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Analysis of Project Budget Plan with Public Private Partnership Through Availability Payment (Case Study: Sumadra-Bungbulang Road, Garut Regency)

Analisis Rencana Anggaran Proyek Kerjasama Pemerintah Swasta Melalui Availability Payment (Studi Kasus: Jalan Sumadra-Bungbulang Kabupaten Garut)

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Abstract

Investing in road infrastructure can stimulate economic growth and provide support for various developments. To ensure success, it is crucial to allocate funds based on technical calculations and specifications. This article focuses on budget planning for the Sumadra-Bungbulang road infrastructure project using the Public-Private Partnership model as a potential solution to achieve infrastructure goals. Budget calculations show a positive NPV and a Payback Period that meets the concession deadline. Additionally, the IRR target of 12% agreed upon by public and private institutions is also achieved. Therefore, the proposal for the road project through Public-Private Partnership is worthy of consideration by the West Java Governor for short-list or long-list selection.

Keywords: Public-Private Partnership; Payback Period; IRR

Abstrak

Berinvestasi dalam infrastruktur jalan dapat mendorong pertumbuhan ekonomi dan mendukung berbagai pembangunan. Untuk memastikan kesuksesan, sangat penting untuk mengalokasikan dana berdasarkan perhitungan dan spesifikasi teknis. Artikel ini berfokus pada perencanaan anggaran proyek infrastruktur jalan Sumadra-Bungbulang dengan menggunakan model Public-Private Partnership sebagai solusi potensial untuk mencapai tujuan infrastruktur. Perhitungan anggaran menunjukkan NPV positif dan Payback Period yang memenuhi batas waktu konsesi. Selain itu, target IRR sebesar 12% yang disepakati oleh lembaga publik dan swasta juga tercapai. Oleh karena itu, usulan proyek jalan melalui Public-Private Partnership layak dipertimbangkan oleh Gubernur Jawa Barat untuk seleksi short list atau long list.

Kata kunci: *Kemitraan Publik-Swasta; Payback Period; IRR*

INTRODUCTION

Regional development refers to the transfer of central government responsibilities to the regional government, as stipulated in article 258 section 2 of the 2014 Constitution on Regional Government. This law suggests that a regional government that develops its area by taking into account the unique characteristics and potential of the area is fulfilling its responsibilities. Regional development is closely linked to the framework of national development and should support the country's goals (Šabić & Vujadinović, 2017). Therefore, regional development should be aligned with the target of national development in order to achieve the country's overall objectives (Pratiwi & Susiyanto, 2021).

To initiate regional development, it is essential to establish a schedule to indicate the start of the development plan cycle (UN, 2018). According to Article 260 Section (1) of Constitution Number 23 of 2014, the regional administration is authorized to establish a regional development plan within the framework of the national development plan. As a result, the regional government has the duty to create a 20-year-long-term regional plan schedule, a 5-year mid-term regional plan schedule, and an annual regional working plan in accordance with the procedures laid out in

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the constitution (Republic of Indonesia, 2020).

The mid-term regional plan is a written statement that presents the governor's vision, mission, and specific programs in detail. It includes the objectives, goals, strategies, policies, regional development, and budget plan for a 5-year period, as well as programs for regional and inter-regional apparatus, along with their respective budgeting frameworks (Adicipta & Kharisma, 2019). The plan is created following the guidelines of both the West Java Province's 2018-2023 mid-term regional plan and the national mid-term plan. This guarantees that the governor's vision, mission, and crucial programs align with the broader goals of the region's mid-term regional plan (Sulastri & Radiyana, 2020), and that all regional apparatus must comply with their respective responsibilities.

In 2017, the vehicle tax contributed approximately IDR 2.2 trillion to the locally-generated revenue of West Java Province (Hartanto & Sugiharti, 2019). Meanwhile, the budget allocation for road infrastructure from the regional expenditure was about IDR 982.1 billion, which accounts for 44.49% of the total vehicle tax amount. From this information, it can be concluded that the revenue from vehicle tax contributed by road users is greater than the cost of maintaining road infrastructure. This highlights the importance of road infrastructure as a vital part of the locally-generated revenue (Yusupov, 2020). It is also important to note that maintaining the road infrastructure requires a significant budget due to the increasing number of road users and their satisfaction levels.

From the above statement, it can be deduced that the limitations of budgeting can be addressed through the implementation of public-private partnerships. This article will focus on discussing the budget plan for road infrastructure in West Java Province, particularly for the Sumadra-Bungbulang road, which is based on the mid-term regional plan from 2018 to 2023, using public-private partnerships. The availability payment method will also be utilized in this budgeting plan.

Some possible implications of this research could include: (1) Improved understanding of the budgeting process for PPP projects: The analysis may provide insights into how the budget for PPP projects is planned and executed, including factors that affect the costs and revenues of the project (Monitor, 2020). (2) Enhanced decision-making regarding PPP projects: The research may help stakeholders in the public and private sectors to make informed decisions about the feasibility and desirability of using a PPP model for infrastructure projects (Selim & ElGohary, 2020), taking into account the risks and benefits associated with the availability payment mechanism. (3) Potential for better project outcomes: By analyzing the use of PPPs with availability payments, the research may identify ways to optimize project outcomes (Shi et al., 2020), such as by reducing costs, improving quality, and increasing efficiency. (4) Greater accountability and transparency: The analysis may highlight the importance of accountability and transparency in PPP projects, including the need for effective monitoring and evaluation mechanisms to ensure that the public interest is protected and that private sector partners are held accountable for their performance (Benefits, 2018).

Implications for public finances: The research may shed light on the potential impact of PPP projects on public finances (Ma et al., 2020), including the risks and benefits of using off-balance sheet financing arrangements and the need for careful cost-benefit analysis and risk assessment.

RESEARCH METHODS

There are two methods utilized in this research:

1. Literature Review
   The first method is conducting a literature review to obtain precise data related to the research problem, policies, and theoretical foundations (Snyder, 2019) of Public-Private Partnership (PPP). The purpose of this method is to provide appropriate recommendations for similar partnership models (Xue et al., 2020).
2. Qualitative Methodology
   A qualitative approach is a research methodology used to study natural objects, where the researcher is the primary instrument, and data collection is done through triangulation (Guanabara et al., n.d.). The results of a qualitative

approach tend to focus on interpretation rather than generalization. Therefore, it can be inferred that the qualitative methodology used in this research is a qualitative case study.

The analysis process will be more focused on answering the research questions (Elo et al., 2014), and the data used will only be quantifiable data from Sumadra-Bungbulang road infrastructure in Area IV of the Department of Highways (Dinas Bina Marga) in West Java.

Data Collection Technique

To address the research question (Arsyad et al., 2018), this study relies on secondary data from various sources, such as historical records obtained from the Department of Highways and Spatial Planning in West Java Province, relevant books and references, journals, and previous research (Dash, 2017). The data collected pertains to the technical details of roads, the budget allocation for road maintenance between 2014 and 2019, an inventory of road conditions, and predictions regarding the Sumadra-Bungbulang Road project. This includes estimated costs and technical procedures for implementing PPP based on the AP published by the Ministry of Public Works and Public Housing.

PPP AP Project in Sumadra-Bungbulang Road

The PPP project for Sumadra-Bungbulang was initiated as part of the government's plan for developing the southern region of West Java Province, which included the construction of a road to support various activities in the area. However, due to funding limitations, the road project was not completed on time. The project is considered suitable for PPP as it meets the general criteria for such projects and has the potential to provide public infrastructure, economic, and social benefits to the community. Under the PPP model, the private company responsible for completing the project will not charge users for the resulting infrastructure, as the return on investment will not come from user fees.

The Sumadra-Bungbulang project is a partnership that involves the design, construction, financing, operation, and maintenance of the road, based on the mid-term regional plan for 2018-2023. Unlike other road projects, there is no need for land acquisition since this project focuses only on improving the road's structure, capacity, and user satisfaction. The goal of this project is to manage the Sumadra-Bungbulang road more efficiently. The project management simulation for the road will begin in 2020. To ensure a fair and transparent selection process, certain procedures will be followed when selecting the private company to work on the project

RESULT AND DISCUSSION

Design Procedure of PPP AP on Sumadra–Bungbulang Road

The PJPK proposed a PPP AP design based on the long-term regional plan to reach a tentative conclusion and option, with the aim of finding the best way to budget for the PPP project compared to using AP. The result of the PPP AP design is presented in the Introduction Study, which includes a budget plan and a fiscal ability study. It outlines the type, form, and service quality expected to be provided to the users.

The Ministry of Highways and Spatial Planning's handbook on APP AP outlines two distinct procedure designs: solicited and unsolicited. In the solicited procedure, the government initiates an infrastructure project and offers it to private institutions for a partnership program (Monoarfa, 2020). On the other hand, the unsolicited procedure involves private institutions initiating an infrastructure project and proposing it to the stakeholder. To propose the project, the private institution must meet the government's requirements and have established funding and good financial management (Allen et al., 2016).

To improve the quality of Sumadra-Bungbulang Road, the project will follow the solicited PPP AP procedure, which means that the private institution will gather the funding. The project will involve the regional government as the regulator, the responsible person of collaborate project (PJPK) as the decision-maker for the technical procedures, and the private institution as the stakeholder and executor of the PPP project.

Performance Indicators of PPP AP

When using the PPP AP procedure for the project, certain performance indicators need to be established beforehand. The design of a payment formula for PPP AP must consider specific factors, such as the availability indicator and working standards (International Labour Organization, 2013). The payment amount for workers in PPP AP will depend on the formula for measuring their performance. Objective, measurable, and realistic standards are necessary to define the availability indicator and service quality (Whiteing, 2003). The following are the performance indicators for AP, which will determine regular payment (Table 1).

The availability indicator refers to the provision of public services by the private institution responsible for the project (World Bank, 2014), including technical facilities, physical structures, systems, hardware, and software necessary to support service activities for the community and ensure smooth economic and social activities. The service indicator, on the other hand, relates to the quality of service provided by the private institution and must meet the requirements agreed upon in the initial agreement (European Commission, 2021).

Table 1. Performance indicator in the project

Name of Project	Availability Indicator	Service Indicator
Project of Sumadra – Bungbulang	The road management is in accordance with the agreement made between the government's representative unit organization and the private institution	Road condition (it can be improved, fixed, or maintained)

Source: Literature Review

Treatment that will be done on Sumadra-Bungbulang Road by Following PPP Mechanism

Determining the appropriate treatment for the Sumadra-Bungbulang road is crucial in order to calculate the funding allocation. The-

Table 2. A budget proposal for the maintenance of each part of the project

No	Km. Bdg. Start	KM. Bdg. End	Length (Meter)	Type of Treatment	Unit Price (Rp)	Cost (Rp)
1	100+840	101+300	460	Improvement Road (Hotmix)	3662873000	1684922
2	101+300	102+300	1000	Road Rehabilitation (Hotmix)	3662873000	3662873000
3	102+300	103+300	1000	Maintenance	86156000	86156000
4	103+300	105+300	2000	Maintenance	86156000	172312000
5	105+300	106+300	1000	Maintenance	86156000	86156000
6	106+300	114+300	7700	Improvement Road (Hotmix)	3662873000	28204122100
7	114+000	118+000	4000	Maintenance	86156000	344624000
8	118+000	123+000	5000	Improvement Road (Hotmix)	3662873000	18314365000
9	123+000	124+500	1500	Improvement Road (Hotmix)	3662873000	5494309500
10	124+500	126+000	1500	Improvement Road (Hotmix)	3662873000	5494309500
11	126+000	127+000	1000	Improvement Road (Hotmix)	3662873000	3662873000
12	127+000	128+000	1000	Maintenance	86156000	86156000
13	128+000	129+000	1000	Maintenance	86156000	86156000
14	129+000	134+830	5830	Improvement Road (Hotmix)	3662873000	21354549590
15	134+830	135+830	1000	Road Rehabilitation (Hotmix)	1699514000	1699514000
Ammount of Construction Cost						**88750160612**

Source: Analysis Result (2022)

Table 3. Data simulation of PPP AP calculation on Sumadra-Bungbulang road

Private Expenditure	Conscession Years									
	1	2	3	4	5	6	7	8	9	10
Capex	-4E+10	-6E+10								
Opex			-5E+09	-5E+09	-5E+09	-5E+09	-5E+09	-5E+09	-5E+09	-5E+09
APBD			3E+10	3E+10	3E+10	3E+10	2,6E+10	2,6E+10	3E+10	2,6E+10
Amount	-4E+10	-6E+10	2E+10	2E+10	2E+10	2E+10	2,1E+10	2,1E+10	2E+10	2,1E+10
DF (Discount Factor)	0,907	0,822	0,745	0,676	0,613	0,555	0,503	0,456	0,414	0,375
PV Amount	-4E+10	-5E+10	2E+10	1E+10	1E+10	1E+10	1,1E+10	9,6E+09	9E+09	7,9E+09
Cash Flow	-4E+10	-6E+10	2E+10	2E+10	2E+10	2E+10	2,1E+10	2,1E+10	2E+10	2,1E+10
Profit (+) or Deficit (-)	-4E+10	-1E+11	-8E+10	-4E+10	-4E+10	-2E+10	5,6E+09	2,7E+10	5E+09	6,9E+10

Information (Man, 2003):

$$Ammount = Capex + Opex + APBD$$

$$Discount\ Factor\ (DF)\ n\ year = \frac{1}{(1+interest\ rate)^n}$$

$$PV\ Ammount = Ammount\ x\ DF$$

$$NPV = PV\ 1st\ year + PV\ 2nd\ year + PV\ n\ year$$

chosen treatments for the road segments are based on historical maintenance data, despite the current condition of the road being taken into consideration (Irfan Rifai et al., 2018). It is important to re-examine the historical data to ensure that the same treatment is still suitable for the road, rather than solely focusing on improving its quality (ADB, 2012).

Table 2 shown the actions that have been implemented on each part of the Sumadra-Bungbulang road, considering historical data until the third quarter of 2019.

Maintenance and Operational Management of Project Simulation by Using PPP-AP

Table 4 provides a simulation of how maintenance and operational management of Sumadra-Bungbulang Road will be carried out using A Budget Plan PPP AP.

This simulation assumes that the private party will receive an annual flat payment for the maintenance and operation of Sumadra-Bungbulang Road. The payment will be made eight times within a 10-year period. The assumed IRR (Internal Rate of Return) is 12%. Therefore, the government will be responsible for paying the remaining flat payment of IDR. 25982533270/year during the concession time. Table 3 provides a detailed description of this payment plan.

Table 4. Data simulation of PPP AP calculation

Road Project of Sumadra-Bungbulang	
Construction Cost (Rp)	90433397270
Profit (10%) (Rp)	43339727
Constructions Cost+Profit (Rp)	99476736997
Conscession (Include Construction) (Years)	10
Construction (Years)	2
Operational and Maintenance	Every years (during cooperation)
Operational and Maintenance Cost	5% of Construction Cost
Interest Rate	10,30%

Simulation of Construction Cost Calculation

The assumption made is that the construction progress will be 40% in the first year (2020) and 60% in the second year (2021). In terms of the actual cost, this equates to IDR. 39790694799 and IDR. 59686042198 respectively. These numbers align with the simulation data shown in Table 4.5, where the construction cost plus profit comes to a total of IDR. 99476736997 after absorbing some costs.

Operational Cost (O) and Maintenance Cost (M)

The O and M (Operation and Maintenance) cost is determined by the agreement, which is set at 5% of the construction cost plus profit. Therefore, for each year during the 8 out of 10

concession years, the M cost will be IDR. 4,973,836,850. Over the entire concession period, the total O and M cost will be IDR. 39790694799. The O and M cost will be incurred from the 3rd year to the 10th year, which corresponds to the period from 2022 to 2029.

The cash flow simulation reveals the payback period for the private party involved in the Sumadra-Bungbulang road project, which will occur in the 7th year of the concession. This seems reasonable since all expenses will have been covered by the regional government's expenditure budget (APBD) by that year. The Net Present Value (NPV) for the project is IDR. 5992896132; indicating a positive value (NPV > 0) and meaning that the income generated is greater than the investment made (Riskiya, et al, 2020). Conversely, if the NPV = 0, it signifies that the investment only breaks even without any profit or loss (Ouyang & Wan, 2023).

CONCLUSION

To summarize, the Sumadra-Bungbulang road project in the Area IV Department of Highways was completed through a PPP AP budget plan using the solicited procedure, as the government offered the project to private institutions for a partnership.

The complete payment for the project is established through an annual assessment of performance that takes into account both the service indicators and availability. Since the Sumadra-Bungbulang Road is not classified as a highway, the availability indicator is determined based on the agreed-upon handling procedures, while the condition of the road during the concession period is used to evaluate the service indicator.

The budget plan for PPP AP is a tactic to expedite the development of government assets, where both public and private institutions are involved for a specified duration. Although the private institution is responsible for executing this type of development, the public institution (acting as the government representative) remains accountable for the project as the coordinator of PPP.

The agreed IRR of 12% between the public and private institutions for a 10-year concession period means that the regional government must allocate IDR. 25982533270 per year from the regional expenditure budget for 8 out of the 10 years of the concession period for the Sumadra-Bungbulang Road infrastructure project, which is 34.990 km long.

The Sumadra-Bungbulang Road infrastructure project is expected to have a payback period of 7 years out of the 10 years of concession time. Additionally, the Net Present Value (NPV) of the project is positive at IDR. 5992896132, indicating that the income from the project will be greater than the investment.

The use of PPP AP budgeting plan for the Sumadra-Bungbulang Road infrastructure project is considered appropriate and beneficial.

Following the analysis process, some recommendations have been made that may prove helpful. (1) The proposal for the Sumadra-Bungbulang Road infrastructure project, which utilized the PPP AP budgeting plan, should be presented with technical calculation considerations that were analyzed and submitted to the West Java Province Government through Bappeda. The proposal should then be further scrutinized by the PPP reviewer as either shortlisted or longlisted; (2) For more precise results, it is advisable to employ data with interest to avoid relying solely on assumptions.

DECLARATION OF COMPETING INTEREST

The authors state that they have no conflicts of interest related to the contents of this work, either financial or otherwise.

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