonesian Infrastructure Guarantee Fund). With the presence of PT PII as the infrastructure project's guarantor, the Wosusokas SPAM's construction can be carried out effectively and efficiently.

The Provincial Government of Central Java, in implementing the Wosusokas SPAM PPP project, can pay attention to the critical success factors that have been described from the start, starting from the planning stage until the end of the PPP contract. This is done to guarantee the successful implementation of the Wosusokas SPAM PPP project. In addition, there is still a need for a separate agency formed by the Indonesian government that can become the coordinator or manager of PPP projects in Indonesia so that the project implementation process can be carried out more effectively and efficiently.

6. LIMITATIONS AND IMPLICATIONS

In conducting this research, several limitations were found to be obstacles. First is the need for more information about the Wosusokas SPAM development project. The information collected is limited to obtaining from news sources on the internet (both

from the mass media and government websites). Second, we did not conduct interviews with project implementers, so a holistic picture was not obtained of the application of critical success factors that had been carried out in the implementation of the PPP project. This research is expected to provide a perspective or input for the Provincial Government of Central Java in implementing the Wosusokas SPAM project using the PPP scheme so that it can run more effectively and efficiently.

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Table 1 Critical Success Factors for PPP Projects in Indonesia

| No | Group | CSF |
|----|--|---|
| 1 | Stable Macroeconomic Environment | Sound economic policy |
| | | Favorable legal framework |
| | | Stable macroeconomic condition |
| | | Appropriate risk allocation and risk sharing |
| | | Available financial market |
| 2 | Shared responsibility between public and private sectors | Shared authority between public and private sectors |
| | | Commitment and responsibility of public and private sectors |
| | | Project technical feasibility |
| | | Thorough and realistic assessment of the cost and benefits |
| 3 | The transparent and efficient procurement process | Competitive procurement process |
| | | Transparency procurement process |
| | | Well-organized and committed public agency |
| | | Clarification of contract documents |
| 4 | Stable political and social environment | Clearly defined responsibilities and roles |
| | | Social support |
| | | Outstanding private consortium |
| | | Good governance/government support |

Source: Chou et al. (2015)

Table 2 Search results on the journal database using the Publish or Perish application

| No. | Keywords | Google Scholar | Open Alex | CrossRef | Total |
|-----|----------------------------------|----------------|-----------|----------|-------|
| 1. | <i>KPBU</i> | 846 | 57 | 9 | 912 |
| 2. | Critical Success Factor on PPP | 1,000 | 323 | 1,000 | 2,323 |
| 3. | <i>Faktor Kritis Sukses KPBU</i> | 92 | 1 | 600 | 693 |
| | Total | 1,938 | 381 | 1,609 | 3,928 |

Source: processed data

Table 3 Results of previous research or studies used as a reference

| No. | Research Title | Authors | Research methods |
|-----|--|--------------------------------|------------------|
| 1. | The Key Success Factors of Availability Payment Scheme Implementation In The Palapa Ring Western Package PPP Project | Suhendra & Satrio (2020) | Qualitative |
| 2. | Assessing Critical Success Factors for PPP Water Project in Indonesia: Lessons from West Semarang | Adiyanti & Fathurrahman (2021) | Qualitative |
| 3. | Critical Success Factors for Public-Private Partnership in Water Supply Projects | Ameyaw & Chan (2016) | Quantitative |
| 4. | Infrastructure Development by Public-Private Partnership in Indonesia: A Systematic Literature Review | Mandasari & Wahyuni (2019) | Qualitative |
| 5. | Critical Success Factors for Implementing PPP Infrastructure Projects in Developing Countries: The Case of Vietnam | Hai et al. (2022) | Quantitative |
| 6. | Critical Success Factors in Public-Private Partnerships | Mulyani (2021) | Qualitative |
| 7. | The Success Factors of Public-Private Partnership Implementation for Infrastructure Development: New Evidence from the Indonesian Experience | Priyarsono et al. (2019) | Quantitative |
| 8. | Critical Success Factors in Public-Private-Partnership Projects in Nigeria: A Perceptual Survey | Dada & Oladokun (2012) | Quantitative |
| 9. | Exploring Critical Success Factors for Public-Private Partnership Case Study: The Educational Sector in Egypt | Helmy et al. (2020) | Quantitative |
| 10. | Factors Contributing to Successful Public-Private Partnership Projects: Comparing Hong Kong with Australia and The United Kingdom | Cheung et al. (2012). | Quantitative |

Source: processed data