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Economic Infrastructure Development in Bangladesh through Sukuk Financing

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Abstract. It has been reported that the Bangladesh will be able to meet US$ 417 billion investment in the infrastructure sector and the financing gap in this regard between 2006 and 2040 is US$192 billion. As such, there is need to find alternative forms of investments to bridge this funding gap in infrastructure and sukuk can be an alternative financing option that could be explored. This study investigates the potential of Sukuk to finance particularly on economic infrastructure projects in Bangladesh. This research uses desktop study and literature review by presenting two studies from Bangladesh where sukuk have been successfully issued. The finding of this research reveals that sukuk has the potential to be a feasible of financing infrastructure projects for Bangladesh. It is anticipated that the outcome of this research would assist the policymakers to comprehend the ways in which sukuk can help in Bangladesh to fund infrastructure projects.

Keywords: Sukuk, infrastructure financing, economic development, Bangladesh.

1. Introduction

The construction of excellent infrastructure has been demonstrated to be an effective tool for economic development (Bacha et al., 2014) and it also helps to eradicate poverty (World Bank Group, 2017). It is clear that improving infrastructure is a key indicator of economic progress (Calderón and Servén 2004; Cerra et al., 2017). Thus, on the one hand, the well-developed- Infrastructure boosts the economy's ability to compete, increases the possibility for exports and increases the productivity of the other production factors. On the other hand, the result of the underdeveloped infrastructure is mainly inefficiencies which lead to societal dissatisfaction and restrict investment, that, in turn, hinder economic progress as well as poverty.

Infrastructure finance has been a big concern of many nations. According to OECD (2018), the globe needs to invest US$6.3 trillion per year until the year 2030 to support the needs of the expanding population and the development of the economy. Developing nations will need to make the majority of their infrastructure investments. World Bank (2017) estimates that Bangladesh and other developing nations required to invest US$26 trillion in infrastructure projects in next 15 years from 2016 to 2030. Recently, it was revealed that the present trajectory suggests Bangladesh will be able to meet US$ 417 billion in infrastructure investment, leaving a finance need of US$ 192 billion from 2016 to 2040 (The Financial Express, 2021). However, the worldwide 2007- 2008 financial crisis, have decreased the capacity of governments towards public investment in infrastructure in many developing countries. This has originated in a noteworthy infrastructural funding deficit and the necessity for growing recourse to other forms of financing (Ahmad 2018). Therefore, addressing the infrastructure investment gap has become one of the primary priorities in Bangladesh's national development strategy.

To address infrastructure projects investment, governments around the world in general and Asian nations in specific, have taken diverse ways of financing such as traditional debt (bank loans), equity and debt instruments (capital market) (Smaoui et al., 2021). However, to achieve infrastructure financing needs, Bangladesh requires finding out cost effective feasible choices in financing infrastructure projects, and the government cannot rely on bank financing because it is based on deposits. Among several kinds of financings to be explored in this article, Sukuk is vital to provide an alternate method to make available the funds needed for infrastructure development. Therefore, Sukuk has appeared as a vital tool for attaining economic development related to public infrastructure difficulties and problems.

Bangladesh has seen a very quick pace of economic expansion during the last four decades (Tumpa et al. 2019; World Bank and IsDB 2019). It is considered among the rising market middle income economies and a frontier market (Gilbert, 2019). The UN Committee for Development Policy recently recommended that Bangladesh be upgraded from "Least Developed Country" status, and the Wall Street Journal

dubbed the nation "South Asia's economic bull case," citing its young demographic structure, a sustained competitive edge in terms of wage levels, and strong female labor-force participation. Exports have increased by 80 percent over the past ten years (IFN Report, 2021).

With a GDP growth rate of 8.2 percent, the nation had the seventh-fastest economic growth in the world in 2019. Calculations by the Asian Development Bank indicate a growth rate of 5.2 percent for 2020 and 6.8 percent for 2021, despite the COVID-19 outbreak. This is significantly higher than the average for the South Asian region, which as a whole contracted by -6.8 percent in 2020. (IFN Report, 2021). However, the World Bank estimates that Bangladesh will require an investment of about US$300 billion for infrastructure development in order to achieve its goal of becoming an upper-middle-income country by 2031 (IFN Report, 2021). Based on the experience of Malaysia and GCC nations, Bangladesh should examine the possibilities of Sukuk for filling the expanding funding gaps in infrastructure investment (Abdulkareem and Sadad, 2019).

The purpose of this paper is to investigate the potential of sukuk in Bangladesh as a way of offering a financial solution that can minimise the Bangladesh's budget deficit and enhancing the quality of infrastructure to be a reason to boost the economic development in Bangladesh without relying on conventional bank loans. As the Bangladesh financial markets are dominated by the banking sector that sue the interest rate as a key form of financing, and it is not easy to finance long term infrastructure projects through bank financing but instead of that relying on sharing the profit and loss in any firm. Therefore, Bangladesh will be driven to improve its economic and financial problems in a line with reducing the public debt. In addition, Issuing Sukuk will develop actual assets that will boost the economy.

This paper is divided into six sections. Followed by this introduction, section two deals with literature review and section three presents the reasons why sukuk financing is the best mode of financing economic infrastructure development in Bangladesh. Section four deals with sukuk for infrastructure projects using case studies from Bangladesh and section five discusses the issues and challenges with sukuk financing in Bangladesh. The final section is the conclusion.

2. Literature Review

2.1. The function of infrastructure in economic development

The exploratory study on the critical function of infrastructure in economic development continues to be hotly disputed in the literature. It is self-evident that infrastructure improvement benefits overall economic growth. Early research on the infrastructure for economic growth nexus began with Aschauer's (1989) empirical study, which established the critical significance of infrastructure in economic development, as referenced in (Sahoo and Dash 2012). Additionally, he asserted that

government spending is extremely productive. Since then, numerous studies have discovered compelling evidence that well-infrastructure promotes economic growth (Canning and Pedroni 2004; Kodongo and Ojah 2016; Palei 2015; Smaouiet al., 2021). According to ADB (2020), infrastructure development has become a critical factor in raising aggregate demand and expediting economic recovery, as well as being critical for job creation.

The theoretical and empirical literatures largely support infrastructure's beneficial role in growth promotion. According to the World Bank (1994), a rise in GDP of 1% is associated with a 1% increase in the stock of infrastructure. Additionally, some researchers examined the association between larger infrastructure assets and growth (Ahmed 2019; Calderón and Servén 2004; Seneviratne and Sun 2013; Calderon and Serven 2010; COMCEC 2019). They discovered that increased infrastructure investment improves income equality, facilitates local and international trade, and boosts efficiency. Thus, inadequate infrastructure, particularly in developing nations, impedes regional development and economic growth (Chu and Muneeza 2019; IMF, 2014).

Infrastructure, according to Olaseni and Alade (2012), is made up of public works like roads, significant dam and canal projects for irrigation and drainage, as well as public utilities like electricity, telecommunications, water supply, sanitation and sewage, solid waste collection and disposal, and piped gas. It also includes other modes of transportation like urban and interurban railways, urban transport, seaports, and water. Development would be very challenging without these resources, which may be compared to a very rare good that is only available for a very expensive cost (Olaseni and Alade 2012).

Several other studies focus on the development aspects of infrastructure, taking into account investment and the state's incapacity to raise necessary finances. As a result of the financial crisis, many countries' poor economic growth has been blamed, among other things, to insufficient infrastructure (Abdelkafi and Bedoui 2016). Given this worry, several governments, particularly developing ones aiming to maintain their rapid economic growth, have already prioritised increased infrastructure spending. Additionally, in many nations, inefficient public spending results in extremely poor social benefits (for example, in telecommunications, healthcare, transportation, and energy), even more so when this spending is supported by debt.

To address the issue of restricted funding sources, Cheung et al., (2012) and Abdelkafi and Bedoui (2016) proposed that the private sector should play a more active role in assisting the public sector in financing infrastructure developments. However, the available information indicates that many developing countries have been able to build their private sector up to this point. This is because infrastructure projects are extremely complicated and necessitate extensive technical planning (Chu and Muneeza 2019). On the other hand, establishing an institutional and regulatory

framework is necessary, particularly when developing infrastructure projects, in order to facilitate collaboration between the public and private sectors and to ensure a sound cost-benefit analysis (Abdelkafi and Bedoui 2016).

To address infrastructure investment, governments worldwide have implemented a variety of liberalisation measures and encouraged private investment in public infrastructure in order to minimise state debt and boost efficiency while minimising costs. In the 1990s, the concept of Public-Private Partnerships was created to handle the investment, implementation, and management of infrastructure projects. A public-private partnership (PPP), according to the World Bank, is a long-term agreement between a private party and a government organisation for the provision of a public good or service, in which the private party bears most of the risk and management responsibility and receives performance-based compensation (World Bank and IsDB 2019).

2.2. Sukuk market

A review of several publications shows that Sukuk is a financial instrument that produces returns that are comparable to those of standard bonds. It has been used to meet the capital needs of large corporations and governments while avoiding interest to uphold Shariah law (Shaikh and Zaka, 2019). The ability to receive periodic returns and total redemption at Sukuk maturity makes it possible for it to be viewed as transferable certificates representing a stake in the ownership of assets or business companies. Sukuk has been documented as far back as the first century, in the "Muwatta" of Imam Malik (Terkalova and Pavutnitskii, 2006). Public employees and soldiers received sukuk from the government during the Umayyad dynasty, which they could either sell to third parties before maturing or redeem at the end of the fixed-term period in exchange for food commodities (Shaikh and Zaka 2019; Handayani and Eko, 2017).

In recent times sukuk has approved a resolution by Islamic Fiqh Academy in 1988, which defined a Sukuk and made it a recognised financial product in the Islamic finance sector (Shaikh and Zaka 2019). Sukuk, according to Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), are certificates of equal value that represent an undivided interest in real property, usufructs, or services (AAOIFI, Standard 17).

The Fiqh Academy's above-mentioned resolution was soon followed by the 1990 issuance of the Shell MDS 125 million Malaysian Ringgit bai bithaman ajil sukuk, which was the first sukuk. Then, in 2001, Malaysia issued sukuk for US$150 million. Following Malaysia, Qatar, Pakistan, and Dubai, there were several other sovereign sukuk, which helped sukuk gain recognition abroad and pave the way for unheard-of expansion on a global scale. For instance, sukuk issuances in the Gulf Cooperation Council (GCC) countries nearly doubled between 2005 and 2007, ranging from US$25.5 billion to US$48.2 billion (Shaikh and Zaka, 2019).

Sukuk has gained a lot of popularity as a different type of financial vehicle. The transition between asset-backed, asset-light, and asset-based sukuk is examined by Haneef (2009). Early Sukuk issuances are made available as asset-backed securities. Asset-backed Sukuk, on the other hand, is regarded as a secured instrument, therefore the issuance may violate the customary negative pledge in international transactions, particularly for any sovereign that has already issued a global bond. The Organization for Islamic Financial Institutions forbids the issuing of asset-light Sukuk, which only employ a small portion of the underlying asset while allowing the Sukuk to trade in the secondary market. The majority of Sukuk issuances at the moment are asset-based, with the issuance value based on at least 100% of the actual underlying asset. Due to the asset-based Sukuk's perception as an unsecured obligation to the originator, it is suitable from the perspectives of both international best practises and Islamic compliance.

2.3. The role of Sukuk to finance the infrastructure

Sukuk plays a critical role in infrastructure financing as one of the most effective and efficient financial tools available. Numerous research studies, such as Kusuma and Silva (2014), have considered Sukuk as a different form of financing strategy aimed to diversify funding sources. Usmani, as cited in Smaoui et al., (2021), recognised this potential and asserted that Sukuk was a more effective vehicle for financing huge projects than typical financial institutions. This is because the Islamic capital market in general, and sukuk in particular, facilitates long-term investment and risk sharing through diversification (Ahmed, 2019). Handayani and Eko (2017) suggested that sukuk had been utilised to finance both governmental and private sector initiatives, including those involving infrastructure.

The World Bank and the Islamic Development Bank are examples of multilateral financial institutions that have studied the adaptability of Sukuk and its potential use in project financing. According to the World Bank Group (2017), Infrastructure projects naturally match the sukuk model because they "serve the very objective of asset-backed redistribution," as mentioned in Chu and Muneeza (2019). Most infrastructure projects are long-term, allowing lenders to earn stable returns over time, as well as some risk sharing. Sukuk is a type of debt financing that is both equity- and asset-backed, characteristics that are associated with infrastructure projects (Hussin et al. 2012; Pegah Zolfaghari 2017). As such, Sukuk would be a realistic choice for many regional governments to fund infrastructure projects in order to avoid falling into a debt trap (Chu and Muneeza, 2019).

Additionally, various researches have been conducted on this subject. For example, two Sukuk models were presented by Ismath Bacha and Mirakhor (2018) for the funding of infrastructure projects. The first model is for businesses that make money. Following an IPO, sukuk can be converted into listed shares, which might give potential investors more assurance to engage in infrastructure projects. For non-

revenue-generating projects, there is a second Sukuk structure. The Sukuk returns in this instance are correlated with government revenues and correlated with GDP growth.

An expansionary monetary strategy based on buying and selling Istisna'a Sukuk on the open market might be used to finance infrastructure development, such the building of a modern airport, according to a recent study by Selim et al. (2019). The authors showed that funding infrastructure with Istisna'a Sukuk will lead to an expansionary monetary policy, which will boost output, lower unemployment, do away with interest payments and public debt, and provide more money for expenditure by the government. They come to the conclusion that cash provided by Istisna'a Sukuk promotes economic expansion.

Mirabile et al. (2014) examined the use of government project bonds to finance infrastructure. To draw in private investment capital, they consider the potential of employing the bond as a resource pooling fund. The authors suggest that one method of pooling finance resources is through securitization schemes such as Sukuk. According to the academics, Sukuk satisfies sharia standards for risk-taking and profit-sharing. The success of the underlying assets or projects determines the sukuk's value and stream of revenue. The instrument has the potential to attract Islamic investors, who have become an increasingly important source of finance for a number of developing countries.

Similarly, Ray (2015) noted that the depletion of global liquidity and economic crises have resulted in the promotion of project bonds for infrastructure financing in Asian countries. Historically, it has financed infrastructure through development financial organisations, international bodies, government agencies, and export credit organisations based in western countries. When Treasury bills and corporate bonds' yields are falling, it outperforms the standard financial instrument, however the project bond is likely to have a larger risk. It is attractive to financial institutions focused on long-term assets, such as insurance companies and pension funds (Handayani and Eko, 2017). Sukuk as a bond needs to be able to offer enticing yields in order to be effectively offered on the market and draw in investors. This indicates that the internal rate of return (IRR) should be at least equal to that of a risk-free Government bond with an incomparable duration, in order to entice the investor to purchase the instrument.

Despite its large market share, Sukuk's role in infrastructure financing is diminishing due to a variety of risks. These dangers can be classified into three categories: Liquidity, marketability, and operational viability (Nasucha et al.,2019). According to a study conducted by Elfakhani et al., (2007), some of the underlying contracts were perceived as risky due to continuous operational risk exposure during construction projects and a high probability of production failure (Nasucha et al.,2019). Additionally, investors face market risk, which occurs as a result of market

fluctuation, which results in a price difference between the actual market price and the estimate. Additionally, investors face liquidity risk in the event of a default (Nasucha et al., 2019). Numerous these risks result in project delays and cost overruns, or even contract termination

2.4. Sukuk for infrastructure projects using case studies from other countries

After outlining the background and flexibility of Sukuk financing for infrastructure projects in the preceding part, we can now explore two case studies from other countries, delving deeper into Sukuk financing by examining how the principles materialise in each project. The two case studies chosen for this discussion are: the Konya Integrated Health Campus in Turkey is funded by both traditional and Islamic lenders; and the construction of Madinah Airport in Saudi Arabia is an example of how Islamic finance has been creatively utilised to finance infrastructure projects.

Turkey's initial project sample The Islamic Development Bank (IsDB) has supported the Konya Integrated Health Campus in Turkey (Chu and Muneeza, 2019). Additionally, it is the first combination project to be financed using both conventional and Islamic financing in a dual-tranche framework. This notion is referred to by Ismail (2013) as the "common security pool," in which In the event of a default, Islamic banks consent to transfer ownership of an asset to the common security pool. There is pari passu co-financing between conventional and Islamic financiers (Chu and Muneeza, 2019).

It is fairly straightforward: infrastructure projects demand a significant amount of resources and frequently require numerous sources of finance. The asset-backed and long-term character of projects makes them an alluring investment for Islamic banking given the substantial liquidity of the majority of Islamic financial institutions (World Bank, 2017). The Turkish Konya Integrated Health Campus serves as an example of how conventional and Islamic financing can be combined to fund a project. The construction of the Madinah Airport in Saudi Arabia, on the other hand, shows that procurement and lease (ijarah) can be used to fund infrastructure projects.

One of the key features of Islamic financing, according to the World Bank (2017), is the flexibility of Shariah frameworks to fulfil infrastructure requirements that vary by country, sector, and project. This enables Islamic finance providers to customise the best suitable solution. Given the lack of funding available for infrastructure development, islamic finance may offer supplementary sources of funding.

During the construction phase, istisna' was utilised to fund the project in advance, with participation from parallel lenders. When paying back its conventional lenders, the SPV repays the Islamic financier on a deferred payment basis (World Bank, 2017). The SPV uses a combination of procurement and agency agreements with financiers to outsource out its duties (design, engineer, purchase, construct, and deliver project assets) to contractors.

The expansion of Madinah Airport in Saudi Arabia serves as the second illustration. It was the first international airport in the world to be entirely financed by Islamic sources (Global Islamic Finance Report, 2016). To finance this project in two phases, two Islamic financing instruments were used: In the beginning, Islamic financiers employed istisna to fund the project; second, Islamic financiers transferred asset ownership to the SPV via a lease agreement during the operating stage (ijarah).

Based on the overall cost-plus-profit of the fund, Chu and Muneeza (2019) determine the monthly lease payments during the project operating phase. Many Islamic financiers still choose to use an ijarah framework and avoid direct exposure to construction risks, according to the World Bank (2017). Ijarah is a financial product that can give a fixed income to Islamic investors. This is why istisna' and ijarah are frequently used in conjunction for long-term finance arrangements. Istisna' contracts supply project assets to Islamic financiers, whereas ijarah contracts ensure that project assets create revenue (loan repayment) for Islamic financiers through the lease's operation.

Thus, the above two case studies demonstrate the flexibility of Islamic finance structures in meeting various infrastructure needs and financing projects. Additionally, these examples show how Islamic and Western financing can harmoniously coexist in the same infrastructure project.

2.5. Islamic capital market in Bangladesh

In 2012, an Islamic money market was introduced by the Bangladesh Bank to facilitate the short-term liquidity management issues faced by the Islamic banks (Abidin, 2014). The Bangladesh Bank acts as the custodian and interbank transactions are made limited overnight tenors based on profit sharing modes. The first Islamic index fund was introduced to the country in September 2013 which is Alliance S&P Shariah Index Fund (Abidin, 2014). As for sukuk, to make it easier for Islamic banks to manage their liquidity, Mudharabah bond named "Bangladesh Government Islamic Investment Bond" was introduced in October 2004 (Abidin, 2014). The debut sovereign Sukuk was issued by the government of Bangladesh when the Debt Management Department (DMD) of Bangladesh Bank, the central bank, issued a BDT8,000 crore Sukuk Ijara of which the proceeds are used for 'Safe Water Supply for the Whole Country' on December 28, 2020. (Mamun and Nabi, 2021). Bangladesh launched the first green sukuk ("Beximco Green Sukuk") in 2022 to seek $400 million in order to finance the construction of 230 MW of solar power plants. This sukuk had its trading debut on the Dhaka and Chittagong stock exchanges (Islam, 2022). The Beximco Green sukuk shows the potential of sukuk for infrastructure projects in Bangladesh.

2.6. Status quo of economic infrastructure financing in Bangladesh

Traditionally the infrastructure projects in many nations have been sponsored through financial allocations by the government and multilateral and bilateral agencies. The situation in Bangladesh is similar; in spite of recent robust economic growth, Bangladesh has one of the lowest tax-to-GDP ratios (9.3 %) in the South Asian region. Nepal has a rate of 23.1%, India has a rate of 16.8%, and Pakistan has a rate of 11.0 percent. Due to the low tax revenue, is limiting government's ability to invest in infrastructure, pushing Bangladesh to external borrowing for filling the infrastructure gap. For instance, the World Bank has spent roughly US$ 12 billion in Bangladesh (current projects) with an additional US$ 2.5 billion under consideration. The government expects to invest roughly US$ 17 billion in next two years on energy and transport projects. Additionally, the Bangladesh has received funding support from ADB roughly US$ 22.94 billion in the form of development projects (ADB, 2018).

Due to tighter financial constraints in recent years, the financing of infrastructure has come to acknowledge the necessity for other kinds of funding to help with infrastructure development. In this environment, substantial attention is being placed on the institutional investor sector including insurance companies and pension funds (OECD, 2015). One of the advantages of employing institutional investors fund for infrastructure investment is that the payments from these funds are spread over a long duration and are steady – this makes it simpler to invest in long-term assets such as infrastructure which may deliver constant long-term profits. However, Ahmed (2015) noted that there are some downsides in using institutional investors' money in Bangladesh. Firstly, the country does not have the knowledge and resources to channel investments from such money into the numerous infrastructure projects. Secondly, like other Asian countries, the government regulates institutional-fund investments and as such can limit the quantity and the ability to participate in infrastructure projects directly. Finally, there are some legal constraints on the use of institutional funds by the government and autonomous agencies for investment. The mobilisation of institutional funding will be rather tough given these circumstances. If adequate channels and restrictions are created, then employing institutional funds could become a feasible option in the near future. In this regard, the use of project bonds as a more reliable and liquid form of financing as opposed to loans may be a worthwhile choice.

Many governments in developing countries have encouraged the private sector to participate in the funding of infrastructure projects due to a shortage of funds and budget. This is frequently accomplished through project financing, in which a project-specific company is established to carry out a specific infrastructure project. The Private Finance Initiative (PFI), also known as public-private partnerships (PPPs), is a well-known form of project financing (Tamoaitien et al., 2021). It has been put forth as a different, very effective technique for increasing the effectiveness and productivity of the construction of economic infrastructure. Most PPP agreements ask for the formation of a project firm, also known as a Special Purpose Vehicle (SPV),

to carry out a certain commercial role for a predetermined amount of time. This SPV is an independent legal company raises capital by combining equity (supplied by the project sponsor), loan (often provided by banks), bonds, or other financial instruments (Smaoui et. al., 2021). At least 70% of the total assets of the PPP project firm are made up of debt financing. Bond issuance and bank loans, including syndicated loans, account for the majority of debt financing. Furthermore, trust funds, insurance funds, and pension funds have all been used to finance PPP projects. Governments must ensure that the project design is bankable before beginning any PPP projects. This means that the project "can attract not only equity investment from its owners, but also the right level of debt" (Smaoui et. al., 2021). Additionally, the operating cash flows must be sufficient to cover the cost of borrowing money from the lender plus a predetermined amount (usually known as a "margin").

The government of Bangladesh has used the PPP method over the years to seek financial support from the private sector. The Bangladeshi government has started about 72 projects, many of which are international businesses, at various stages of development and delivery in the areas of energy, transport, port, water supply, real estate, tourism, and health. By the fiscal year 2018–19, investment under the PPP model had amounted to almost $22.7 billion USD (Haque et. al., 2020). However, the majority of PPP projects in the nation rely on bank and syndicated loans as their main source of funding; as a result, these projects will put further financial pressure on the Bangladeshi government and leave the nation vulnerable to financial difficulty.

According to the OECD (2015), project bonds are a growing area of project finance and offer a potential substitute for financing infrastructure projects using long-term debt. In contrast to other bonds like corporate bonds, which are issued by companies whose projects are spread across a portfolio of assets, project bonds are issued specifically to finance a single project. In this respect, project bonds are riskier than other types of bonds because a single project carries a higher risk of loss for credit holders than a portfolio of diversified projects. Financial organisations with a concentration on long-term assets, such as insurance and pension funds, are drawn to project bonds (Handayani and Eko, 2017). Thus, bonds become a more attractive choice when project volume is substantial and if longer period finance is needed. However, as noted previously that finance in Bangladesh is dominated by the banking sector and the bond market is not well developed. According to the World Bank Bangladesh's bond market is the smallest in South Asia, accounting for barely 13 per cent of the county's GDP in 2018 (Prizzon, 2020). Government bonds dominate this market in Bangladesh however there are a couple of corporate sector bonds. Currently, only the government may float bonds to finance the numerous infrastructure projects - the potential of the secondary market is still completely unexplored.

Similar to this, Yoshino and Hirano (2010) cite bond issuance in the form of government bonds and infrastructure revenue bonds as the potential funding source for infrastructure finance due to potential demand from sizable national savings of

emerging countries. The study offers a framework in which government bonds be issued to finance the construction phase because it is not realistic to expect any revenue stream from the project during that time. Following that, the government bond will be transformed into an infrastructure revenue bond, where the investor will receive a return based on the project's performance, during the operational period when the project can produce an income stream.

Mirabile et al. (2014) also examined the use of government project bonds to finance infrastructure in the 2014 OECD Report. To draw in private investment capital, they consider the potential of employing the bond as a resource pooling fund. The authors suggest that one method of pooling finance resources is through securitization schemes such as Sukuk. According to the academics, Sukuk satisfies sharia standards for risk-taking and profit-sharing. The success of the underlying assets/projects determines the sukuk's value and stream of income. Islamic investors, who have grown to be a significant source of funding for many developing nations, may be interested to the instrument.

In recent years, Sukuk market has expanded in response to these limits of traditional manner of financing. A number of Sukuk issuances in GCC, Asian, and African nations serve as evidence of this, with African governments using Sukuk issuances to maintain their current aggressive economic growth and major infrastructure construction. South Africa issued its first Sukuk in 2014, worth at $5 billion. Besides, Ivory Coast issued Sukuk US$2.63 billion for five years in 2015 and 2016 Togo offered debut Sukuk for US$2.63 billion for ten years (Latham and Watkins, 2015).

Similar to this, the GCC nations issued Sukuk in 2016 with a share of 11.58 percent, with all issuances going to non-governmental infrastructure sectors. 56.86% of all issuances in the same year were sovereign funds used to fund significant infrastructure projects. Sukuk's popularity has a number of benefits. (i) Returns on sukuk are frequently correlated with a piece of property that serves as a guarantee or collateral for investors. (ii) Because Sukuk investors also share in the company's losses, the Sukuk issuer is not required to distribute a fixed income. (iii) Sukuk offer the chance of exchanging them when they are marketable and protect its holders' money from being locked up for lengthy periods of time when the market is liquid (Smaoui et. al., 2020).

3. Sukuk Financing as the Best Mode of Financing Economic Infrastructure Development in Bangladesh

Following the global financial crisis, bank loans used to finance infrastructure became less popular and became significantly less appealing as a result of Basel III restrictions. Sukuk issuance has demonstrated its potential in this regard not only in the domestic but also international markets, and not just for institutional investors but also for individual investors. This is unsurprising, given that Islamic finance is not

new to Bangladesh. Since 1983, Bangladeshis have been familiar with Islami Bank Bangladesh Ltd (IBBL), the country's first Islamic bank. IBBL maintains vigilance, which implies it has avoided liquidity crises in the past, even during global financial crises, and aspires to do so in the future (Hasan et. al., 2017). This quality has bolstered Islamic banking and Islamic finance in general.

Sukuk do, in fact, give a wide range of benefits that are quite beneficial in the context of Bangladesh. First of all, because Sukuk may only be extended to productive and real economic activities and are covered by actual assets, Sukuk are perfect for infrastructure projects because they limit exposure to different risks and promote long-term stability (Ismath and Mirakhor, 2018). Second, the Sukuk's profit and loss sharing (PLS) feature provides strong incentives for both the lender and the entrepreneur to support the project's success. Thirdly, because the underlying assets must be used effectively in order to generate income for investors, the Sukuk structure promotes more transparency through the use of Special Purpose Vehicles (SPVs), which lowers waste and corruption. Fourth, Sukuk are a desirable financing option because they draw both conventional and Islamic investors who would not otherwise invest in conventional projects, diversifying the investor base and allowing for more affordable pricing. The current Basel III requirements, which forbid banks from keeping long-term, less liquid assets on their balance sheets, make Sukuk funding a viable alternative to bank loans (Smaoui et. al., 2021).

Additionally, the diversification and flexibility of sukuk structures allow a diverse range of options that can be used in a variety of industries and to suit the diverse requirements of economic players. Bangladesh, for example, can invest in economic sectors such as industry, energy, and transportation via Istisna' and Ijarah Sukuk, as well as agriculture via salam Sukuk.

Additionally, Sukuk are well-suited for medium- and long-term government funding, particularly Ijarah and musharakah Sukuk for the growth of public-private partnerships. Bangladesh is seen as a small country with low financial resources. Thus, infrastructure development is critical if the country is to fulfil its goal of being an upper-middle income country by 2031. As a result, efforts should be undertaken to increase the participation of financial institutions and enterprises in Sukuk. For example, Islamic banks in Bangladesh might invest their excess liquidity in a variety of economic sectors by utilising various sukuk structures to manage their liquidity. Because Islamic banks are prohibited from investing in interest-bearing securities.

Finally, Sukuk provide a fair trade that attracts investors due to the underlying profit-loss sharing idea (PLS). As a result, PLS can attract and pool funds from a diverse range of investors, particularly those seeking to participate in Shariah-compliant goods. This characteristic is simple to execute for development projects, which can be classified into two types: revenue-generating projects, such as mass rapid transit systems, tolled highways, ports, airports, telecommunications systems,

and electricity generation, and non-revenue-generating projects. On the other hand, risk sharing for ventures that do not generate income such as a government hospital, school, rural road sanitation, and sewage should be determined by the source of government revenue. At some point, a government's capacity to meet its obligations is contingent on money earned (Ismath Bacha and Mirakhor, 2018).

Further, it is observed that huge infrastructure gap, favourable economic conditions, success of Islamic banking, excess liquidity in Islamic banks and favourable country rating are also the reasons why pioneering sukuk for infrastructure financing in Bangladesh would work (Nabia et al., 2016).

4. Sukuk for Infrastructure Projects Using Case Studies from Bangladesh

4.1. First case study: Beximco Green Sukuk, 2021

The first Green Sukuk of Bangladesh called Beximco Green Sukuk al Istisna'a was established by Beximco Limited Corporation in 31st August, 2021. The intention was to issue GS for BDT 30 billion, of which 50% (BDT 15 billion) would be made available through a private offer, 25% (BDT 7.5 billion) would be made available to the Beximco Group's current shareholders, and the remaining 25% (BDT 7.5 billion) would be made available to the general public through a public offer (PO). The Bangladesh Securities and Exchange Commission (Debt Securities) Rules, 2021, implemented the complete strategy.

The purpose of such initiatives, such as:

a. To meet the expenses for constructing Teesta Solar Project of BDT 14.18 billion and Korotoa Solar Project of BDT 2.30 billion.
b. To meet the expenses for financing and refinancing (non-interest bearing) on the machineries and equipment required for expansion of the Textile Division will cost of BDT 6.03 billion.
c. The additional cost estimated of 0.13 billion (see appendix A).

The sukuk is an asset backed, having a convertible option (convertible or redeemable) and tenor for 5 years. The conversion will be implemented by 20% every year (at multiple of 5%, 10%, 15%, or 20%). It was created to obtain a certificate that complies with shariah when converting Beximco Green-Sukuk into shares. The Beximco Green Sukuk Trust was assigned as the SPV that was approved by the Bangladesh Security Exchange Commission (BSEC) and registered under the Act, 1908.

4.2. Second Case Study: Sovereign Sukuk for Water Supply, 2020

In December, 2019, the Government of Bangladesh has issued an Asset Backed Sukuk with five years tenor project implemented by the Department of Public Health Engineering (DPHE). The project began on January 1st, 2020, and will end on June

30th, 2025. This project is designed for the purpose of water supply with the program called Safe Water Supply for the Whole Country. The anticipated total cost to complete this project is BDT 8.85 billion. The SPV is named as the Debt Management Department (DMD); a special unit developed by the Central Bank of Bangladesh. In addition, Bangladesh Bank also established a unit called a shariah unit with comprised 11 members (see appendix B).

The Purpose of such initiative is, to develop facilities for massive water supply within the nation though development of national infrastructure (Construction of buildings, acquisition of machinery, equipment, and parts, construction of an iron-removal plant for arsenic, installation of a rainwater harvesting unit, hydrological characterization, installation of submersible pumps, deep tube wells, hand pumps, multiple hand pumps, solar panels, and other things).

5. Issues and Challenges with Sukuk financing in Bangladesh

Nabia et al., (2016) identify three key challenges facing the country in issuance of sukuk and they are: legal inhibitions that requires amendments in the legal framework; constraint in the talent pool required necessitating attention to be given to the development of local talent pool required; and lack of awareness among policy makers, potential investors about Islamic finance and how the modes of Islamic finance work. As such, it can be said that though Sukuk are gaining increased interest from both domestic and foreign investors as a possible alternative to old and conventional ways of financing. However, for project financiers who are not conversant with the legal foundations of these instruments, using sukuk could not be simple. For instance, one or more underlying assets must be used as security for sukuk. For the period of the sukuk's maturity, these assets are then frequently transferred to a special purpose vehicle (SPV).

While there are no explicit legislative restrictions on the establishment of SPVs, Bangladesh lacks an established framework for their development, management, and accounting procedures. The absence of a defined set of norms puts a significant degree of uncertainty into sukuk transactions, significantly reducing their attractiveness. Additionally, Bangladesh continues to lack a sizable pool of human resources with knowledge in this subject.

As a result, establishing an unambiguous structure controlling sukuk issuances and management would undoubtedly encourage investors to adopt them. In a similar spirit, another measure that may be implemented to enhance sukuk funding even further would be the establishment of a framework for their securitization.

The government should think about creating a clear legal framework for the creation, administration, and accounting of SPVs, which serve as the foundation for the issuance of sukuk, as well as a legal framework for sukuk securitization

(pool/funds of sukuk), in order to promote the growth of a sukuk market in Bangladesh.

Nabia et al., (2016) propose some policy options to overcome the challenges faced in this regard. They state that: a specific regulatory framework for the issuance of sukuk can be developed; standardization of sukuk structures and documentations could be made; fiscal incentives to attract the potential investors could be given; human resource development should be prioritised by conducting not only short term intensive learning programs, but also the universities could conduct formal education courses; shariah governance framework for the capital market can be developed; commitment from policymakers and entrepreneurs are required; and international assistance can be obtained to develop the domestic sukuk market.

Abidin (2014) also states that to develop Islamic capital market infrastructure including sukuk market in the country, there is need to develop legal, regulatory and shariah governance framework for the country and tax amendments are required to create a level playing field between Islamic and conventional capital market products. Further, conducive environment with required intermediaries are also needed to ensure that diversified products and services are offered and they also observe that focus should be given to capacity building, introducing incentives and government support and commitment is essential for the development of Islamic capital market in Bangladesh (Abidin, 2014).

In terms of tax considerations, in September 2021, the National Board of Revenue offered tax benefits to incentivise sukuk in Bangladesh where the value added tax was waived off on sale and purchase of asset between originator and SPV (The Financial Express, 2021). Even the government exempted income tax on sukuk (The Financial Express, 2021). The following table is showing the number of challenges in the sukuk market of Bangladesh.

Table: A Brief Scenario of Identified Challenges.

No	Challenges	Details	Solution	References
1	Legal & Regulatory Framework	- No separate Act created for Islamic Capital market where Securities & Exchange Commission is the only regulatory authority in Bangladesh. - The regulatory framework developed through the Securities and Exchange Commission Act 1993.	- Create & Apply ICM Act or Inclusion of Islamic policies, guidelines or rules in the existing CM for the Sukuk. - BSEC & BB might create a separate department for controlling, guiding & supervising the ICM -Sukuk need to standardize & streamline in terms of legal documentation and Shariah standard	Ahmad et al., (2019), Nabia et al., (2016), Muzahid et al., (2016), Alamgir, (2016), Shah, (2016), Chowdhury et al., (2015), Ahmad et al., (2007)
2	There is no comprehensive Shariah governance system	Every Islamic financial institution in Bangladesh must set up their own Shariah governance in order to manage the business operations because there is no SSB at the national level. Bangladesh's Islamic financial institutions follow a hybrid form of Shariah governance.	Formation of SSB at the central level BSEC & BB	Alam et al., (2021), Shah, (2016), Hassan et al., (2017)
3	Human Resources – for ICM	Few Expertise in Islamic Finance but there is specialized expertise available for the ICM	Hire or create a team and provide standard training immediately through AAOIFI & IFSB training program	Ahmad et al., (2019), Nabia et al., (2016), Alamgir, (2016), Shah, (2016), Hassan et al., (2017)
4	No institutions & training centers	There is no any particular institute has ever developed to support the	Formation of Research and Training Institution	Nabia et al., (2016), Shah, (2016)

		development of ICM in Bangladesh		
5	Lack of public interest on the Islamic finance among citizens & misunderstanding within Muslim scholars	Due to a lack of education and understanding of Islam, some people are not interested in IF. Lack of understanding, misinformation, and propaganda about IF among the general population in Bangladesh	Creating Awareness through social media and writing about the potentials IF	Chowdhury et al., (2013), Masum & Islam (2021)
6	Lack of co-ordination & co-operation among the IF institutions	Limited correlation found among the existed institutions towards the development of ICM	A specified common objective needed to be set among the institutions	Hassan et al., (2017), Alam et al., (2021),

In terms of the Shariah governance, it becomes an important system of Islamic finance which plays a significant role in creating enabling environment for Islamic capital market and sukuk (Hassan et al., 2017). By creating a distinct Shariah supervisory board at the central authority for monitoring, defending shareholders' rights, and ensuring that all actions are in accordance with Shariah, many researchers have placed emphasis on the importance of Shariah governance (Ahmad et al., 2019; Muzahid et al., 2016). The Shariah governance of Islamic capital market and sukuk in Bangladesh is missing. However, Bangladesh does not currently have a fully-fledged Shariah governance structure for the Islamic capital market or Sukuk, and Shariah governance is currently mostly voluntary rather than regulated (Alam et al., 2021). This is due to Bangladesh's lack of specific laws, regulations, and regulating agencies for sukuk and the Islamic capital market. Because of this, each Islamic financial institution in Bangladesh has established a Shariah supervisory board to regulate the practise of Islamic financing (Uddin, 2014). Therefore, this study emphasizes the important of Shariah governance by having independent Shariah supervisory board at the central level such as BB and BSEC.

6. Conclusion

According to the study's findings, infrastructure development is essential and needs to be given top priority in order to both provide fundamental infrastructure needs and spur economic growth. In this situation, the Government of Bangladesh must address the crucial issue of project funding because it cannot rely on foreign financial aids because they are based on debt. Sukuk is one of the options. Other nations prioritise

using this instrument as a financial mechanism to fund infrastructure. It is possible to use Sukuk to fund infrastructure projects in Bangladesh, according to our analysis using online research, a literature review, and two examples of Sukuk-financed infrastructure projects.

Therefore, the study shows why sukuk financing is in fact the best and most suited way of financing the development of economic infrastructure in Bangladesh. It reveals that legislative framework and absence of professional experience as the primary difficulties that may stand in the way of the said financing method. However, the study has demonstrated that these issues can be addressed by creating a clear legal framework for the structuring, administration, and accounting of SPVs, which supports the issuing of sukuk, as well as by creating a framework for the securitization of sukuk. Finally, for further analysis, this paper offered a baseline for future research on socio-economic infrastructure development on financial structure and market demand in quantitative numbers.

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