Public–Private Partnership in Developing Countries: Seeking Available Domestic Financing Options

Lusekelo Mwakapala and Baiqing Sun

***Abstract*—Decisions to finance infrastructure projects should be based on the best option that suits and meets project objectives for given government demand. Option, limits and risk assessments must be analyzed. Large investments are required for infrastructure projects with a long maturation period. Thus, classifying channels through which public, institutional, and private finances can be used to leverage financial gaps is no longer necessary. One way is for developing countries to use small-scale infrastructure projects, which can be domestically funded by private sectors in combination with government budget. Using commercial or investment banks (development banks) and untapped financial sources from pension funds (institutional) can provide enormous opportunities.**

***Index Terms*—Infrastructure, financing, public–private partnership.**

I. Introduction

One of the identified constraints in attracting investments in Africa and other developing countries is inadequate infrastructure. This inadequacy has led to high cost of doing business, impacting on their competitiveness in attracting investments and attaining sustainable development. Over the years, efforts in these countries and governments to fund infrastructure projects through fiscal allocations, have not resulted in narrowing the infrastructure gap.

The African Development Bank, (AfDB) in its 2018 Economic Outlook Report, noted that the infrastructure gap for Africa had reached an estimated figure of $130 billion to $170 per year, greater than the $93 per year, previously estimated. In the report, the AfDB noted that, globally, approximately $100 Trillion of financial resources are maintained by institutional investors and commercial banks. The 2016 Economist Intelligence Unit report predicts that the banking sector in 16 major African countries, will grow1.5 times more than the respective countries' GDP in 2010. Their deposits will reach $1.1 trillion, whereas their assets will reach $2.37 trillion; representing a 248% increase. Tanzania, Angola, Nigeria, Uganda and Ghana will have the highest growth rates, whereas South Africa, Namibia and Botswana will have comparably lower growth rates. However, this 'numerical' financial capacity alone may not be able to translate into substantial increase in infrastructure financing. Most of their financial assets may have been already encumbered (pension funds), or unsuitable for long term investments, from both, liquidity and regulatory perspective. In addition, their project formulation and management, and risk management practices may not be structured to finance long term infrastructure projects.

The impetus for development is making huge demand for developing countries to look at new and urgent ways to develop infrastructure in their countries. And this comes at a time when, such demand is necessitated by increased population, changing demographics and economic competition in their regions.

Industrialization is hampered by lack of project skills, finance capacity and lack of reliable power. Poor roads and railways, in most countries, not functional all year around, poor housing and sanitation in rapidly growing urban environments, lack of clean water and power, unemployment, urban degradation, and weather playing havoc to agricultural production, which is dominated by peasant farmers. All these are immediate requirements needing urgent solutions at a time when governments have education and health systems collapsing and requiring similarly huge investments to uplift them.

This has made it necessary for developing countries to resort to innovative solutions, through Public Private Partnership (PPP), to obtain both sufficient and appropriate financing, and adequate skills in designing, implementing and maintaining infrastructure projects.

Our study aims to assess the effectiveness of governments bringing all players in the economy, through innovative arrangements of using innovative combined domestic private finances through debt and public financing to fund infrastructure projects. Governments have been investing in infrastructure for years, but the gap keeps increasing. By stimulating domestic finance, the government may share investment costs but transfer risks to private partners. Projects financed by long-term debts allow a variation of up to 70% of the total funding equipment. Therefore, government investments for projects can also reduce equity cost, making projects bankable. The involvement of the government is a good guarantee for financial institutions and other stakeholders to be interested. Our study adopts a model from Assumption 4 (benevolent government) of the model by Estache, Serebrisky, and Wren-Lewis (2015) [1], in which circumstances can allow the use of combined public finance, private debt, and private equity. Thus, we improve the monitoring, bankability, and lowering cost of debts by using domestic instead of international finance.

II. Literature Review

A. Financing Public Infrastructure

Project finance is a preferred financing form for

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infrastructure sources through debts, equities, and government grants. Project finance accommodates large investment projects. However, in many developing countries, insufficient generation of cash flow is always the biggest impediment for project finance when they are considering large infrastructure projects needed to meet all project costs [2]. The alternative financial source has a significant impact on a project's capital structure in terms of how it can affect cash flow, total cost, and stakeholders' relationship in projects. Budget constraints cannot accommodate the growing infrastructure demands. In addition, international finance conditions and risk issues cannot finance most infrastructure projects in most developing countries. Therefore, a new financial source must be discovered and developed.

Traditionally, Pension funds [3] are a good alternative to financing infrastructures in many developing countries. Thus, such funds should be developed. Pension funds can be used as a financial source of infrastructure projects due to their long-term maturity profile, thus avoiding frequent tenor restructuring costs. A properly structured PPP arrangement provides solution to the ever challenging aspect of infrastructure maintenance due to the capacity and experience of institutional investors [4]. The governments in Sub-Saharan Africa uses 6%–13% of their total GDP on infrastructure. The GDP investment/income ratio of most countries indicates that that amount is insignificant compared with the demands [4].

The following is the main question on infrastructure for Africa. Can Africa solely rely on external financing for its infrastructure needs? No one doubts the importance of external financing to resolve the question of developing countries' infrastructure financing. Since certain elements that are attached to external infrastructure financing, such as technical expertise are still required. But what remains to be seen is how the demands of the external financiers support developing countries strategic demands in both social and political realms. Therefore, how external finance boosts economical and infrastructure development remains unknown [5].

B. PPP Concept

PPP, by itself, is not a panacea of the infrastructure gap. Its application and success depend on other performing indicators. PPP application, especially in a weak governance environment, creates many challenges. From potential corruption during the bidding process, lopsided benefits to external financiers due to weak and inexperienced legal and project skills, weak project origination skills to public sector officials leading to uneven demands and unsustainable financing structures. Eventually, this leads to lack of transparency that generates negative social sentiments to the private sector and, even the government. Using conventional methods for infrastructure needs cannot meet the target for regions such as Sub-Saharan Africa, where most infrastructures are greenfields. Demands for power, water, transport system, health services, and other social services are massive. Responsibilities between public and private sectors determine the type of PPP contract, hence the different types of models [6]. Most of these models compromise the combination of design, built, finance, operation, maintenance, and transfer mechanisms [7], [8].

C. PPP in Tanzania

Defining PPP simply by the presence of both public and private collaboration could lead to masking a lot of issues that have made genuine PPP projects to number a few, if any. [9]. PPP in Tanzania is not a new phenomenon; it dates back to 1980 after privatization, during which the government decided to involve private companies in contractual concession agreements [10]. As it were in many developing countries, the public used to be the major provider of services and deliverer of infrastructure solutions in Tanzania. To date, the developing countries' governments are still the leading provider of such services, far more than it is in the developed economies [11]. However, in Tanzania, as it is in most developing countries, the increasing burden, both in financial and human skills terms, in providing, maintaining and modernizing these infrastructure services, has become a big burden for the countries' economies to sustain. The use of PPP arrangements is aimed at reducing the state's burden of service provision and solving financial constraints through private-sector financing and efficiency gain. According to the data from the PPP knowledge laboratory and World Bank snapshot, 20 PPP projects in Tanzania reached financial closure in 1990; these projects involved a total investment committed amounting to \$863 million and 13 active projects either under construction or operation at a total of \$815 million [12]. The most recent and largest PPP projects are the 2011 Songas–Songo Gas Power project worth \$316 million, 2007 Tanzania Railways project worth \$134 million, 2011 Symbion Rental Ubungo Power Plant worth \$129 million, Independent Power Tanzania Ltd. project worth \$127 million, 2005 Mtwara Region Gas to Power project worth \$32 million, 2016 DARE submarine broadband cable ICT project worth \$29 million, 2000 Dar es Salaam container terminal project in Dar es Salaam port worth \$27.69 million and revised in 2018, 2006 Alstom Power Rentals Mwanza project worth \$6.31 million, and Adesemi Tanzania Ltd with ICT project costing \$5 million during the 1996 financial closure [13]. Tanzania, Angola, Nigeria, Uganda and Ghana will have the highest growth rates, whereas South Africa, Namibia and Botswana will have comparably lower growth rates The Kigamboni toll bridge between the government and the NSSF costs \$136 million. The bridge is one of the samples that used domestic financing by 100% supporting the argument of mobilizing capital from domestic markets, which can be essential for tapping domestic savings in developing maintainable infrastructures at that level [14], [15].

III. Financing Options for PPP

Financial closure is one of the key factors considered for the success of any project. Selecting the right source of investment capital can influence the project life cycle. For decades, most developing countries have been perceiving how their budget can finance projects or how multilateral partners that include grants and all other forms of foreign assistance can support their financial needs. Few studies have explored the ways in which developing countries can enhance the potential of domestic financing through local banks and foreign ones operating locally whose portfolio focuses on staff loan and mortgage financing; hence, the room for diversity is expansive. Funds (in Fig. 1.) are available, but obtaining them is difficult. Governments in most developing countries have been reluctant to make deals, especially financing deals with domestic banks, despite the many opportunities that they could take advantage of. These opportunities include the purchase of equipment in the health sector, building of dormitories or classrooms in the education sector, leasing of equipment for water systems and sanitation systems.

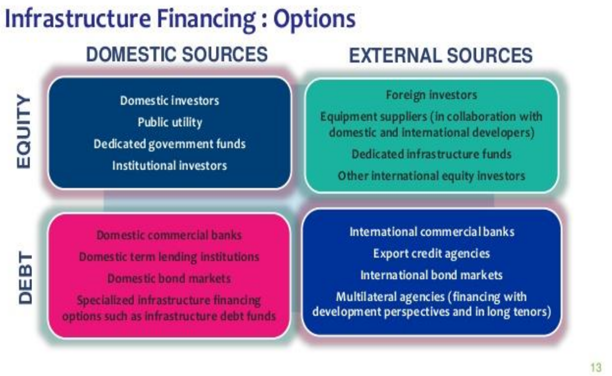

Fig. 1. Two forms of infrastructure finance and sample financing options.

Financing at the national level also brings many opportunities because it brings a diversification in financed assets, and thereby reducing the concentration risk in a few areas that have been the source of non-performing loans in the market. Project financing for infrastructure projects can be a new venture for commercial and development banks into new markets. The creativity brought by the collaboration between public and the private sector can greatly reduce the financing gaps. However, governments still face many challenges. While project finance, in which companies can secure financing from commercial or development banks to finance infrastructure projects, can bring advantages to governments, developing countries must still find ways to finance their domestic investments. Relying on foreign savings providing an average 90% of the infrastructure capital is risky [16]. Some of the reasons are national transaction costs that affect expected returns, perceived riskiness of assets in foreign currencies, and inducing home bias in investing. Local investors finance local assets (national firms of foreign firms but locally invested) more than they invest in foreign markets. During a financial crisis or any economic shock, foreign capital flow can be volatile and may be subjected to sudden stoppage. Therefore, relying less on foreign savings reduces the vulnerability to crises when provoked with international shocks in international financial markets, leading to project stoppages as well [17]-[20]. Except for South Africa, many Sub-Saharan countries struggle to finance infrastructures. Their financial and capital market are still small and underdeveloped. Moreover, the structure model of infrastructure financing and financial institution tenor are mismatched. Nevertheless, the momentum of financial market reforms due to the growing awareness must be utilized. Furthermore, local financial sources of infrastructures in Africa should be tapped as they provide positive results in certain parts [21].

A. Project Finance Market and Corporate Finance against PPPs

These two alternatives can be used by sponsors to finance projects, but both operate differently. One SPV is formed, then projects are incorporated in newly formed machines. Finance is done off the balance sheet where corporate finance the project is financed on balance sheet of a core company. Project finance stresses that project-financing priorities do not depend on the soundness or creditworthiness of sponsors, which are the entities or parties that propose business ideas to launch projects [22]. In addition, offering sponsor assets to financers as collaterals is not a guarantee for approval. Therefore, projects must repay the debts that go through a high scrutiny from financers to analyze the viability of projects and associated risks to which interest rates are charged. Given the environment in developing countries, high-risk projects should determine which alternative should be used.

Project finance is the method of raising long-term financing for infrastructures and industrial projects by using project cash flows rather than using the balance sheet of project sponsors [23]. A recourse debt is used through industrial assets, which are legally financed by independent entities. A corporate sponsor investment is involved as well as those who own a single purpose in project finance. Financing projects is not the same as project finance because company projects may be financed in other ways. For example, most projects in developing countries are financed by governments through public debt from development financers such as the World Bank and the international banking market. Private sectors are financed by large companies raising corporate loans [23]. Through different world economic reforms and shocks, such approaches change from privatization, economic crisis, deregulation, and introduction of private finance through PPPs to financing investments in major infrastructure projects. Private sectors in such projects are signified with a huge burden of financing. A commercial perspective makes projects, and a financial perspective plays a major role in viewing the direction of projects from the perspective of the financer.

1) Finance advisory role in project finance

Project formulation, analysis, and preparation are critical areas for project success where both technical and legal expertise is needed during project documents preparation, modeling and defining the project financing as well as maintaining different project phases, including during implementation and operation. [24]. The debt financiers, in this case commercial banks, institutional investors, or development/investment banks play an advisory role to sponsors and projects. These financiers require specialized skills to ensure that loan documentations are set properly and that they do not suffer any legal litigation during the processing and after loan disbursement. In the introduction of project finance, we represent the role of intermediate agencies that can help governments in reducing consortium and assisting in supervision process. Project sponsors and lenders are required to coordinate complex tasks for project strategies from the legal, financial, operational, and general perspectives [22]. Therefore, risks are automatically passed to a department that can manage them even when government contribution exists in projects, thereby turning governments into regulators.

B. Commercial and Development/Investment Banks

Different studies show that commercial banks in Sub-Saharan Africa account for large profits with an average return on asset of approximately 2%, which is significantly higher than that of any other banks in other parts of the world for the past 10 years [25]. Development and investment banks have been financing PPP projects, which mostly have the same project life cycle. Initiation, implementation, and operation are the three PPP stages in most projects. Banks, especially development banks, have been involved in such stages, which can be beneficial to public engagement with private sectors. These banks can serve as available resources when domestic financing is involved. These stages involve many and different risks that can easily be passed on to financial institutions. Such risks are dissolved in credit appraisal to approval level of the facility and then to monitoring process.

Using domestic financial institutions can reduce costs and certain financial risks patterning with international finance, including foreign currency exchange rates. However, obtaining financial credit or assistance from multilateral organizations involves different conditions for governments and project characteristics [26]. Most developing countries are suffocated with international debts, and most projects are too small to cover the total project cost with high political risk. Therefore, promoting domestic financing can increase PPP projects and enhance the experience of public sectors. Such experience can be used while dealing with other forms of PPP projects involved with international financing. Education and health sectors can take several opportunities, including lease financing, which can easily be used with domestic finance. Sponsors need a certain equity contribution in such a case, e.g., cancer institutes or MRI machines.

C. Institutional Investors

Institutional investors are the big guys on the block. Although some fall in different bank categories for the purpose of this study, we consider pension funds, mutual funds, money managers, insurance companies, commercial trusts, endowment funds, hedge funds, and certain hedge fund investors. Pension fund investment in infrastructures is increasing, and investors look for new opportunities. In Tanzania, several projects from real estate to a newly toll bridge project have used pension funds. However, research shows that despite the high investment demand in infrastructures, large portions of pension funds have yet to be utilized [27].

Institutional investors, such as pension funds, are attracted to infrastructure investments because they can provide reliable cash flow, which is predictable over a given period [28]. Pension funds are more interested in long-term income than profit accumulation, such that infrastructures provide a good platform for their business nature. Barriers such as investors' capability exist for pension fund investment. Fig. 2 shows the detailed investment conditions and opportunities.

Categories	Barriers
Investor Capabilities	- Lack of expertise in the infrastructure sector - Short termism of investors - Regulatory barriers - Misalignment of interests between infrastructure and pension funds - Scale problems of pension funds
Investment Opportunities	- Lack of political commitment over the long term - No clarity on investment opportunities - High-bidding costs - Infrastructure investment opportunities in the market that are perceived as too risky. - Regulatory instabilities
Investment Conditions	- Negative perceptions of infrastructures - Lack of transparency in the infrastructure sector - Shortage of data on infrastructure projects

Fig. 2. Source: OECD working paper.

IV. Research Methodology

The study identifies challenges for developing countries to obtain financing for their infrastructure projects. The impact of relying solely on international financing, including projects that can be procured domestically, is also highlighted. Therefore, the research provides interventions by proposing alternative financing methods for PPP financing projects. A case study method is adopted to provide multiple data sources, which can help elaborate the application of domestic financing through a case of institutional investors.

A case study approach provides research with an in-depth method to investigate an event by identifying themes as well as patterns, which describe cases that can be applied to other developing countries [29]. The use of case study can also help examine problems in real-life context by observing multiple data collection methods. Such methods include document analyses and in-depth interviews [30] with a clear study view investigating the combined use of public finance and domestic investment finance for PPP projects. Using only public finance is never enough for infrastructures, and relying on international finance alone brings many challenges to developing countries.

V. Case Study: Kigamboni Bridge Project

The case study was selected on the basis of the merit and relevance to our study perspective that is, assessing the use of public and domestic finance investments for infrastructures. The case represented private finance in terms of institutional investors—national social security funds (NSSF). The case study is one successful PPP project in Tanzania, which was 100% domestically financed 100% to demonstrate the current PPP state.

A. Interview and Correspondence with Professionals, Officials, and Project Managers

Different techniques were used. Face-to-face, social media as well as telephone interviews with project staff in different levels and experts were conducted. To obtain the key element of projects and determine how performance directs projects, a key question was prepared in different levels of practitioners and experts. Furthermore, to reach the high number of stakeholders, the author communicated with consultants and contractors through e-mail, postal, and social media.

B. The Project

The Kigamboni bridge project and its roads were designed by Finn consultant in 1978. The construction began 34 years later in February 2012. The bride design aims to be the main means of crossing the creek. This design can shade infrastructure issues regarding financing or strategies used by developing countries. The proposed area for the project is in Kurasini Highway, north part of Kigamboni, a western bank of Dar es Salaam port, which is approximately 5 km away. The project bridge is approximately 680 m long and 32 m wide, with a dual carriageway spanning across the inland Indian Ocean between the city center and Kigamboni. Nelson Mandela Road is the approaching road to the bridge via grade-separated interchange and through TAZARA railway to the bridge.

The project financing plan of US$136 million was under institutional investors from pension fund NSSF. They financed 60% of the project, whereas the Tanzanian government contributed 40%. Therefore, the project was completely financed domestically. The project was completed in April 2016 and is currently being used as a toll road bridge connecting Kigamboni and the city center. Having the bridge eliminated the previous problem of waiting for ferries for 30 minutes to one hour. Financing alternatives are determined with sponsors in terms of how best they finance projects. The same thing is considered when determining financial sources [31]. The Kigamboni toll bridge project followed the mix of selection that awarded NSSF as the best alternative.

VI. Conclusion

PPP can provide fruitful results to financing infrastructure by combining public finance (budget), other public financial sources and private sector. A clear framework at project and policy levels should be implemented. Governments should adhere to contracts and terms of agreement to create a trustworthy atmosphere with other stakeholders. Advantages are identified for using domestic finance, and they include avoidance of foreign risk exposure in terms of management, additional expertise in project appraising and monitoring that can be transferred to lenders, and the maintenance and operation of investors as well as building experience capacity. PPP models must be customized to the demands and the economic environment of developing countries. Many models cannot leverage projects in typical models such as BOT or many forms of concession. Hiding the project cost in off-balance sheet items is not a permanent solution. Off balance sheet treatment can lead to more debt since analysis of how much a country is indebted cannot easily be accessed then trapping these developing countries. The solution is to commercialize projects, and governments must create an atmosphere where these projects can be bankable by facilitating with different tools. Doing so would make private sectors and lenders attracted to the projects. Necessary guarantees and other incentives like direct or direct public support, mezzanine debt or standby financing should be used to attract several investors but with caution.

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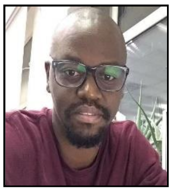

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