



## Sub-Sahara Africa's Infrastructure Funding Gap: Potentials from Sukuk Financing

Abdulazeez Abdurraheem\*<sup>1</sup>, Asmadi Mohamed Naim<sup>2</sup>

<sup>1</sup> University of Ilorin, Ilorin, Nigeria

<sup>2</sup> Islamic Business School, Universiti Utara Malaysia, Malaysia

**Abstract:** Sub-Sahara African (SSA) region as a large part of the African continent suffers huge infrastructure deficit mainly as a result of the vast funding gap. The negative impact of the infrastructure deficiency continues to constrain socio-economic development and the general well-being of the people of the region. Heavy reliance on the traditional sources of funding by many of the countries in the region has failed to meet ever-growing demands for infrastructural development of the region. Potentials presented by Islamic finance are yet to be exploited by a large number of countries in the region. This study evaluates the depth of utilisation of Islamic capital market using *Sukuk* instruments as another source of funding to fill the observed funding gap for infrastructure development. This study finds that the use of *Sukuk* as a long-term financing instrument is still at its infancy stage in the region. The paper, therefore, suggests that the SSA countries can undertake rapid and massive infrastructure developments in the region through the use of *Sukuk* instruments, thereby eliminating increasing sovereign debt over-hang from the conventional debt market. This study also recommends that policy makers in the region put in place required laws and regulations that will provide enabling environments for effective utilisation of *Sukuk* instruments for infrastructural development. Similarly, strong political will on the part of the region's political leaders is essential in nurturing strong institutions that can engender policy continuity to ensure effective and efficient management of infrastructure projects funded by *Sukuk* instruments.

**Keywords:** Sub-Sahara Africa, Infrastructure deficit, *Sukuk*

**JEL Classification:** N27, R51

**Paper Type:** Research

---

\* Corresponding author: E-mail: aabdulaziz70@yahoo.co.uk, Phone: +2348033263043

## 1. INTRODUCTION

Many African countries have made a significant economic turnaround in recent years. In most parts of Africa however, particularly in the Sub-Sahara region, the negative impact of infrastructure deficiency continues to constrain real economic growth and development. Social and economic infrastructures in the Sub-Sahara Africa (SSA) region are in a considerable deficit. This significant deficit has contributed in no small measure to the prevalence of poor economic development and widespread poverty among the majority of the people of the region. SSA as a region, using most infrastructural performance indicators, lags behind other developing regions of the world regarding infrastructure both in quality and quantity (Calderon & Serven, 2010; Foster and Briceño-Garmendia, 2010; The World Bank, 2017).

This huge infrastructure deficit has been attributed to, among other factors, wide financing gap between the existing financing structure and the infrastructure needs of the region (AfDB, 2010). Most African countries, mainly, in the Sub-Saharan region, lack the required technical and financial capacities to undertake and finance the massive infrastructure deficit incapacitating the socio-economic development of the region. SSA<sup>1</sup> is the area of Africa continent which lies south of the Sahara desert. As a region, SSA is home to many countries with weak economies, characterised by a lack of adequate and/or decaying infrastructure. Power has however been identified as the most limiting factor to development.

The World Bank (2017), states that “Africa’s largest infrastructure deficit is to be found in the power sector. Whether measured in terms of generation capacity, electricity consumption, or security of supply”. Africa’s power infrastructure delivers only a fraction of the service found elsewhere in the developing world. For example, the 48 countries of Sub-Saharan Africa (with a combined population of 800 million) generate roughly the same amount of power as Spain (with a population of 45 million)” (World Bank, 2017). Other critical areas of infrastructure deficit can be found in the road network and rail system. Alves (2013) assessed infrastructural deficit in Africa and found that the continent has an average of 204 km of roads per 1000 square kilometres<sup>2</sup> while only 25% of the road networks are paved. Similarly, railroad density is extremely low for the continent’s population. This financing gap has, therefore, creates an urgent need for an injection of large investible funds from diverse sources to address the prevailing socio-economic crises in the region.

Funding for infrastructure in most of SSA has mostly been undertaken through government budgetary expenditure which continues to be the primary source of funding. In addition to public finance, funding from Official development, such as the World Bank and the African Development Bank (AfDB), continues to represent an essential source of finance for infrastructural development in SSA (Arezki & Sy, 2016). “Most sub-Saharan African countries have long had to rely on foreign assistance or loans from international financial institutions to supply part of their foreign currency needs and finance part of their domestic investment” (Sy, 2015). China is also making significant in-road in Infrastructural funding in many African countries such as Kenya and Nigeria. Similarly, the African Union has proposed an African Infrastructure Development Fund (the Africa 50 Fund) to bridge the infrastructure funding gap (Arezki & Sy, 2016). The World Bank report estimates that

<sup>1</sup> SSA is made of 48 countries. The countries are as follow: West Africa (ECOWAS) comprises Benin, Burkina Faso, Cote d'Ivoire, Gabon, Gambia, Ghana, Niger, Nigeria, Senegal and Togo; East Africa (EAC) comprises Burundi, Kenya, Somalia, Tanzania and Uganda; Southern Africa (SADC) includes Angola, Botswana, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe; Central Africa consists of Cameroon, Central African Republic, Congo, Dem. Rep., Congo, Rep., Ethiopia and Sudan.

<sup>2</sup> The world average is given as 944 km per 1000 square kilometers

SSA's needs for infrastructure development funding amounts to \$93 billion per year with an annual funding gap of about \$31 billion and about 40 per cent of the expenditure will be needed in the power sector (Foster & Briceno-Garmendia, 2010). Substantial investment will, therefore, be required to meet the region's infrastructure development needs. This huge requirement has once again underscored the inadequacy of the traditional sources of funding for the infrastructure development of the region and hence, the need to explore other sources of long-term funding to bridge the existing gap.

While there have been several studies (Alves, 2013; Arezki & Sy, 2016;) on the impacts of the traditional sources of funding such as public finance, domestic borrowings through sovereign bonds, external borrowings from regional and multilateral financial institutions, for infrastructural development, very little attention has been paid on the potentials of *Sukuk* as important funding instrument for infrastructure development in the Sub Sahara Africa. This article, therefore, seeks to fill the gap by exploring the opportunities of using *Sukuk* instruments for infrastructure development in the SSA region. The remainder of the article is organised as follows. Section 2 presents the infrastructure deficit in SSA. Section 3 reviews issuance of *Sukuk* in SSA. Section 4 discusses *Sukuk* as an instrument of Islamic finance. Section 5 reviews the challenges faced by SSA countries in term of *Sukuk* implementation and the last section concludes the paper.

## **2. INFRASTRUCTURE DEFICIT IN SSA**

Efficient infrastructure is important for economic growth and development. Functional infrastructure is not only a necessary condition for doing business and enhancing firm productivity but very essential for the development of human capital. Deficiency of infrastructure in quantity and quality is a significant constraint to the level of economic growth and development required in this region. For example, the efficient power supply can enhance the productivity of businesses and manufacturing concerns; better roads and rail systems can facilitate increased intra-regional trade and investment; better communication services can facilitate greater socio-economic integration among the people of the region. Similarly, access to clean water and sanitation improves the general health of the population, thus enabling more people to work and contribute productively to the economy (Sanusi, 2012).

Calderon & Serven (2010) carry out an empirical evaluation of the impact of improved infrastructure on the development of SSA. The study employs instrumental techniques and finds a significant positive relationship between infrastructure development and long-run economic growth. Furthermore, the study finds a negative relationship between improved infrastructure and income inequality in the region. It, therefore, concludes that poor infrastructure is one of the main obstacles to economic development in SSA.

Similarly, in a related study on infrastructure deficit and opportunities in Africa, African Development Bank Group (2010) finds that investment in infrastructure by most of the African countries have not kept pace with the growth in demand. For example, the study finds that less than 40 per cent of the population has access to electricity while only about 34 per cent has access to improved sanitation and that rail networks are the least developed in Africa. To underscore the challenge of infrastructure deficit in the region, and an attempt to close the funding gap, the study estimates that the region will need about USD 93 billion annually until 2020. In as much as this financing requirement is a challenge, African governments have a wide range of policy options that could open new sources of finance. The study, therefore, concludes that it will be impossible to meet the requirement to close the funding gap from the current sources alone unless new sources of funding are identified and explored.

Governments have traditionally been the chief financiers of infrastructure projects, in many of the SSA countries. However, declining financial resources and competing priorities coupled with a shortage of relevant workforce have continued to make reliance on the fiscal budget inadequate for the infrastructure development needs of the region. Experience has also shown that funding for infrastructure through budgetary allocations can be volatile and inadequate. Therefore, public financing capacities of many of the SSA countries are weak, and their borrowing capacities are also limited. Capital markets have also provided a variety of financing instruments such as sovereign and municipal bonds which have provided large pools of funds. In order to ease budget constraints and raise efficiency in financing infrastructure in SSA countries, there is the need to leverage on private sector management expertise and innovation by adopting Public-Private Partnership financing model (Sanusi, 2012). Despite the existing sources of funding available to the countries in the region, there still exists a large funding gap for the infrastructure development. The level of infrastructure development in SSA compared with that of other developing regions of the World such as Latin America and the Caribbean, South Asia and East Asia and Pacific regions are presented in Table 1.

**Table 1.** Sub-Sahara Africa's infrastructure deficit

Infrastructure	Measure	SSA	Latin America and the Caribbean	South Asia	East Asia And Pacific
Transport	Road paved (% of total roads, 2009)	19	22	54	31
Information and Communication Technology	Mobile subscription (per 100 population)	53	107	69	80
Energy	Electric power consumption (kWh per capita, 2010)	553	1973	555	2337
	Electricity production (kWh, 2010)	441 billion	1,356 billion	1120 billion	4889 billion
Water	Improved water (% of the population with Access, 2010)	49 rural	81 rural	88 rural	84 rural
		83 urban	98 urban	95 urban	97 urban
Sanitation	Improved sanitation (% of the population with access, 2010)	31	79	38	66

Source: World Bank, World development indicators (2010). Adopted from Butcher, Jabara, & Jones (2013).

The comparison shows that SSA lags behind the other regions in all the infrastructure indices. Therefore there is the need to exploit the various opportunities Islamic finance presents beyond the traditional sources of project funding that are in use in the region. Alves (2013) equates the combined power generation by SSA countries with a total population of about 800millions to the power generated by Spain (with a population of 45millions). The study argues that the power sector in SSA is characterised by lack of interconnectivity of electricity grids and frequent outages. Alve (2013) therefore concludes that the cause of the massive infrastructure deficit in the region is because investments in infrastructure development fail to keep pace with demographic growth. The study then underscores the role of China in funding infrastructure development in the region.

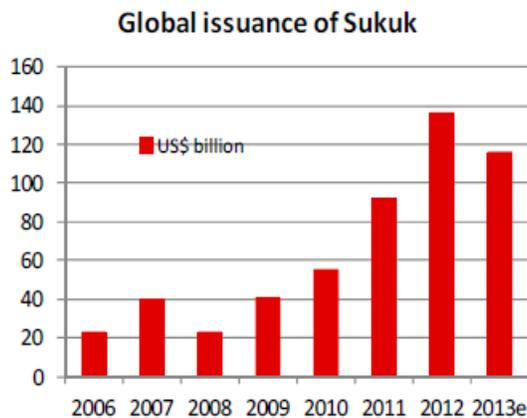
### 3. ISSUANCE OF *SUKUK* IN SUB-SAHARA AFRICA

Despite the observed wide gap in infrastructure financing in SSA, only very few countries in the region have taken advantage of Islamic finance by issuing *Sukuk* for infrastructure

development. The Gambia and Sudan for example, have issued local currency short-term domestic *Sukuk* (Sy, 2013). Osun state in Nigeria became the first sub-national to issue sovereign *Sukuk* when it issued N10Billion (USD62Million) in the international capital market in 2013. Senegal followed with the issuance of 100billion CFA Francs (USD208Million) *Sukuk* in June 2014. The success that followed the Osun State of Nigeria and Senegal’s issues buoyed South Africa to issue USD500Million *Sukuk* in September 2014. The “South Africa’s USD500Million *Sukuk* is the largest *Sukuk* issuance from SSA and only the third *Sukuk* to be issued by a non-Islamic country” (Mohammed, 2015). Kenya issued its sovereign *Sukuk* in June 2016 while Nigeria also issues its first national sovereign *Sukuk* in the sum of N100Billion in September 2017. The proceeds are to be used to fund construction of roads in the country. Ivory Coast and Togo, have also taken advantage of Islamic finance by issuing *Sukuk* in recent times. *Sukuk* instrument is though making steady in-road to the region’s financing options, the potentials of *Sukuk* is yet to be optimally exploited in SSA.

### 3.1 Global Sukuk Issuance

Despite the enormous impacts Islamic finance has made in other regions of the world, its impact on infrastructure development in SSA remains insignificant. Many countries in developed economies such as UK, Luxembourg, Japan, Singapore, and emerging economies such as Malaysia and GCC countries have issued *Sukuk* for infrastructure development (Gelbard et al. 2014; Godlewski et al., 2013; Hussain et al., 2015). Global *Sukuk* issuance accounts for more than US\$120Billions in 2013. (See Figure 1). *Sukuk* has become increasingly used as a popular vehicle for funding infrastructure development in many countries of the world. (Gelbard, et al., 2014). Gelbard et al. (2014) particularly argue that investors in *Sukuk* are motivated by the opportunities it provides them for portfolio diversification, and particularly by the fact that conventional *Sukuk* holders feel reassured that the Islamic banks who invest alongside them tend to hold their investment to maturity thereby creating a stable investment environment for other investors.



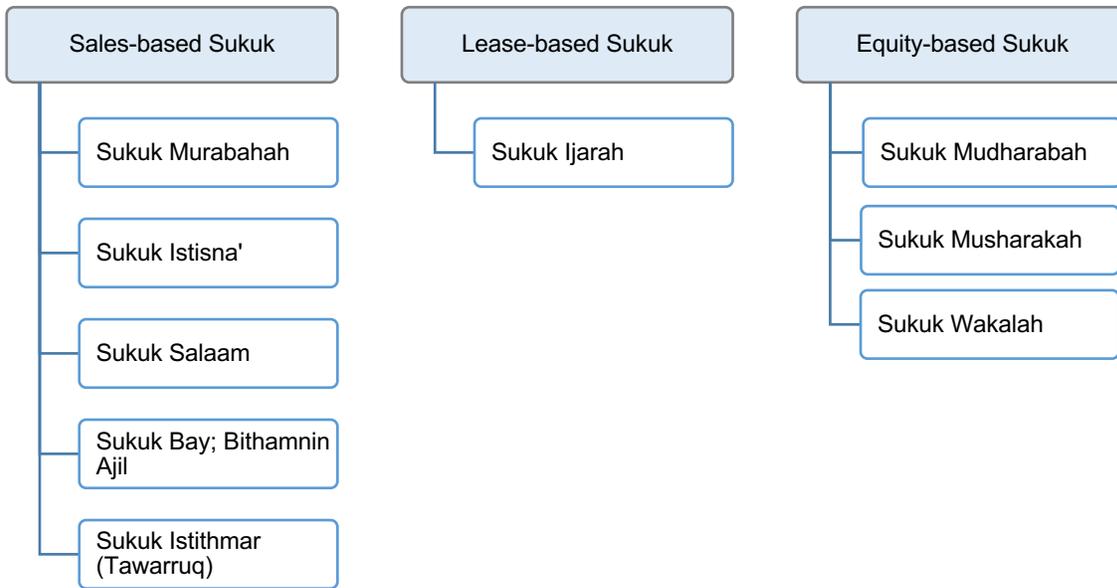
**Figure 1.** Global issuance of Sukuk  
 Source: IFIS’s Global *Sukuk* Market Reports (2013). Adopted from Gelbard et al. (2017)

## 4. SUKUK AS AN ISLAMIC FINANCING INSTRUMENT

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defines *Sukuk* as “certificates of equal value representing undivided shares in ownership of tangible assets, property rights, and services” (Hussain et al., 2015). *Sukuk*, according

to Dusuki (2010) means certificates technically, however, it means securities, notes, papers or certificates with features of liquidity and tradability. *Sukuk* has also been defined as “certificates of equal value that represent proportion ownership of an existing asset or a pool of diversified assets, and pledge against existing or future cash flows from the assets” (Mohammed, 2015). *Sukuk* are asset-based financial instruments representing well-defined underlying assets. *Sukuk* can be structured into various financial instruments to suit the nature of the project to be financed (see figure 1). These, according to Dusuki (2010) “can be further grouped into three main clusters: sale-based *Sukuk* (comprised of *bay` bithamin Ajil, murabahah, salam, istisna`*), lease-based *Sukuk* ( *ijarah* ) and equity-based *Sukuk* ( *musharakah, mudarabah* and *wakalah* )”.

*Murabahah, istisna`, bay` bithamin ajil (BBA), Istithmar (Tawarruq) Sukuk* are the typical structures of sale-based or debt-based *sukuk*. *Sukuk Murabahah*, for example, according to Mokhtar and Thomas (2010) “refers to a securities issuance where the underlying transaction between the issuer and the obligor is a sale then purchase an asset at a markup (*murabahah*). *Sukuk Murabaha* as a financing instrument provides an opportunity for companies to acquire assets or means of providing cash to sovereigns. *Murabahah Sukuk* is not readily tradable in the secondary market except in Malaysia (Mokhtar & Thomas, 2010).



**Figure 2.** Typology of *Sukuk*

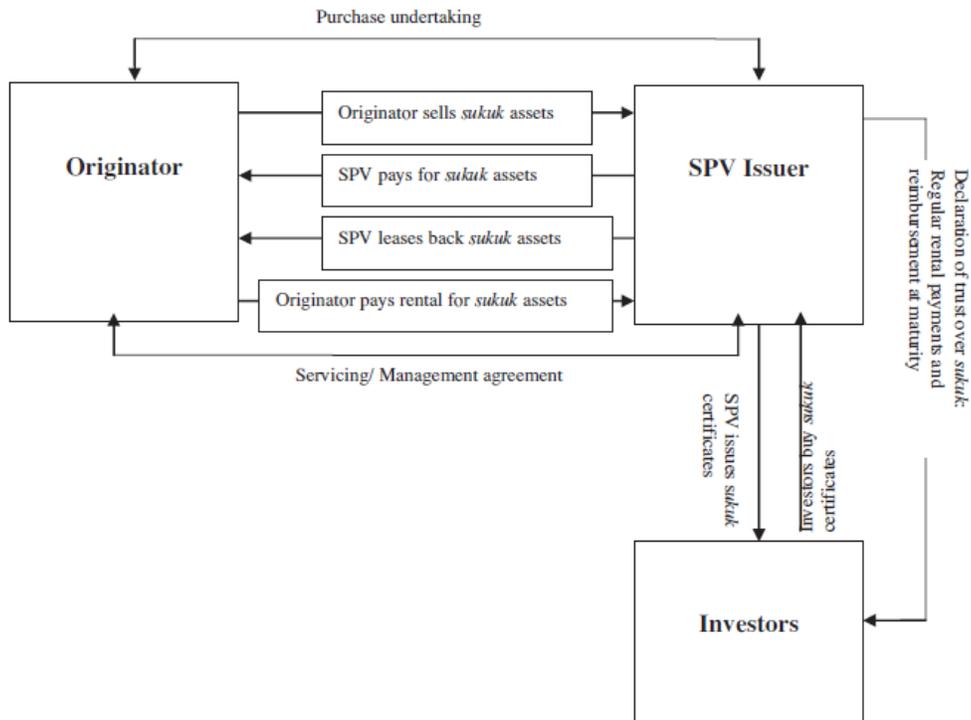
*Istisna`* on the other hand, refers to a contract for manufacturing or construction of a specific asset yet to be made or constructed. *Sukuk istisna`* is defined by AAOIFI Standards (2008) as “certificate of equal values issued with the aim of mobilising funds to be employed for the production of goods so that the goods produced come to be owned by the certificate holders”. Under the AAOIFI Standards, however, the fact that *sukuk istisna`* represents asset due for delivery its tradability in the secondary market is also limited.

AAOIFI 17 defines *Sukuk salam* as “certificates of equal value issued to mobilise *salam* capital so that the goods to be delivered by *salam* come to be owned by the certificate holders”. *Sukuk salam* represents a contract for the future delivery of an asset

with payment made in advance. *Sukuk salam* is also categorised as a debt-based *sukuk* and thereby limiting its tradability in the secondary market. Similarly, *Istithmar (tawarruq)* is often referred to as commodity *murabahah* usually involving two separate sale contracts, one spot contract and the other deferred contract.

*Sukuk al ijarah* has been defined by Mokhtar and Thomas (2010) as “a securities issuance where the underlying transaction between the issuer and the obligor involves a lease of tangible or intangible property”. *Sukuk al ijara* is very important as an instrument of financing in Islamic capital market for asset acquisition. ‘It provides the most easily tradable certificates and effective instrument of balance sheet management’ (Mokhtar & Thomas, 2010). Abdullah (2010) defines *Sukuk al ijarah* as a financing instrument that represents a pro-rata ownership by the *Sukuk* holders of a leased asset which enables them to enjoy rental income from the leased asset. It also enables the *Sukuk* holders to make a capital gain when such assets are disposed (Abdullah, 2010).

*Sukuk al ijarah* is usually structured in a way that the *Sukuk* issuer/originator creates a Special Purpose Vehicle (SPV) to purchase the underlying asset from the issuer/originator by issuing *Sukuk* to investors (*Sukuk* holders). The SPV receives periodic rental payments from the *Sukuk* issuer. It is the responsibility of the SPV to make periodic returns to the *Sukuk* holders. Investors in *Sukuk al ijarah* receive returns in the form of rentals from the underlying assets. Investors in *Sukuk al ijarah* do not only, receive income inform of rentals from the underlying assets but also share in the risk as well. The flow of transactions under the *Sukuk al ijarah* structure is presented in Figure 2.



**Figure 3.** *Sukuk al ijarah* structure  
Adopted from Godlewski et al. (2013)

Equity-based *Sukuk* is structured in the form of *mudharabah*, *musharakah* and *wakalah sukuk*. In a *mudharabah sukuk*, two parties enter into a contract to undertake a business venture. The parties are investors (*Sukuk* holders) and entrepreneur (*Sukuk* issuers). Returns to investors in *Sukuk mudharabah*, depend on the profit made on the venture. If

however, the loss incurred on the venture, the loss shall be borne solely by the investor (*Sukuk* holders) while the entrepreneur (*Sukuk* issuer) lose the expected reward for his efforts. It is important to note that certain returns and capital is a function of how a particular *sukuk* instrument has been structured. For example, the sale-based and leased-based *Sukuk* ensure certainty of return and the capital invested. In the case of the equity-based *sukuk*, investors will receive a return on their investment only if the underlying asset earns a profit. Where the loss is incurred, however, the loss shall be borne solely by the investors (*Sukuk* holders) (ISRA, 2013).

*Sukuk musharakah* is a form of partnership contract agreement entered to by parties to undertake a venture by contributing capital and share the profit in the ratio of their capital contribution or a particular pre-agreed ratio. Unlike the *mudharabah* contract however in which the investor solely bears the loss, the parties in a *musharakah* contract, jointly bear the loss from the venture in the ratio of their capital contribution or the pre-agreed sharing ratio. Similarly, *Sukuk wakalah* (investment agency *Sukuk*) presents another structure of equity-based *sukuk*. Under a *Sukuk wakalah*, according to Naim & Hussain (2010), "the *Sukuk* holder is the party investing the money, while the originator/obligor is the party that requires the money, and the *Wakeel*/managing agent (investment agent) is the party that manages the underlying asset of the *Sukuk* venture".

## 5. CHALLENGES FACING THE APPLICATION OF SUKUK IN SSA COUNTRIES

The lack of standardisation of underlying infrastructure projects is a serious impediment to investment into infrastructure-based assets in SSA. Costs of projects of similar nature may vary widely from one country to another or even, from one part of a particular country to another in SSA countries, due to peculiar socio-environmental factors outside the economics of project management. Lack of efficient institutional frameworks could pose grave challenges to effective management of investments funded through *Sukuk* instruments. The uncertainty of policy continuity due to political instability and weak institutional frameworks has always been the bane of infrastructure development in many parts of Africa. Abandoned projects on which millions of dollars have been spent can be found decaying in many parts of various countries in SSA. The lack of policy continuity has always discouraged investors from investing in projects of long-term gestation. Unless projects are completed and adequately managed to generate the projected income and profit anticipated, the projected returns on investment may not be realised. This, therefore, could undermine the success of *Sukuk* as a funding alternative for infrastructure development in SSA countries.

## 6. CONCLUSION AND RECOMMENDATION

The paper examines the infrastructure deficit of the Sub-Saharan African countries and the funding gap to meet the infrastructure needs of the region until 2020. Various attempts by some countries in the region to tap into the funding opportunities, the Islamic capital market instruments such as *Sukuk* provide were also discussed. The paper also examines the significant structures *Sukuk* instruments have been classified.

Given the evolving nature of the regulatory and political environments in many parts of the SSA region, the paper thereby recommends sales (debt-based) based and lease-based *Sukuk* contracts for effective infrastructure funding in the region. Similarly, in order to close the SSA's infrastructure gap, serious efforts must be made to reduce or eliminate the inefficiencies of the system. Therefore, the paper concludes that to ensure the success of *Sukuk* issuances in SSA countries, legal and political environments must be supportive and conducive to facilitate effective execution and management of *Sukuk* contracts in

order to safeguard the interest of the *Sukuk* holders. The paper, therefore, concludes that *Sukuk* funding presents unlimited opportunities for infrastructure development in Sub-Saharan Africa countries.

## REFERENCES

- AAOIFI Standard 17 (2008) Investment Sukuk. AAOIFI Sharia'a Standards. Retrieved from <http://www.global-islamic-finance.com/2009/10/sharia-Standard-no-17-investment-sukuk.html>.
- Abdullah, M. R. (2010). Regulatory issues: Innovations and application of sukuk. *Sukuk, Islamic Capital Series*, 65-91.
- African Development Bank (2010). Infrastructure deficit and opportunities in Africa. *Economic Brief*, 1(2), 1-15.
- Alves, A. C. (2013). China's 'win-win' cooperation: Unpacking the impact of infrastructure-for-resources deal in Africa. *South Africa Journal of International Affairs*, 20(2), 207-226.
- Arezki, R. & Sy. A. (2016). Financing Africa's infrastructure deficit: From development banking to long-term investing. *Journal of African Economics*, 25(suppl\_2), ii59-ii73.
- Butcher, A., Jabara, C., & Jones, L. (2013). Infrastructure development in Sub-Saharan Africa driving demand for imports of machinery, equipment, and transportation goods. *USITC Executive Briefings on Trade*
- Calderon, C. & Servén, L. (2010). Infrastructure and economic development in Sub-Saharan Africa. *Journal of African Economies*, 19(suppl\_1), i13-i87.
- Dusuki, A. W. (2010). Do equity-based Sukuk structures in Islamic capital markets manifest the objective of Sharia? *Journal of Financial Services Marketing*, 15(3), 203-214.
- Foster, V. & Briceno-Garmendia, C. (2010). Africa's infrastructure: A time for Transformation. *The World Bank, Africa Development Forum* 52102.
- Gelbard, E., Hussain, M., Maino, R., Mu, Y., & Yehoue, E.B. (2014). Islamic finance In Sub-Saharan Africa: Status and prospects. *IMF Working Paper*, WP/14/148.
- Godlewski, C. J., Turk-Ariss, R., & Weill, L. (2013). Sukuk vs conventional bonds: A stock market perspective. *Journal of Comparative Economics*. 1-16.
- Hussain, M., Shahmoradi, A. & Turk, R. (2015). An overview of Islamic finance. *IMF WP/15/120*
- ISRA (2013). *Sukuk market*. Islamic Financial System: Principles and Operations. 389-450.
- Mokhtar, S. & Thomasm A. (2010). *Ijarah sukuk*. Sukuk: Islamic Capital Market Series, 145-159.
- Mokhtar, S. & Thomasm A. (2010). *Debt-based sukuk: Murabahah, istina' And istithmar (Tawarruq) sukuk*. Sukuk; Islamic Capital Market series. 125-143.
- Mohammed, W. (2015). Islamic banking and economic infrastructure development-Kenya's prospect. *KBA Centre for Research on Financial Markets and Policy WPS/05/15*
- Naim, F., & Hussain, A. (2010). *Wakalah sukuk*. Sukuk: Islamic Capital Market Series pp. 149-269.
- Sanusi, L. S. (2012). The role of development finance institutions in infrastructure development: What Nigeria can learn from BNDES and the Indian infrastructure finance company. *Governor's Speech, Central Bank of Nigeria Publications*
- Sy, A. N. R. (2015). Trends and development in African frontier bond market. *Global Economic and Developments at Brookings Policy Paper* 2015-01
- The World Bank (2017). Fact Sheet: Infrastructure in Sub-Saharan Africa. *Africa's Pulse*, 15