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Article

The implementation of ijarah muntahiyah bittamlik in infrastructure project financing within the public-private partnership models: A collaborative governance perspective

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Abstract: This paper investigates the implementation of ijarah muntahiyah bittamlik (IMBT) as an infrastructure project financing scheme within the Public-Private Partnership (PPP) models from a collaborative governance perspective. This paper follows a case study methodology. It focuses on two Indonesian non-toll road infrastructure projects, i.e., the preservation of the East Sumatra Highway projects, each in South Sumatra province and Riau province. The findings revealed that Indonesia's infrastructure development priorities and its vision to become a global leader in Islamic finance characterized the system context that shaped the implementation of IMBT as an infrastructure project financing scheme within the PPP-AP model. Key drivers include leadership from the government, stakeholder interdependence, and financial incentives for the partnering business entity to adopt off-balance sheet solutions. Principled engagement, shared motivation, and the capacity for joint action characterized the collaboration dynamics, leading to detailed collaborative actions crucial for implementing IMBT as a financing scheme.

Keywords: IMBT; infrastructure project; public-private partnership; availability payment; PPP-AP; collaborative governance

1. Introduction

Infrastructure development is essential. Better infrastructure provides people with better access to services, such as education, healthcare, and sanitation (Dixon and Grannis, 2020; Idei et al., 2020; Taylor et al., 2015). Better infrastructure enhances connectivity within a country, increasing access to resources, markets, and business opportunities (Kebede, 2024; Saygılı and Özdemir, 2021; Wan et al., 2022). Better infrastructure also enhances productivity and efficiency, strengthening the competitiveness of a country in the global market (Coşar and Demir, 2016; Meng et al., 2024; Park, 2020).

Despite its essential nature, many developing countries struggle with infrastructure development (Estache et al., 2015; Ferrari et al., 2016; Lu and Wilson, 2024). Limited government revenue, high public debt, and restricted access to international credit markets often hinder the ability of developing countries to invest in large-scale infrastructure projects. To address these challenges, governments increasingly turn to the Public-Private Partnership (PPP) models, whereby a public sector agency and one or more partnering private business entities agree to share resources and invest in infrastructure projects.

The PPP models are characterized by several key features (Kwak et al., 2009; Sarmento and Renneboog, 2016; Vecchi et al., 2021). They typically entail medium- to long-term agreements involving private capital investment, either exclusively or in conjunction with public funds. Medium- to long-term agreements allow for a stable and extended timeframe for project execution, while private capital investments provide a diverse reservoir of financial resources to support the project. The PPP models also typically entail allocating risks between public and private stakeholders, ensuring that both parties are accountable.

There are at least two models of PPP (Farquharson et al., 2011; Sarmento and Renneboog, 2016; Vecchi et al., 2021). The first model refers to the model in which the revenues of the business entities partnering with a public sector agency come from end-user charges. The second model is the availability payment (PPP-AP) model, in which business entities' revenues come from payments made by the public sector agency based on the availability of the infrastructure.

It is common practice for business entities that partner with a public sector agency within the PPP-AP model to finance their infrastructure projects using external financing. External financing, from one point of view, enables business entities to undertake larger infrastructure projects and mitigate financial risks via diverse capital sources. From another point of view, the PPP-AP model provides business entities with predictable income, improving their creditworthiness (Dochia and Parker, 2009; Lawther and Martin, 2014). While such external financing has traditionally been implemented using conventional financing schemes, the growing Islamic banking industry offers alternative financing schemes that comply with Islamic principles. It has been argued that compliance with Islamic principles is crucial for businesses in Muslim-populated countries, not only to better align with the religious and cultural expectations of the population but also to enhance the effectiveness of business strategies. This is closely tied to the distinctive characteristics of Islamic finance, which is rooted in ethical values, social responsibility, and adherence to Shariah principles. These principles include the prohibition of riba (interest), gharar (excessive uncertainty), and investment in unlawful (haram) activities. Additionally, Islamic finance encourages risk-sharing and the equitable distribution of profits and losses. This aligns with ethical standards within the framework of social responsibility and sustainable development (Franzoni and Allali, 2018; Gunardi et al., 2022). Furthermore, the concept of maslahah mursalah (unrestricted benefit) guides investment decisions toward generating optimal returns while maintaining compliance with Islamic principles (Rizaldy and Ahmed, 2019). Collectively, these principles foster a financial system that prioritizes ethical considerations and social welfare over mere profit maximization, reflecting a holistic financial approach in line with Islamic teachings.

The literature has extensively examined the use of PPP models in infrastructure project financing. There are now studies highlighting the significance of PPP models for infrastructure development (Almeile et al., 2024; Biygautane and Clegg, 2024; Ma et al., 2023). There are also studies focusing on persistent challenges related to PPP, such as risk management, governance complexities, and stakeholder relationships (Batjargal and Zhang, 2021; Jayasuriya et al., 2019; Rybnicek et al., 2020). Similarly, extensive documentation exists on the use of Islamic schemes in business in general,

with numerous studies exploring the effectiveness of Islamic schemes in reducing risks, promoting economic growth, and addressing social inequities (Grira and Labidi, 2021; Kuanova et al., 2021; Maulina et al., 2023).

Nonetheless, the number of studies examining the use of Islamic schemes in infrastructure project financing remains limited. The World Bank (2017) provides recommendations to improve the utilization of Islamic initiatives in infrastructure development. Biancone and Radwan (2018) evaluate a variety of Islamic financing instruments and summarize their application in utility infrastructure projects. A study by Imaduddin and Kassim (2023) uses institutional and value chain theories to examine the problems associated with implementing Islamic financing in PPP infrastructure projects in Indonesia. Most recently, using in-depth interview data, Sulistyowarno et al. (2024) assess the feasibility of ijarah muntahiyah bittamlik (IMBT)—A lease scheme that facilitates the transfer of ownership of an object being leased after the lease expires—as an infrastructure project financing scheme within the PPP-AP model. These authors also highlight the advantages and disadvantages of IMBT, as well as the prerequisites and critical factors relevant to its successful use.

This paper aims to further analyze the use of Islamic schemes in infrastructure project financing. It specifically examines the implementation of IMBT as an infrastructure project financing scheme within the PPP-AP model from a collaborative governance perspective. Emerson et al. (2012)'s integrative framework is employed in this paper to look at the system context, key drivers, collaboration dynamics, and collaborative actions between public sector agencies, business entities, and financial institutions during the implementation of the infrastructure project financing scheme. The methodology in this paper is a case study focusing on two pioneering non-toll road projects in Indonesia.

This study is structured as follows: the first section presents the introduction, while the second section, the literature review, examines the use of Public-Private Partnerships (PPP) for infrastructure project financing through the IMBT scheme, using collaborative governance as the analytical framework. The third section covers the research methods and data collection. This is followed by the fourth section, which discusses the findings and analysis. Here, the implementation of IMBT within PPP-AP infrastructure financing is explored, including the contextual system, key drivers of IMBT implementation, collaboration dynamics, and collaborative actions. Finally, the concluding section addresses the conclusion, implications, contributions, and limitations of this article.

2. Literature review

2.1. PPP in infrastructure project financing and the use of IMBT

Public-Private Partnerships (PPP) represent a collaborative framework between the government and the private sector aimed at delivering public services or developing infrastructure. PPP is characterized by the sharing of responsibilities, risks, and benefits, and seeks to leverage the strengths of both sectors to achieve objectives that might be difficult for individual stakeholders to accomplish independently. Several key aspects of PPP include: (1) Sharing of risks and responsibilities. A fundamental feature of PPP is the equitable distribution of risks between the public

and private sectors according to their respective capacities. These risks may include financial, construction, operational, or market risks. This allocation is designed to ensure that risks are borne by the party most capable of managing them (Osei-Kyei and Chan, 2015). Additionally, responsibilities are divided based on the strengths of each party. Proper distribution of responsibilities in PPP can enhance operational efficiency, reduce financial burdens, and increase project success rates (Chan et al., 2008); (2) Regulatory certainty is critical in providing confidence by clearly defining rights, obligations, and oversight mechanisms, which are essential for mitigating risks (Diaz, 2017); (3) Long-term collaboration offers various benefits, such as enhancing project impact, increasing stakeholder engagement, and fostering innovative solutions. The success of such long-term collaboration is influenced by trust, shared goals, and effective communication (Bloomfield, 2006).

Broadly, PPPs are categorized into two payment mechanisms: user charge and availability payment (PPP-AP) (Farquharson et al., 2011; Sarmento and Renneboog, 2016; Vecchi et al., 2021). In the PPP user charge model, fees are collected directly from users, making it more suitable for infrastructure projects with predictable and stable user bases. While the PPP-AP model is appropriate for infrastructure projects that do not generate direct revenue or generate direct revenue but have uncertain demand. Rather than pursuing revenue generation, business entities partnering with a public sector agency within the PPP-AP model need only to focus on the availability of the infrastructure they provide and meet certain pre-specified standards (Dochia and Parker, 2009; Lawther and Martin, 2014).

For governments, the PPP-AP model offers several advantages. It improves life cycle cost benefits by incentivizing the private sector to use higher-quality materials that reduce long-term maintenance costs. The PPP-AP model also enhances delivery certainty, as payments depend on the asset's availability. Additionally, the PPP-AP model transfers construction and maintenance cost risks to the private sector. Lastly, the PPP-AP model allows for greater design flexibility, enabling innovative solutions through output-based specifications (Seliga et al., 2011; Sharma and Cui, 2012). However, O'Toole (2022) reminds that the PPP-AP model transfers the risk from the private to the public sector for demand shortfalls. This transfer places a financial burden on governments and can be abused to bypass legal debt limits.

The PPP-AP model usually involves a structure where business entities partnering with a public sector agency establish a special purpose vehicle (SPV). This SPV is responsible for designing, building, financing, operating, maintaining, and transferring the infrastructure over a predetermined period. During this period, the SPV receives regular payments from the public sector agency, designed to cover construction costs, operational costs, and risk premiums that are determined ex-ante. Once the contract is completed, the SPV transfers ownership of the infrastructure to the public sector agency (ADB, 2008).

The establishment of the SPV can be funded either internally or externally. Internal funding typically comes from the business entities' internal reserves or equity. This funding has the advantage of giving business entities control and decision-making flexibility. However, it requires the business entities to bear all the financial risks. Meanwhile, external funding may come from banks, other financial institutions, or non-financial companies. External funding allows business entities to leverage their

investments through the SPV and mitigate financial risks. However, it reduces decision-making flexibility as the business entities may depend on their creditors or investors.

External funding that comes from banks or other financial institutions includes financing provided by Islamic banks or other financial institutions that comply with Islamic principles. The financing can be based on various Islamic contracts, such as mudarabah mutlaqah (unrestricted investment), mudarabah muqayyadah (restricted investment), and musharakah (joint venture) (Biancone and Radwan, 2018; Rarasati et al., 2014; The World Bank, 2017). A particularly relevant option for infrastructure projects under the PPP-AP model is IMBT.

IMBT—occasionally also called Islamic hire and purchase—is a hybrid contract that combines the element of leasing with either sale or gift (Abdullah and Hilmy, 2019; Fayyad, 2023; Lateef et al., 2017) In this contract, the lessor leases an asset to the lessee for a predetermined period, with lease payments agreed upon at the outset. If the lease payments over time are insufficient to cover the value of the leased asset, the transfer of ownership after the lease expires is settled through a sale. Conversely, if the lease payments over time are sufficient, the transfer of ownership after the lease expires is settled through a gift.

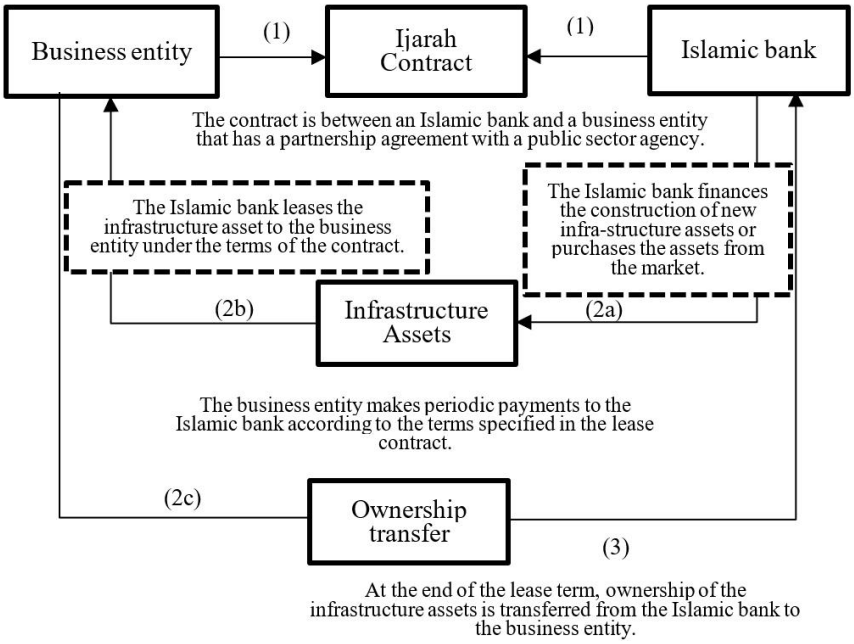

Figure 1. Diagram of IMBT financing implementation in PPP-AP infrastructure projects.

Figure 1 illustrates the implementation of IMBT as an infrastructure project financing scheme. The process begins with step (1), in which an Islamic bank and a business entity that is already in partnership with a public sector agency establish a contract. The contract specifies that the bank will finance a certain infrastructure project, hence acting as the owner of the project's assets. The contract also specifies that the bank will lease the assets to the business entity for a definite period and transfer the ownership of the assets at the end of the period. In step (2a), the bank finances the project by funding the construction of new infrastructure assets or purchasing the

assets from the market. In step (2b), the bank leases the assets to the business entity. This lease arrangement allows the business entity to use the assets to fulfill its PPP-AP contractual obligations with the public sector agency, i.e., ensuring the infrastructure's availability and meeting certain pre-specified standards. In step (2c), the business entity makes regular lease payments to the bank during the lease period. In step (3), the bank transfers ownership of the assets to the business entity through a sale or gift at the end of the lease period.

2.2. Collaborative governance as an analytical framework

Following Emerson et al. (2012) and Emerson and Ahn (2021), collaborative governance is defined as a system of public governance in which autonomous stakeholders work together across sectoral and institutional boundaries to achieve shared objectives. It is characterized by ongoing interactions between public, private, and civic actors who jointly make decisions and manage processes that affect collective outcomes. Collaborative governance is increasingly important in addressing challenges that require coordinated efforts (Agranoff, 2006; Bryson et al., 2006; Thomson and Perry, 2006).

Collaborative governance as an analytical framework consists of several key components: system context, key drivers, collaboration dynamics, and collaborative actions (Emerson and Ahn, 2021; Emerson et al., 2012). Each of these components is explained as follows:

- System context: System context refers to the external environment in which collaboration takes place, encompassing political, legal, socioeconomic, and cultural environments. These factors shape the opportunities and constraints for collaboration.
- Key drivers: drivers are the essential conditions that initiate and sustain collaborative governance. According to Emerson et al. (2012) and (2021), four key drivers typically motivate collaboration: leadership, consequential incentives, interdependence, and uncertainty. Leadership refers to the existence of a leader who is in a position to initiate and support a collaboration. Consequential incentives refer to internal or external reasons for collaborative action. Such incentives are consequential in that failure to pay attention to them can have severe consequences. Interdependence refers to the fact that individuals and organizations cannot accomplish something on their own. The fourth driver, uncertainty, refers to the idea that the state of being uncertain may motivate individuals and organizations to collaborate to minimize, disperse, and share risk.
- Collaboration dynamic: At the core of collaborative governance are collaboration dynamics, which consist of three interactive processes: principled engagement, shared motivation, and capacity for joint action (Emerson and Ahn, 2021; Emerson et al., 2012). Principled engagement involves open and inclusive dialogue, deliberation, and decision-making, where stakeholders come together to understand each other's perspectives and define shared objectives. Shared motivation includes trust, mutual understanding, and internal legitimacy, which are critical for sustaining collaboration. Capacity for joint action refers to the ability of stakeholders to mobilize expertise and resources in ways that support

coordinated efforts and collective outcomes.

- Collaborative action: Collaborative actions are the tangible outputs of the collaborative process designed to address the shared problem (Emerson and Ahn, 2021; Emerson et al., 2012). These actions lead to outcomes that should be consistent with the shared objectives.

It has been argued that collaborative governance as an analytical framework provides a structured way to understand how collaboration occurs and evolves. By examining the system context, key drivers, collaboration dynamics, and resulting actions, this framework offers valuable insights into the processes that enable diverse stakeholders to work together to achieve shared objectives (Agranoff, 2006; Ansell and Gash, 2008; Emerson et al., 2012).

One of the key critiques of collaborative governance as an analytical framework is the challenge of operationalizing its components in practice. While the framework provides a comprehensive model, applying it consistently across diverse governance settings can be problematic (Agranoff and McGuire, 2003; Ansell and Gash, 2008). The framework often assumes a high degree of stakeholder willingness to cooperate and idealizes the presence of trust, which may not always exist. The framework's emphasis on mutual understanding tends to underplay the structural power imbalances that may allow dominant actors to steer the collaborative process (Bodin, 2017; Purdy, 2012; Quick and Feldman, 2011).

This paper seeks to deepen the understanding of Islamic financing, specifically the IMBT scheme, for infrastructure projects within the PPP-AP model from a collaborative governance perspective. Using Emerson et al. (2012)'s framework, it examines the system context, key drivers, and collaborative dynamics among public agencies, private businesses, and financial institutions during the scheme's implementation.

3. Methods and data

This paper adopts a qualitative case study methodology to examine the system context, key drivers, collaboration dynamics, and collaborative actions between public sector agencies, business entities, and financial institutions during the implementation of IMBT as an infrastructure project financing scheme within the PPP-AP model. Using a case study methodology allows for an in-depth examination of how collaboration occurs and evolves, aligning with Emerson et al. (2012) integrative framework. A case study approach is also the most appropriate choice for this research, as it focuses on two of Indonesia's pioneering non-toll road infrastructure projects that combine the IMBT scheme with PPP-AP for infrastructure financing. Given the uniqueness of these projects, no comparable cases were available at the time this study was conducted. The first project is the preservation of the East Sumatra Highway project in South Sumatra province. The second project is the preservation of the East Sumatra Highway project in Riau province. In addition to their exemplary successful implementation of IMBT within the PPP-AP model, these projects provide valuable insights into the system context, key drivers, collaboration dynamics, and collaborative actions involved.

This paper employs a multi-method approach to data collection, including document analysis of internal company documents from PT JAA and PT AJR concerning the implementation of IMBT financing in the PPP-AP projects that serve as case studies for this research, as well as semi-structured interviews with 13 key participants, such as public sector officials, business entity representatives, and Islamic finance professionals from September 2023 to August 2024 (detailed information about the key participants is provided in **Table 1**). By combining these methods, this paper ensures robust and triangulated data on the implementation of IMBT as an infrastructure project financing scheme within the PPP-AP model. The interviews were conducted in person and have received ethical approval from the Universitas Gadjah Mada's Research Directorate. All interview participants have been provided with informed consent, ensuring they were fully aware of their rights.

Table 1. List of informants.

Institution	Position	Duration	Code of Informant
PT Jalintim Adhi Abipraya	Director (2022–present)	01:34:31	A1-01
	Finance Manager	01:20:24	A1-03
PT Adhi Jalintim Riau	Director (2021–2023)	00:50:29	A2-02
	Finance Manager	00:56:17	A2-03
PT Adhi Karya (Persero) Tbk	Senior Staff	01:05:55	A3-04
PT Adhi Persada Properti	Director of Finance and Risk Management	01:02:21	A4-01
Ministry of Public Works and Housing	Director of Implementation of Road and Bridge Infrastructure Financing, Directorate General of Infrastructure Financing	00:58:00	B1-01
Ministry of Finance	Head of Risk Mitigation Sub-Directorate	01:44:49	B2-01
	Head of Contract Management and Risk Mitigation Section	00:57:43	B2-02
Ministry of State Owned Enterprises	Assistant Deputy for Infrastructure Services	00:59:47	B3-01
	Middle Management of State Owned Enterprises	01:13:23	B3-02
The National Islamic Finance Committee	Deputy Director of Sharia Banking	01:52:52	B4-01
Sharia Bank of Indonesia	Arranger Risk Management	01:27:50	D1-02

The data analysis follows a thematic approach that integrates inductive and deductive methods. An initial inductive coding process is used to identify patterns related to system context, key drivers, collaborative dynamics, and collaborative actions in the implementation of IMBT as an infrastructure project financing scheme within the PPP-AP model. Similarly, deductive coding incorporates themes and sub-themes within Emerson et al. (2012)'s integrative framework.

4. Findings and discussion

The preservation of the East Sumatra Highway projects in South Sumatra and Riau provinces represent major infrastructure initiatives aimed at improving regional connectivity across Sumatra Island in 2022. These two projects also mark the earliest instance where IMBT is used as an infrastructure project financing scheme within the PPP-AP model. As noted by one source, "These two non-toll road projects are the first that utilized IMBT infrastructure project financing scheme within the PPP-AP model" (A2-02-10).

The first project, located in South Sumatra province, included preserving an 18.6-mile stretch of the East Sumatra Highway, constructing 14 bridges, and establishing two vehicle weighing stations. The Ministry of Public Works and Housing, through its Directorate General of Highways, oversaw this initiative, which involved a total capital expenditure of IDR 982.4 billion and an operational expenditure of IDR 422.3 billion. PT Adhi Karya was the partnering business entity through its SPV, PT Jalintim Adhi Abipraya. A consortium of Islamic financial institutions provided the financing for the project.

The second project, located in Riau province, included preserving a 26.7-mile stretch of the East Sumatra Highway, constructing four bridges, and establishing a vehicle weighing station. The Ministry of Public Works and Housing, through its Directorate General of Highways, oversaw this initiative, which involved a total capital expenditure of IDR 525.5 billion and operational expenditure of IDR 406.5 billion. PT Adhi Karya was the partnering business entity through its SPV, PT Adhi Jalintim Riau. A consortium of Islamic financial institutions that comprises Bank Syariah Indonesia and PT Sarana Multi Infrastruktur provided the financing for the project.

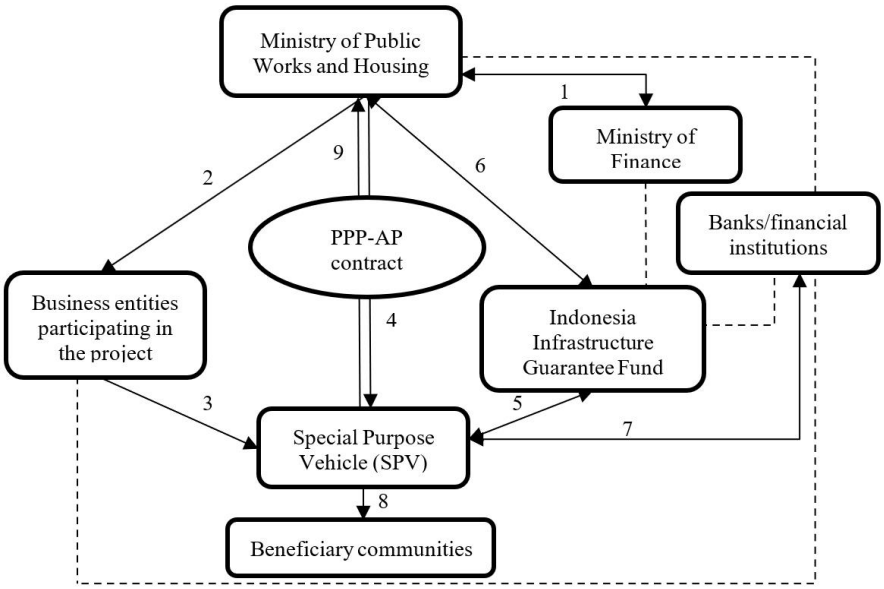

Figure 2. Collaborative governance in PPP-AP project.

In detail, the implementation of IMBT as a financing scheme within the PPP-AP model for these projects involved several stages as illustrated by **Figure 2**. The first stage began with the project's initiation by the Ministry of Public Works and Housing,

followed by discussions with the Ministry of Finance to address the budget. Subsequently, the Ministry of Public Works and Housing and the Ministry of Finance prepared the Pre-Feasibility Study document, covering cost-benefit assessment, risk allocation, financing structure, and cash flow estimates.

Through its Directorate General of Highways, the Ministry of Public Works and Housing conducted the project tender in the second stage. This tender involved multiple business entities competing to submit the most favorable proposal. As an informant (A4-01-10) noted, "PT Adhi Karya, as a business entity, participated in the tender and was subsequently selected as the winner."

Third, following the announcement of their successful bid, PT Adhi Karya established a subsidiary as the SPV. As an informant (A4-01-10) noted, "PT Adhi Karya does not directly enter into contracts with the Ministry of Public Works and Housing because the PPP law mandates the establishment of a new corporate entity."

Fourth, through its SPV, PT Adhi Karya established a contract with the Ministry of Public Works and Housing, specifically the Directorate General of Highways, in accordance with the PPP-AP model. Under the contract, PT Adhi Karya, through its SPV, is responsible for the infrastructure's design, construction, financing, operation, maintenance, and eventual transfer. In return, the Ministry of Public Works and Housing, through its Directorate General of Highways, commits to making regular availability payments, covering construction and operational costs as well as predetermined risk premiums. In detail, the contract covers various aspects, such as implementation guarantees, performance index assurance, financing and financial models, technical planning, operation and maintenance during the service period, payments, and handover procedures.

Fifth, PT Adhi Karya, through its SPV, established a guarantee arrangement with the Indonesia Infrastructure Guarantee Fund (IIGF). This arrangement outlines the terms for the scope and duration of the agreement, procedures for making claims, inspections, notification and payment of claims, defaults, and dispute resolution. Sixth, the IIGF, as the company providing a guarantee arrangement in the projects, entered a recourse agreement with the Ministry of Public Works and Housing through its Directorate General of Highways, which remains effective throughout the IIGF's guarantee to PT Adhi Karya through its SPV. Under this agreement, the Ministry ensured the IIGF's obligations were fulfilled.

Seventh, PT Adhi Karya, through its SPV, obtained financing from a consortium of Islamic financial institutions using the IMBT as a financing scheme. As one of the informants noted, "We offer this commitment to Islamic banks to confirm the certainty of the AP payment" (A2-03-25). Following negotiations between PT Adhi Karya through its SPV and the financial institutions, the funding process involved several phases, as described by an informant (A1-03-40): creating the construction budget, signing the contract between the SPV and selected construction contractors, formalizing the IMBT contract between the SPV and the financial institutions, tracking project progress, fulfilling lease payments, and, ultimately, transferring ownership to the SPV at the end of the lease.

Eighth, after securing external funds, PT Adhi Karya, through its SPV, completed the remaining processes. These include designing the project to meet the specifications and standards established by the Ministry of Public Works and Housing, particularly

through its Directorate General of Highways, supervising construction for quality and safety, ensuring uninterrupted financing, and maintaining the infrastructure throughout the concession period to meet service expectations.

Finally, once the concession period concludes, PT Adhi Karya, through its SPV, handed over project management responsibilities to the Ministry of Public Works and Housing, particularly through its Directorate General of Highways. The handover involved transferring tangible infrastructure, project documentation, and associated data, provided that the infrastructure is in satisfactory shape and adheres to the pre-established requirements.

4.1. The system context

The implementation of IMBT as a financing scheme within the PPP-AP model in the preservation of the East Sumatra Highway projects in South Sumatra and Riau provinces is shaped by Indonesia's political, legal, socioeconomic, and cultural landscape. Infrastructure development has been a key focus of the government's growth strategy, as outlined in the National Long-Term Development Plan (RPJPN) 2005–2025. Similarly, the Medium-Term Development Plan (RPJMN) 2020–2024 designates infrastructure as a pillar of economic advancement. However, fiscal constraints have driven the government to increasingly rely on public-private partnerships (PPP) to mobilize private sector investments.

In parallel, Indonesia's vision to become a global leader in Islamic finance has further shaped the external environment in which the implementation of IMBT as a financing scheme within the PPP-AP model occurs. An informant highlighted that the government's vision is reflected in efforts to strengthen regulations, develop the Islamic finance ecosystem, build human resource capacity, improve financial literacy, and enhance international collaboration (B4-01-55). Initiatives such as the Indonesian Islamic Economic Masterplan 2019–2024 outline the integration of Islamic principles into sectors like infrastructure, promoting schemes like IMBT. The Indonesian Islamic Banking Development Roadmap 2020–2025 further aims to strengthen the Islamic banking sector, facilitating its role in public infrastructure projects.

Indonesia's status as a country with the largest Muslim population has created a strong socioeconomic and cultural demand for Islamic financial products. One of the respondents noted that "this is influenced by psychological factors, which create a sense of comfort due to the services being aligned with Sharia principles" (A1-01-36). The growing public preference for financial instruments that align with Islamic values has expanded the scope of Islamic financing options in infrastructure projects, attracting both domestic and international financial institutions. These institutions are increasingly involved in financing infrastructure projects structured according to Islamic principles, which provide much-needed capital and adhere to the population's ethical and religious considerations.

4.2. Key drivers

Leadership by the Ministry of Public Works and Housing, through its Directorate General of Highways, was the primary key driver in the implementation of IMBT as a financing scheme for the preservation of the East Sumatra Highway projects in South

Sumatra and Riau provinces. This leadership created the essential conditions to initiate and sustain collaboration within the PPP-AP model between the public sector agency, the business entity, and financial institutions. One informant observed, "The Ministry of Public Works and Housing plays a crucial role in collaborative governance through its coordination, policy formulation, supervision, and leadership involving various stakeholders" (B1-01-27).

The various stakeholders' interdependence in implementing IMBT as a financing scheme for preserving the East Sumatra Highway projects in South Sumatra and Riau provinces was also an important key driver. An informant highlighted this mutual reliance: "The government needs businesses to execute projects and banks to provide funding. Conversely, businesses rely on government regulations, guarantees, and bank financing. Banks want to ensure the projects are economically viable and supported by the government and competent businesses" (B1-01-28). The interdependence fosters a collaborative environment in which each party's contribution is essential for the project's success. The PPP-AP model strengthens this interdependence by requiring PT Adhi Karya, through its SPV, to meet performance standards and timelines. At the same time, the Ministry of Public Works and Housing, through its Directorate General of Highways, ensures predictable cash flows through performance-based payments.

Further, the interview results show that consequential incentives also helped create the conditions needed to initiate and sustain collaboration in implementing IMBT as a financing scheme for the preservation of the East Sumatra Highway projects in South Sumatra and Riau provinces. As explained by one informant, "The decision to use IMBT rather than traditional financing methods was driven by the SPV's financial state, which no longer allowed for additional debt, thus necessitating an off-balance sheet solution" (D1-02-01).

Uncertainty, another typical driver found in previous studies (Emerson et al., 2012; Emerson and Ahn, 2021), did not play a significant role in the creation of the essential conditions to initiate and sustain the collaboration. No informant seemed to have placed emphasis on this key driver.

4.3. Collaboration dynamics

The three typical processes known as the core of collaboration dynamics in previous studies (Emerson et al., 2012; Emerson and Ahn, 2021)—principled engagement, shared motivation, and capacity for joint action—underpinned the successful implementation of IMBT as a financing scheme for the preservation of the East Sumatra Highway projects in South Sumatra and Riau provinces. These processes facilitate effective collaboration within the PPP-AP model.

Principled engagement between the public sector agency, the business entity, and financial institutions, which involves open and inclusive dialogue, deliberation, and decision-making, leads these stakeholders to come together to understand each other's perspectives and define shared objectives. As one informant noted, "The process of decision-making involved extensive dialogue, ensuring that every stakeholder had a voice and that the financial, operational, and ethical considerations were fully understood and agreed upon" (B2-01-30). The open dialogue among stakeholders

allows them to express their interests and expectations, whether related to financial aspects, operational efficiency, or adherence to ethical and religious principles. In this way, principled engagement fosters effective collaboration among stakeholders. These findings validate the theory proposed by Emerson et al. (2012) and Emerson and Ahn (2021), demonstrating that stakeholder engagement is crucial in understanding shared interests to ensure the successful implementation of innovative financial schemes like IMBT in infrastructure project financing. This alignment also underscores the importance of promoting open communication and inclusive decision-making processes.

The shared motivation between the public sector agency, the business entity, and financial institutions, which includes trust, mutual understanding, and internal legitimacy, sustained the collaboration (Emerson et al., 2012; Emerson and Ahn, 2021). It helped foster a collaborative spirit and long-term commitment from all parties throughout the project lifecycle. An informant emphasized, "The shared motivation was established early on, particularly because of the mutual benefits—business entities gained access to reliable financing, while Islamic banks saw the opportunity to support Sharia-compliant infrastructure development" (B3-02-10). Shared motivation plays a crucial role in fostering a collaborative spirit by establishing a common purpose and long-term commitment among stakeholders (Adler and Heckscher, 2018; Schneider and Weber, 2013).

The capacity for joint action, i.e., the ability of the public sector agency, the business entity, and financial institutions to mobilize expertise and resources in a coordinated manner, further determines the implementation of IMBT as a financing scheme. Through its Directorate General of Highways, the Ministry of Public Works and Housing secured regulatory compliance, necessary permits, and oversight for efficient project progress. PT Adhi Karya, through its SPV, as the business entity, mobilized its expertise and resources to deal with the technical details of the projects. The financial institutions provide the necessary funding. As an informant noted (B2-02-27), these actions ensure that the projects were completed on time, within budget, and in accordance with the required standards. Thus, these findings illustrate how the capacity for joint action operates in practice, reinforcing the theoretical framework proposed by Emerson et al. (2012) and Emerson and Ahn (2021). They demonstrate that when stakeholders effectively coordinate and leverage their unique capacities, collaborative governance can lead to successful project implementation that meets both economic objectives and socio-cultural expectations.

4.4. Collaboration actions

The collaboration dynamics above resulted in collaborative actions instrumental for the implementation of IMBT as a financing scheme for the East Sumatra Highway projects in the South Sumatra and Riau provinces. Through its Directorate General of Highways, the Ministry of Public Works and Housing initiated the projects, prepared a Pre-feasibility study, conducted a tender process, secured regulatory approvals, and facilitated land acquisition (A3-04-06). The Ministry also provided oversight until the final handover of the corresponding infrastructure assets. The collaborative actions taken not only address shared challenges but also strengthen relationships among

stakeholders, thereby creating a foundation for future collaboration. This aligns with the theory of Emerson et al. (2012) and Emerson and Ahn (2021), which posits that collaborative action is central to effective collaborative governance, producing outcomes that align with shared objectives and delivering collective benefits to all parties involved.

PT Adhi Karya, through its SPV, PT Jalintim Adhi Abipraya or PT Adhi Jalintim Riau, managed the project operations, mobilized its expertise and resources for the design, construction, and maintenance of the projects, and handled the final hand to the public sector agency upon the completion of the projects (B3-01-02). This business entity also secured financing from Islamic financial institutions through the IMBT as a financing scheme. PT Adhi Karya's actions demonstrate that their focus extends beyond merely addressing technical and operational issues in infrastructure projects; they also ensure compliance with Shariah-compliant financing, which is a crucial element of the stakeholders' shared objectives. This underscores that through coordinated and purposeful collaborative actions, common goals can be effectively achieved within the framework of collaborative governance.

The Islamic financial institutions established contracts with PT Adhi Karya through its SPV and provided financing based on Islamic principles (D1-02-01). Their financing support ensured a predictable cash flow for the projects and aligned with the performance-based payment model of the PPP-AP model, reinforcing the financial viability and stability of the projects. The collaborative actions taken by the Islamid banking sector not only address the financial aspects but also meet socio-religious expectations, ensuring the financial sustainability of the project while enhancing its efficiency and effectiveness. This demonstrates that the role of Islamic banks in collaboration goes beyond merely providing funds; they also serve as strategic partners who understand and support the shared vision. These findings reaffirm that through effective collaborative action, stakeholders can achieve collective outcomes that meet the needs and expectations of all parties involved.

5. Conclusion

This paper investigates the implementation of IMBT as an infrastructure project financing scheme within the PPP-AP model, particularly from the lens of collaborative governance. Based on a case study focused on two non-toll road infrastructure projects in Indonesia, it can be concluded that Indonesia's infrastructure development priorities and its vision to become a global leader in Islamic finance characterized the system context. Key drivers include leadership from the Ministry of Public Works and Housing through its Directorate General of Highways, stakeholder interdependence, and financial incentives for the partnering business entity to adopt off-balance sheet solutions. Principled engagement, shared motivation, and the capacity for joint action characterized the collaboration dynamics, leading to detailed collaborative actions crucial for implementing IMBT as a financing scheme.

This paper offers theoretical and practical implications. Theoretically, this paper advances the understanding of infrastructure project financing by illustrating how IMBT can be implemented within the PPP-AP model. It adds a new dimension to the scope of the public-private partnership while contributing to the evolving discourse on

collaborative governance and expanding its application to an infrastructure project financing context. On a practical level, the paper provides actionable insights for policymakers in Muslim-majority countries. It demonstrates the practicality of an alternative financing pathway within the PPP-AP model that caters to fiscal constraints and socio-religious expectations, particularly through enhanced stakeholder collaboration. These findings also highlight the importance of developing a regulatory framework and supportive ecosystem for Islamic finance to attract investment and enhance financial literacy.

This paper contributes to the existing literature in three ways. First, it expands the studies on the PPP models, particularly PPP-AP. This paper is different as it focuses on externally financed projects. Second, while this paper builds on prior studies examining the use of Islamic schemes in infrastructure project financing, this paper is the first to examine the implementation of IMBT within the PPP-AP model from a collaborative governance perspective. Third, this paper adds to the literature on collaborative governance. While many studies have empirically examined collaborative governance in different contexts, none of them examines collaborative governance in the context of infrastructure project financing.

Despite encouraging results and contributions, this paper has drawbacks. The methodology used in this paper is a qualitative case study. Therefore, the results may not be generalizable. Future studies should involve more projects from different areas and industries. Future studies might also examine the long-term consequences of implementing IMBT within the PPP-AP model, in general, or from a collaborative governance perspective, on project sustainability, financial performance, and stakeholder satisfaction.

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