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ISLAMIC FINANCE AS A NATURAL OPTION FOR INFRASTRUCTURE PROJECTS

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Abstract. *This paper aims to shed light on the role of Islamic finance in funding infrastructure projects, which require significant financial resources for their creation and implementation. Islamic finance offers a viable solution to bridge the financial gap faced by countries when executing such projects. It provides various Islamic financing methods, including Sukuk, Murabaha, Ijarah, Istisna, Salam, and other innovative modern financial instruments available in the financial market. These methods serve as financing options for the private sector alongside the public sector. However, the application of Islamic finance faces several challenges, the most notable being the understanding of financial transactions, the capacity of Islamic financial institutions, and the behaviours and characteristics of investors.*

Keywords: *infrastructure; Public-Private Partnership; Islamic finance; Islamic Finance Sectors; Islamic Financing Methods.*

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Introduction

The infrastructure sector has become one of the essential indicators that reflect the extent of economic growth in countries, as it provides facilities for individuals in society to improve their living standards and opportunities that help economic investors in various fields, whether industrial or service-based production. Given its vital importance, there is a need to allocate significant funds to establish infrastructure projects at high costs. This has prompted many countries, especially developing nations, to search for new and innovative financing options to cover the funding gap and ensure the smooth progression of the developmental process while diversifying financial sources.

Given the challenges facing the public sector, such as weak public spending due to growing financial needs, the private sector has increasingly participated in financing infrastructure projects. According to international economic statistics, infrastructure financing needs have reached about 90 trillion dollars globally by the year 2030 (The Work bank Group, 2019).

Islamic finance has been proposed as a feasible solution as a result of the growth in its assets around the year, with the value of Islamic assets reached in 2023 according to the report of the Council of Islamic Financial Services for the year 2024 at about $3.38 trillion (IFSB, 2024). It also provides the financial market with financing products that are different from those granted from traditional customary financial institutions, especially since Islamic financing methods have met with widespread repercussions after the 2008 mortgage crisis, as a result of its ethical financial transactions derived from Islamic sharia law as one of its most important principles outlawing interest on loans. The following problems can be raised: How does Islamic finance contribute to financing infrastructure projects?

In order to be more familiar with this subject, we ask the following sub-questions:

•What is infrastructure and the most important tools learned in financing infrastructure projects?

•What is Islamic finance, what are the most important sectors of Islamic finance?

•What are the most important forms of Islamic financing suitable for infrastructure?

•What are the barriers to the implementation of Islamic finance to finance infrastructure projects?

The objectives of the study were to learn about the most important financing instruments used to finance infrastructure projects in the world, and to highlight the most important forms of Islamic financing that may contribute to financing infrastructure. What barriers impede the application of Islamic financing for financing infrastructure projects.

Results

Infrastructure Concept

Infrastructure or what is known as infrastructure is a prerequisite for the economic development and sustainability of States, given the benefits to the economy, which in turn are reflected in society through improved well-being of the population. Poor and lower-quality infrastructure hampers the growth of economic activity and reduces the quality of life in the country.

Infrastructure is defined as: long-term, spatially limited and capital-intensive assets with a long-term life cycle (Palei, 2015), with all citizens benefiting from these projects without exception, and infrastructure encompassing all basic business channels including schools; sanitation; public health services; rehabilitation of hospitals; roads; energy etc. (Liu etc., 2023), where these projects contribute to facilitating social and economic development and achieving a comprehensive renaissance in various fields. The impact of infrastructure on the economy, sector or area in itself varies to the type of infrastructure chosen on the basis of that country's policymakers decisions and the strategic economic directions established (Shen, 2023).

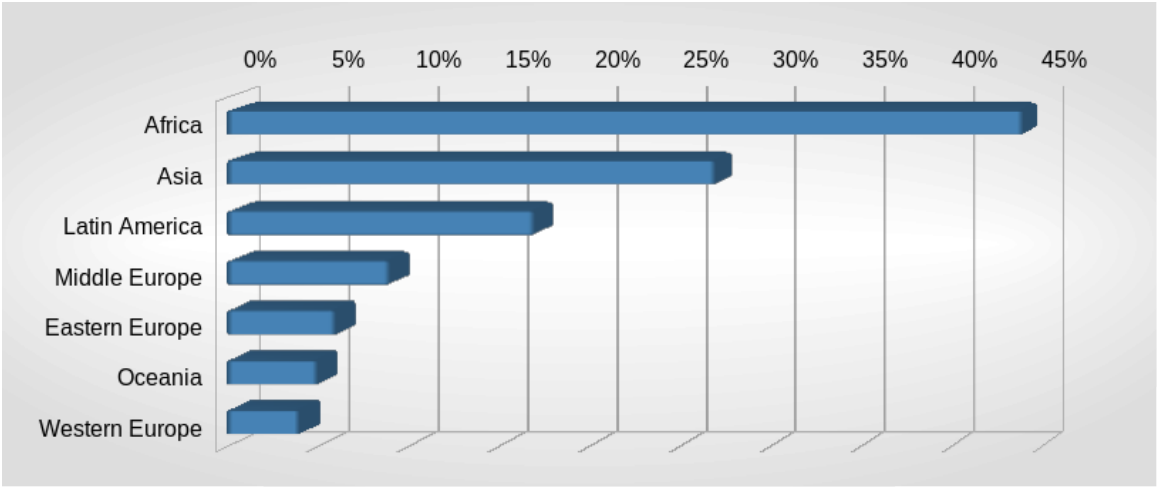

Figure 1. Proportion of infrastructure projects from total investment projects by region

Source: Prepared by the researcher (Hub Global Infrastructure, 2021)

African countries are among the most interested in such projects, with an estimated 44% of projects compared to other countries. The continent's acquisition of the largest share compared to the rest of the world is due to its delay in investing in such projects, similar to the rest of the world, creating poor infrastructure. This is due to a number of reasons, such as the crises and problems experienced in the past years, from the occupation, which plundered its wealth even after its formal independence and civil wars. The efforts made to rebuild their wealth, even after achieving nominal independence and facing wars, were hindered by corruption and political instability. This made them among the poorest countries in the world, despite their natural resources. Improving their economic level and achieving economic growth to escape the cycle of poverty and underdevelopment required focusing on sustainable development to achieve higher rates of progress, improve quality of life, reduce unemployment and poverty, and encourage investment.

Asian countries led this effort, with 17% of infrastructure projects being completed in Asia due to the rapid economic development and the organized systems in most Asian nations. These

countries quickly adopted significant investment plans in infrastructure projects that include roads, ports, railways, and airports. For example, China has become one of the largest players in the field of foreign investments in infrastructure projects. These projects aim to reduce logistical costs and improve the business environment, enhancing competitiveness with external markets.

The types of financing for infrastructure projects vary according to the entity responsible for financing.

There are two main types:

1. Public financing: This comes from the state budget, whether domestic or external.
2. Private financing: This comes from private entities or investors.

Among the most important mechanisms is the Public-Private Partnership (PPP), which relies on cooperation between the public and private sectors to develop infrastructure. The PPP aims to improve efficiency, where the private sector provides necessary resources and technical expertise to implement and operate the projects. The government supervises these operations, ensuring quality and sustainability.

The PPP model is defined as a long-term partnership between the public and private sectors, with a focus on sharing risk and rewards. The private sector may finance, build, and operate infrastructure projects, while the public sector ensures regulatory oversight (Figure 2).

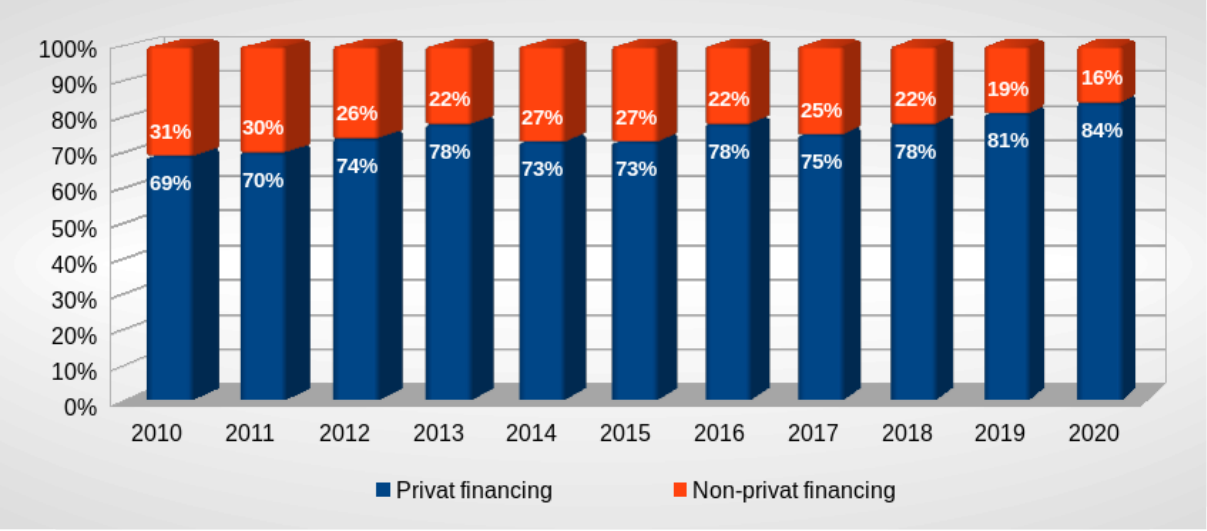

Figure 2. Infrastructure Projects by Type of Finance

Source: Prepared by the researcher (Hub Global Infrastructure, 2021)

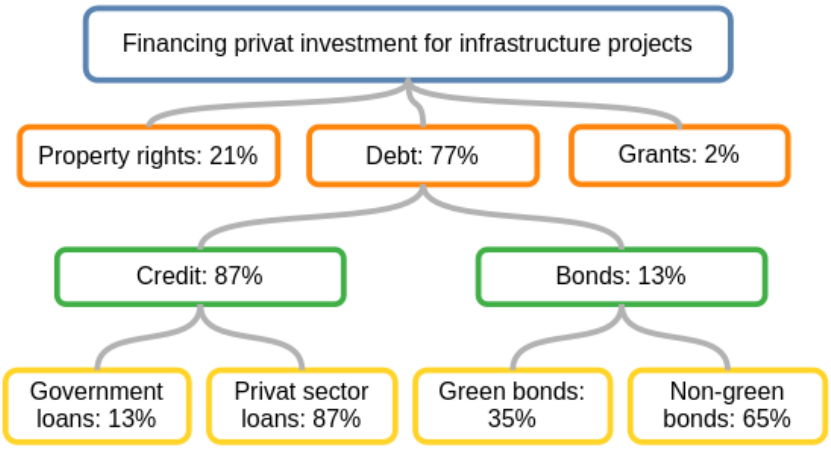

Figure 3. Types of instrument used by the Party's private investment in infrastructure project financing (2010-2020)

Source: Prepared by the researcher (Hub Global Infrastructure, 2021)

Ensuring stability in financing infrastructure projects. The private sector demonstrated resilience in facing the pandemic shocks of 2020. During the pandemic, private investors continued to be attracted to investing in infrastructure projects, particularly those related to renewable energy, which accounted for approximately 50% of total private investment in the sector.

Private sector financing of infrastructure investments relies heavily on debt, accounting for 77% of the funding, of which 87% comes from loans and 13% from bonds. The private sector's reliance on debt for infrastructure financing is primarily due to the substantial funds required, as well as the need for expensive equipment, a significant workforce, and the high risks associated with such projects (Figure 3).

Islamic Finance

Islamic finance gained widespread popularity during the 2008 subprime mortgage crisis due to its ethical principles. It operates based on the principles of Islamic Sharia in its financial activities. The key principles of Islamic finance include the prohibition of usury (riba) and excessive uncertainty (gharar).

As a result of its ethical foundations, which were well-received by Western societies, the activities of Islamic financial institutions expanded from Muslim-majority countries to Western nations. This contributed to the rapid growth of Islamic finance assets. In 2008, the value of Islamic finance was $0.861 trillion, rising to $3.38 trillion by 2023, according to the latest statistics from the Islamic Financial Services Board (IFSB, 2024).

Islamic finance offers various financial instruments for investors and financial markets, including Islamic banks, sukuk (Islamic bonds), Islamic investment funds, and Islamic insurance (takaful). The following figure illustrates the financing volume for each instrument (Figure 4).

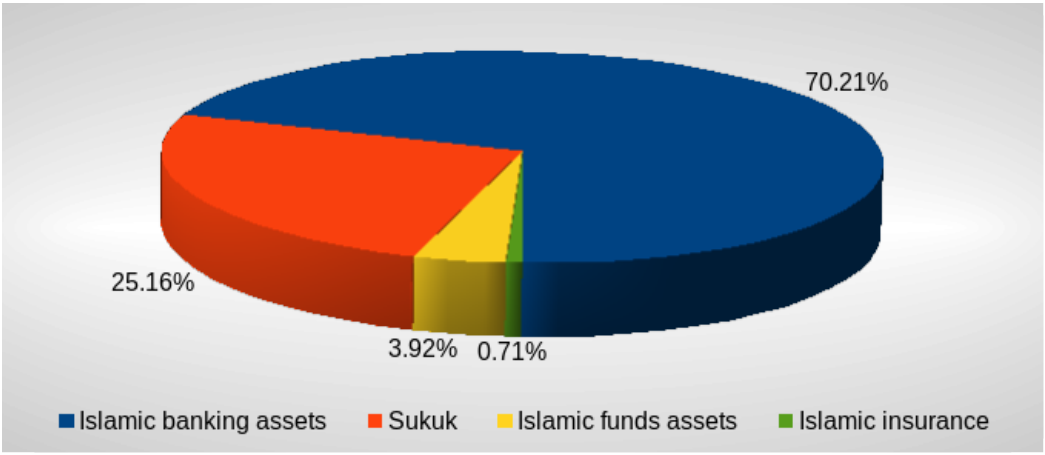

Figure 4. Size of Islamic Finance by Sector 2023

Source: Prepared by the researcher (IFSB, 2024)

Islamic banks are considered the most dominant financial instruments in Islamic finance, accounting for more than 70% of its assets. This is due to their status as the first Islamic financial instrument to be implemented in practice, with the establishment of the first Islamic bank in Egypt in 1963. Since then, Islamic banks have spread worldwide, reaching 526 banks by 2019 (Azid etc., 2022).

Following Islamic banks are sukuk (Islamic bonds), which account for 25.16%. Together, Islamic banks and sukuk are the primary contributors to the overall growth of the Islamic financial industry. Islamic investment funds and takaful (Islamic insurance) rank third and fourth, respectively.

The majority of Islamic finance assets are concentrated in the Gulf Cooperation Council (GCC) countries, driven by a favourable environment and an Islamic society that prefers Islamic finance over conventional finance, which involves practices inconsistent with societal values. Islamic finance assets in the GCC reached $1.847 trillion, accounting for more than half (52.50%)

of global Islamic assets. This is followed by the East Asia and Pacific region, which holds 21.80%. The following table outlines the distribution of Islamic finance assets by region (Table 1).

Table 1. Size of Islamic Finance by Region

Region	Islamic Banking Assets	Sukuk	Islamic Funds Assets	Islamic Insurance	Total	Share (%)
East Asia and the Pacific	313.83	411.25	38.13	5.75	768.96	21.80%
Europe and Central Asia	79.70	102.02	46.24	0.61	228.57	8.30%
Gulf Cooperation Council	1463.91	292.96	28.16	14.64	1847.42	52.50%
Sub-Saharan Africa	13.36	3.20	3.5	0.01	19.20	0.70%
South Asia (SA)	83.58	19.63	5.13	0.24	108.58	3.10%
Middle East and North Africa	417.79	6.30	0.07	2.29	427.82	12.70%
others	-	14.64	11.06	-	25.70	0.90%

Source: (IFSB, 2024)

Islamic Finance and Its Role in Infrastructure Development

Countries around the world face the challenge of maintaining, upgrading, and modernizing transportation, electricity, and telecommunications networks. This is especially critical for developing nations, which allocate the majority of their national income to infrastructure projects, as these are key indicators of growth, prosperity, and social welfare. However, there remains a significant gap in meeting infrastructure needs due to population growth and limited financial resources (Biancone & Shakhatreh, 2015).

Given government's limited ability to fund massive infrastructure projects (Rarasati etc, 2019), addressing the financial gap particularly in developing countries requires greater private sector involvement. This is because governments often struggle to secure sufficient financing for such projects.

Islamic finance can serve as a complementary source for developing and financing infrastructure in emerging markets, especially in Islamic countries where Sharia-compliant financial dealings are encouraged. A 2017 survey conducted by Thomson Reuters of 172 Islamic industry leaders revealed that 23% of respondents viewed infrastructure financing, particularly through sukuk (Islamic bonds), as a growth opportunity for the sector.

According to the Islamic Financial Services Board (IFSB) in 2018, nearly 12% of sukuk issuances were allocated to infrastructure financing. Furthermore, Standard & Poor's in 2018 highlighted the potential of Islamic finance to address infrastructure investment needs in African countries (The Work bank Group, 2019).

Since infrastructure encompasses both tangible and intangible assets, it becomes an ideal candidate for financing through Islamic finance mechanisms. Islamic finance promotes partnership and risk-sharing, which facilitates collaboration between the public and private sectors.

With its vast potential and diverse financial instruments, Islamic finance offers significant opportunities for funding and developing infrastructure. Its products are specifically designed to align with the principles of risk-sharing and ethical investment, making it a viable alternative for infrastructure development.

The following figure illustrates the potential methods that can be used to finance infrastructure investments through Islamic finance (Table 2).

Table 2. Islamic Financing Methods Used for Infrastructure Investments

Transaction type	Financing Formula	Financing Formula Definition
Asset-based	Ijara	This formula is based on renting an asset (real, estate, cars, etc.) to another party (the lessor) for a specified and agreed-up on period in exchange for a fee.
Sales-based	Murabaha	It is a sales contract where an item is sold at the purchase price plus a profit margin, with payment deferred or made in installments.
	Istismar	This contract is based on manufacturing goods, assembling, processing, or constructing a building according to precise specifications and a set timeline, with payment made upon completion and verification of the required specifications.
Partnership-based	Mucharaka	A contract between two parties, one providing capital for the project and the other contributing effort. Profits are shared according to the initial agreement, while financial losses are borne by the capital provider.
	Mudaraba	A contract between two or more parties to complete a specific project, with profits and losses divided according to agreed-up on percentages.
Certificate- based	Sukuk	These are financial instruments, representing an undivided ownership interest in an asset or the underlying interest, retained by the issuer.

Source: (The Work bank Group, 2019)

For Islamic financing methods to successfully fund infrastructure projects, a conducive environment must be established for implementing projects and financing methods. This includes providing a strong legal and regulatory framework that encompasses Islamic finance.

Project financing must meet several conditions, the most important of which are: the project must be viable, beneficial to society, and capable of attracting financing to encourage private sector participation. Additionally, the risk distribution between capital providers must be acceptable, with appropriate risk mitigation arrangements in place to attract investors to the project.

The following figure illustrates the key requirements for a financeable project (Table 3).

Table 3. Terms of the Financeable Project

Project characteristics	Enabling Environment
Well-defined Projects	Improving the legal System (Rule of law)
Experienced Contractors	Political Commitment to Specific Projects
High-Quality, Predictable Cash flows/ Low Volatility	Competition Among Companies
Protection against Adverse Events (Changes in Law)	Availability of Capital markets (especially long-term Debt)
Reliable Performance Guarantees	Transparent Procurement Process

Source: (The Work bank Group, 2019)

Key Challenges Facing Islamic Finance in Funding Infrastructure Projects

There are several barriers that hinder the implementation of Islamic finance for infrastructure projects, most of which are related to the understanding of Islamic financial transactions, the capabilities of Islamic financial institutions, and the behaviours and characteristics of investors (Rarasati etc, 2019).

• *Understanding Islamic Financial Transactions:* Due to the relatively recent introduction of Islamic financial transactions in the global financial market and their connection to Sharia principles, there is a lack of awareness among financial participants, especially non-Muslim investors, about Islamic finance. Additionally, the limited expertise of employees within Islamic financial institutions makes it challenging to convey these concepts to financial market participants effectively.

• *Capabilities of Islamic Financial Institutions:* The ability of Islamic institutions to provide financing is primarily determined by the types of financing structures they offer. According to the Islamic Financial Services Board (IFSB) report for 2024, the majority of Islamic financing is based on the murabaha contract, accounting for over 70% of total Islamic finance. This makes it difficult for Islamic financial institutions to fund infrastructure projects, as these projects require long-term financing, whereas most Islamic financing products are short-term in nature. Additionally, the number of Islamic financial institutions is limited compared to conventional ones, and the higher costs of Islamic financial operations, as well as the longer processing time (due to the need for approval from the Sharia board), further complicate the financing of infrastructure projects.

• *Investor Behaviours and Characteristics:* Most investors in Islamic finance prefer short-term financing structures such as murabaha and ijarah due to their lower risk and guaranteed profits. These investors typically seek quick returns, whereas infrastructure projects require longer periods, especially in construction and development phases. This misalignment between investor preferences and the long-term nature of infrastructure projects poses a significant challenge for financing these projects through Islamic finance.

Conclusion

Infrastructure project financing is a fundamental pillar for achieving economic and social development in countries, especially when the quality of infrastructure is high and yields productive returns. However, it requires massive financial resources, prompting countries to seek funding sources outside the public sector. This has led Islamic finance to emerge as an alternative due to its diverse financial sectors (sukuk, investment funds, Islamic banks, takaful insurance), offering financing methods that differ from those traditionally known in global financial markets.

Islamic finance is particularly relevant because it also focuses on the social aspect, which aligns with infrastructure projects aiming to improve social welfare alongside economic prosperity. Islamic finance offers a range of financial tools that contribute to infrastructure funding, such as istisna, sukuk, murabaha, salam, and other financing structures. However, applying Islamic finance to infrastructure projects faces several challenges, the most prominent being: understanding Islamic financial transactions, the capabilities of Islamic financial institutions, and the behaviours and characteristics of investors.

Through this research, we have reached several conclusions:

• Islamic finance offers global financial markets a range of innovative financing methods that are fundamentally different from conventional ones, both in terms of the principles it relies on and its application.

• Islamic sukuk are among the most important Islamic finance tools that could help bridge the financial gap in the public sector, as they are long-term financing instruments.

• The relatively small size of Islamic finance assets, which make up less than 1% of global financial transactions, is one of the barriers to the implementation and application of Islamic finance for infrastructure projects.

• The investment preferences of investors in Islamic financial institutions, who tend to favour low-risk, short-term financing structures like murabaha and ijarah (which account for over 75% of Islamic finance volume), make it difficult for them to finance infrastructure projects effectively.

Key Recommendations:

• Promote the Concept of Islamic Finance: Efforts should be made to enhance the understanding of Islamic finance and its various financing methods, highlighting the role that Islamic finance plays in achieving both economic and social development.

• Expand the Application of Islamic Finance Globally: There is a need to expand the scope of Islamic finance worldwide and increase its financial volume. This can be achieved by raising cultural awareness among communities about Islamic finance and the role it plays in reflecting the true value of financial transactions.

• Diversify Islamic Financing Methods: Efforts should be made to diversify Islamic finance structures, incorporating both short-term and long-term financing models. This would provide greater flexibility for financial investors and enable more efficient project financing.

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