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A Literature Review of Public-Private Partnerships' Role in Energizing Africa and, in Turn, Activate the African Manufacturing Revolution and Enable Economic Upliftment

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Abstract

Access to electricity is one of Africa's most significant opportunities for economic growth. Governments need to work hand-in-hand with the private sector to make real progress. Public-private partnerships (PPPs) offer a powerful model: they bring together the necessary skills, funding, risk management expertise, and long-term operational support to build and maintain sustainable energy infrastructure. This paper examines how PPPs—especially in hydroelectric projects—can unlock Africa's manufacturing potential, create jobs, and drive lasting economic upliftment. The research is based on a thorough review of recent and foundational literature, using databases like ProQuest, SpringerLink, and ScienceDirect. The sources span from 2004 to 2024, ensuring a mix of time-tested insights and the latest developments. Search terms such as "Public-Private Partnerships in Africa," "energy infrastructure," "PPP risk management," and "sustainable manufacturing growth" guided the selection of articles and studies. By pulling together the lessons from past successes and failures, this paper shows how properly structured and managed PPPs can be a key strategy for powering Africa's future.

Keywords

Hydroelectricity, Manufacturing, Funding Strategies, Risk Management, Public-Private Partnerships (PPPs)

1. Introduction

Despite abundant natural resources, increasing exports, and receiving aid from

donors, the African continent still needs to overcome numerous challenges. Africa needs to develop its manufacturing industry to improve its economic situation, which requires a reliable and sustainable electricity supply. One way to achieve this is to involve the private sector in constructing, operating, and maintaining the necessary electrical infrastructure through public-private partnerships (PPPs). Given the importance of Green Energy, the paper highlights the potential PPP hydroelectric project opportunities in Africa. It explores the benefits of PPPs, the reasons for their failures, and the critical factors contributing to their success.

Moreover, the paper considers funding strategies, potential exchange and interest rate risks, and hedging options to mitigate these risks based on a literature review. It is essential to have access to funding and effective management, including understanding the financial risks and implementing optimal hedging measures. Implementing PPPs can boost Africa's energy sector, promoting improved manufacturing, job creation, and economic growth. This research aims to contribute to understanding how upliftment in Africa can be achieved sustainably.

This literature review provides a sector-specific synthesis of how public-private partnerships (PPPs), particularly in hydroelectric energy projects, can catalyze Africa's manufacturing expansion and economic upliftment. Unlike general discussions of PPPs or African energy challenges, this paper integrates insights across energy infrastructure development, manufacturing sector needs, funding strategies, and risk mitigation techniques. Combining cross-sectoral evidence highlights a strategic pathway where energy infrastructure and industrial development can simultaneously accelerate through well-structured PPP models.

2. Literature Review Methodology

This article is based on an extensive literature review, utilizing scholarly databases such as ProQuest, Springer, Elsevier, and university repositories. The sources include peer-reviewed journal articles, books, and institutional reports. Approximately 70% of the literature reviewed was published between 2018 and 2024, ensuring that the analysis reflects the latest developments in Africa's public-private partnerships (PPPs), energy infrastructure, and economic upliftment strategies. Foundational literature from 2004 to 2017 was also incorporated to provide theoretical context.

The keywords used for the literature search included "Public-Private Partnerships (PPPs) in Africa," "Energy infrastructure development Africa," "PPP success factors and failures," "Hydroelectricity Africa," "Funding strategies for infrastructure projects," "PPP risk management," "Exchange rate and interest rate risk in PPPs," and "Economic growth and manufacturing in Africa."

This approach ensured a broad and relevant evidence base for exploring how PPPs can energize Africa, activate manufacturing, and contribute to sustainable economic upliftment.

3. Main Contribution and Significance

This literature review makes a meaningful contribution by connecting several critical topics often discussed in isolation—energy infrastructure, public-private partnership (PPP) models, funding strategies, risk management, and sustainable industrial growth in Africa. Instead of simply pointing out Africa's electricity challenges, it offers a clear and practical roadmap for how PPPs, especially in hydroelectric projects, can power both a manufacturing revolution and broader economic upliftment across the continent. Weaving together insights from different sectors shifts the conversation from "why Africa needs more energy" to "how Africa can deliver energy and industrial growth simultaneously," addressing an important gap in existing research. It also emphasizes the urgent need for well-structured partnerships, strong financial risk management, and regional collaboration to make long-term success a reality.

4. Background

Hafner et al. (2018) find that access to energy remains a major developmental challenge for the African continent. Energy use per capita in Sub-Saharan Africa is equivalent to one-third of the world's average. Hafner et al. (2018) continue that in some African countries, energy consumption per capita is five times less than that consumed by a standard household fridge. Furthermore, of the energy consumed in an average African country, the transport sector only accounts for 11%, and the other value-adding sectors, like manufacturing and agriculture, account for a mere 21% of the total energy consumption, giving a perspective of how underdeveloped these sectors are. Poor energy supply (low accessibility, high costs, shortages) is a significant constraint for industrial activities and businesses in general, as in these conditions, most firms have to rely on backup generators, significantly adding to businesses' costs. Unless fuel subsidization is in place, manufacturing becomes expensive, and expansion slows down. Maduku and Zerihun (2023) find a positive correlation between increased manufacturing and employment. Without electricity, manufacturing slows down, African economies remain weak, unemployment levels are high, and poverty is high.

The United Nations (UN) Agenda for Sustainable Development aims to achieve universal energy access by 2030. Considering the current electricity access levels in the Sub-Saharan African region, reaching this goal will represent a significant challenge (Hafner et al., 2018). Major capital investment will be required to create the needed energy infrastructure. The research findings by Hafner et al. (2018) suggest that the required capital can be anything between 50 billion US$ at the lowest electrification level and 1.3 trillion US$ at the highest tier of electrification.

Acquiring the latter funding will be complex and involve reforming the power sectors to facilitate international investment. Scaling up international private sector investments will also require better utilization of the public sector funding available for Africa's electrification. The challenge to reduce investment risk extends beyond the power sector, involving macroeconomic and political stability

and protecting contract and property rights (Hafner et al., 2018). Many critics argue that the latter is a tall order to achieve, making the dream of an energized Africa enabling strong manufacturing, work creation, and economic growth farfetched.

However, if governments effectively collaborate with the private sector, the development of the required energy infrastructure will be cheaper, quicker to achieve, and more sustainable, given the more effective management of operations and infrastructure maintenance once in place. In that case, the dream may be realistic to achieve. To guarantee that electrification projects prioritize the needs and interests of the communities they serve, it is advisable to adopt a regional collaboration approach between countries rather than a country-by-country approach. Furthermore, the governing body representing the various countries should outsource the funding and project management to the private sector, which will collaborate with each country's representative body, individual governments, and country-specific private subcontractors. This approach ensures that interference at an individual country level is minimized and that investor confidence is bolstered on the utilization of funds and feasibility of success within agreed timelines. Moreover, it enables the implementation of optimal hedging strategies to counter country-specific risks.

The collaboration agreement known as the Southern African Development Community (SADC) is an example of government cooperation. Chiwira (2023) finds that the primary aim of SADC, as outlined in the SADC Treaty of 1992, is to achieve sustainable economic growth, alleviate poverty, and improve the standard and quality of living. It has been noted that economic growth is viewed as the solution to eradicating poverty and achieving prosperity (SADC, 1992). Given its location and level of development, South Africa has the potential to be the leading country for the infrastructure development of a hydroelectric public-private partnership (PPP) project across SADC countries.

Das and Jena (2020) find that hydroelectricity water flow and electricity output can be easily adjusted, do not pollute the environment, do not emit greenhouse gases, can be used from the lake for irrigation, last for many years, can be produced at a constant rate, generate renewable energy, is safer than fossil fuels and nuclear energy, is environmentally friendly, releases no air pollution, and does not leave waste behind.

The electricity grid of South Africa could be connected to the electricity grids of its neighboring countries, including Swaziland, Lesotho, Namibia, Zimbabwe, Botswana, and Mozambique, in order to extend the benefits of this infrastructure development to these countries. While being more developed than many other African countries in the SADC region, South Africa is also facing an energy crisis. The high demand for electricity in South Africa recently has been met with a shortage of electricity supply, which is evident in the continuous power cuts from time to time to balance the demand and avoid a day of darkness (Hlongwane & Daw, 2022). Lenoke (2017) stresses that power cuts negatively impact South Af-

rica's economy. The escalating expenses associated with operating and maintaining South Africa's electrical transmission infrastructure pose a significant challenge. Currently, Eskom (the national electricity provider) needs help to secure the necessary funding to rebuild the grid, resulting in many clients and independent power producers needing help connecting to the national grid. The latter includes vital enterprises located in South Africa's industrial development zones. The rollout of the grid has faced numerous obstacles, leading to low electrification rates. Additionally, South Africa plans to phase out coal-fired power plants with a total capacity of approximately 24,100 MW by 2050, producing a significant shift in the nation's overall energy mix (Mugambiwa & Rapholo, 2023).

5. Public-Private Partnerships (PPP)

5.1. Overview of PPPs

The recognition of private sector involvement in public services and infrastructure development has been widely acknowledged, according to a study conducted by Onyoin and Boyis (2021), also citing various authors such as Hodge and Greve (2007), Kakabadse et al. (2007), Mouraviev (2013), and Reeves (2013). Public-private partnerships (PPPs) have gained popularity in recent years as an alternative to traditional approaches like outsourcing, contracting out, and complete privatization (Al-Saadi & Abdou, 2016; Dempsey et al., 2016; Hodge & Greve, 2007; Slater, 2001).

Collaboration between the public and private sectors through long-term contractual agreements is what PPPs are all about. These agreements involve private entities constructing, managing, and maintaining public infrastructure or providing services on behalf of the public sector (Boviard, 2010; Brinkerhoff & Brinkerhoff, 2011; Grimsey & Lewis, 2004b; Koppenjan, 2005). Many countries have increasingly adopted PPPs, crucial to modern public management practices. Over the past two decades, PPPs have been heavily relied upon (Hodge & Greve, 2007; Weihe, 2005; Wettenhall, 2010).

The financing and management of assets, along with charging fees based on asset performance or usage, are the responsibilities of the private sector, as described by Toan and Hai (2023). The public partner initiates PPP projects and grants concession agreements, while the private sector partner is accountable for the project's funding, design, construction, operation, and maintenance as per the contract. The public, manufacturers, and stakeholders utilize the project's final output.

5.2. Benefits of PPPs

Long-term sustainability is crucial when planning PPP projects, primarily since electrification efforts aim to drive manufacturing growth, boost economic development, and reduce unemployment. This is particularly important in light of South Africa's plan to phase out coal-fired power plants by 2050. Valuable lessons come from del Río and Gual (2004), who studied renewable energy use across

European countries. They found that renewable energy sources cause far less pollution than conventional electricity generation, helping to avoid severe environmental impacts. In addition, renewables are key to meeting the climate change targets outlined in the Kyoto Protocol and contribute to lower local emissions. Beyond environmental gains, renewable energy also brings social and economic benefits such as job creation, development, and investment opportunities. Significantly, Europe's push toward renewables has helped reduce dependence on fossil fuels and strengthened energy security, a primary policy goal for many nations today.

Malek and Zala (2022) further point out that PPPs offer significant advantages, especially for developing countries struggling to finance major infrastructure projects. By sharing the financial burden with the private sector, governments can free up resources for other critical priorities while supporting economic growth. PPPs also enable faster project development by encouraging innovative approaches, helping to avoid the common pitfalls of delays and cost overruns. In addition, Malek and Zala (2022) highlight two more important benefits: better maintainability and buildability. When the private sector is responsible for the full lifecycle of a project—from design and construction to long-term maintenance—the quality and sustainability of the infrastructure are much more likely to be ensured.

Lastly, using Public-Private Partnerships (PPP) provides governments with two additional significant advantages—the private sector's skills, experience, and promotion of economic development. Public services can benefit from the private sector's expertise, lowering costs. When the private sector employs cost-effective techniques, it can decrease expenses and increase profits. With the entrepreneurial mindset of the private sector, PPPs foster innovation and creativity in project delivery; hence, the private sector can deliver better-quality services. Governments can expect efficient project delivery when the private party with vast knowledge of related projects and the necessary finance and practical expertise involved completes the project within the stipulated time and budget. This is a significant advantage for governments. To ensure maximum value for the project, the private party integrates all project phases, including project planning, budgeting, development, cost control, resource allocation, and documentation, into a single management structure.

5.3. Refutation: Causes of PPP Failures

Tariq and Zhang (2022) identify several significant reasons PPP projects often fail. The first is poor pre-project planning. Before any project starts, it is critical to assess both the economic and technical aspects properly—this means evaluating costs and benefits, studying the existing infrastructure, and gauging whether users are willing (and able) to pay for the services provided. Ng et al. (2012) add that setting an appropriate tariff level early is key to ensuring the project's long-term socioeconomic value.

The second common reason for failure is political interference. When political actors intervene in project planning or operations—for example, by pressuring stakeholders or overriding contract terms to favor specific groups—it can derail a PPP's success. Third, financial difficulties in the private sector can also doom a project. Since private partners typically rely on successful project execution and operation to recover their investments, anything from poor early planning to weak technical capabilities or corruption can lead to serious financial trouble. A fourth issue is poorly drafted contracts. Contracts are the backbone of any PPP, clearly setting out the roles and responsibilities of each party. If the terms are vague or incomplete, it can lead to confusion, mistrust, and project delays. Fifth, disputes between public and private partners often arise, usually triggered by the same unclear contract terms or unmet performance expectations, and can significantly disrupt or even collapse a project. Sixth, corruption remains a serious threat at the project, community, or national level. It can weaken the integrity of partnerships and drive away much-needed private investment.

Finally, public support is crucial. Without community buy-in, governments face an uphill battle maintaining or expanding PPPs. Public opposition can easily derail a project, no matter how sound its technical or financial foundations are.

5.4. Critical Success Factors of PPPs

There are several examples globally highlighting critical success factors for PPP projects.

See Table 1.

Table 1. Critical success factor learnings for PPPs worldwide.

Solution	Description
Learnings from Australia (Jefferies et al., 2002)	• Solid Consortium with Considerable Experience • Effective approval process that supports stakeholders during a very tight timeframe • Effective approval process that supports stakeholders during a very tight timeframe • Innovative Financing Methods
Learnings from India (Gupta et al., 2013)	• Dealership Agreement • Short construction time • Debt repayment • Clear and precise documentation • Feedback from completed projects • Deep understanding of owner/customer expectations
Learnings from South Africa (Minnie, 2011)	• Providing a public service • Achieving the objectives of the partnership
Learnings from China (Cheung et al., 2012)	• Stable macroeconomic situation • Favourable legal framework • Sound economic policy • Available financial market

Continued

Learnings from Malaysia (Ismail, 2013)	• Good leadership • Commitment and responsibility of public or private sectors • Low cost legal framework • Sound economic policy • Financial marker availability
Learnings from Indonesia (Wibowo & Alfen, 2014)	• Solid legal basis • An irrevocable contract • Sensible and manageable risk-sharing arrangements • Reality described coordination mechanisms • Strong political help
Learning from the USA (Jacobson & Ok Choi, 2018; Li et al., 2005)	• Involvement of all parties and aligned vision • Transparent communication • Trust • Team Work • Strong private sector consortium • Adequate risk allocation and risk sharing • Available financial market • Commitment and responsibility of the public/private sector • Accurate and realistic cost/benefit assessment • Government engagement • Adequate funding • Public acceptance/support • Private partner strong and competent • Effective legal and regulatory structures.

5.5. Potential PPP Structure and Roles of the Stakeholders

See **Figure 1** and **Figure 2**.

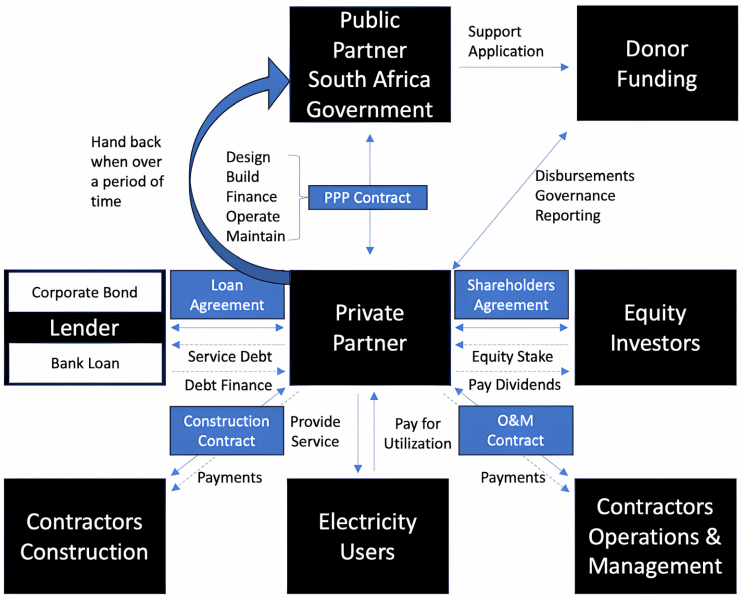

Figure 1. PPP structure (Chowdhury, 2012; Van Garsse et al., 2016).

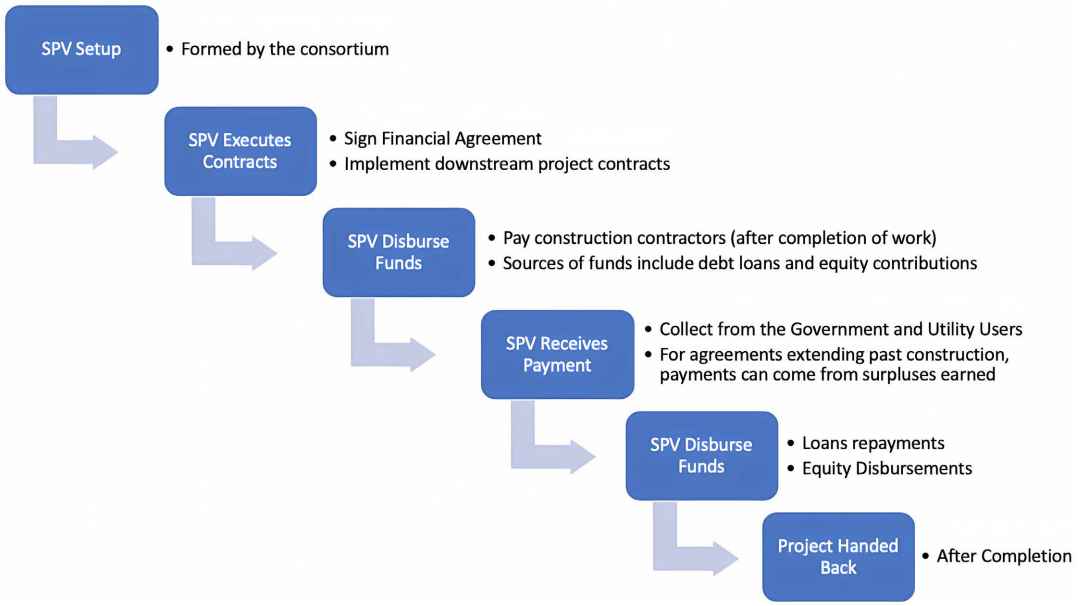

Figure 2. A typical public-private partnership setup includes the following steps.

6. Funding Strategies

Choosing the right private sector partner for a PPP project primarily comes down to financial and technical capabilities, as Mohammed et al. (2022) point out. Factors like how the project balances equity and debt, the proposed construction timeline, and how well the private partner can comply with legal and regulatory requirements all play a significant role in the selection process. Building on this, Maposa and Munanga (2021) emphasize that a strong development finance model is crucial for PPP success in Africa, especially in countries facing economic challenges like Zimbabwe. Their research shows that adequate PPP financing depends on attracting private capital, lowering political risks, and creating transparent revenue-sharing agreements between public and private partners. These insights underline the importance of Africa-wide energy PPP projects embedding solid financial planning and clear, fair risk-sharing frameworks.

6.1. Private Sector

6.1.1. Corporate Bonds and Notes

Investors purchase debt obligations from companies in exchange for preestablished interest payments for a set period. These obligations are corporate bonds and notes, and provide the company with capital. The interchangeable use of bonds and notes is because they are essentially the same, except for the difference in time to maturity. Notes usually have a shorter maturity period, while bonds have a longer one, but both instruments are structured similarly. Over the bond's lifespan or note, the corporation makes semi-annual interest payments (coupons) to the bondholders based on the stated interest rate (coupon rate). The price of the bonds will fluctuate as market conditions change, but the coupon rate remains constant. Once the set period has ended, the bond matures, and the company

ceases to make interest payments and repays the initial investment to the bondholder (Doyle, 2023). Bonds have longer dates, provide maturity, reduced interest rates, and fewer constraints on fund utilization than bank financing. Financing through bonds is a more cost-effective option when compared to equity financing, as equity is considered riskier. Due to the more significant risk involved in equity financing, the company must offer a higher rate of return (Doyle, 2023). Bonds are popular due to their reputation as a secure and cautious investment, providing a steady source of income through consistent interest payments. Compared to stocks, bonds are typically less hazardous, as bondholders get priority over stockholders in the event of bankruptcy.

6.1.2. Commercial Bank Loans

PPP can approach international commercial banks as a consortium to finance a component of the PPP capital requirements for constructing the electricity infrastructure. Typically, borrowing from commercial banks will carry higher interest rates, have shorter timelines for maturity, and have more restrictions on the utilization of the funds than bonds would have (Doyle, 2023).

6.1.3. Grants

Obtaining grants will be a joint effort by the private and public sectors. Helble et al. (2023) find that continuous support for the international donor community is essential to successful public-private partnerships. Energy demand in developing countries is increasing, and aid agencies have initiated multi-dimensional energy projects focusing on expanding renewable energy sources in the recipient nations. Donor agencies implemented nearly 12,000 projects promoting renewables in the electricity sector worldwide between 1980 and 2015, according to Marquardt (2015). Obtaining donor funding typically does not require repayment. The value in the reduced cost of the infrastructure can be translated to shorter payback periods, lower risk, and improved subsidies to encourage increased usage by the end users and ultimately lower manufacturing cost, expansion of manufacturing capabilities, job creation, higher tax income for governments, all contributing to economic upliftment.

6.1.4. Equity Partners

Zhang et al. (2023) found that, in addition to raising funding for PPP projects, an effective equity structure can be a strong motivator for private sector involvement. Companies with a significant stake in PPP project assets are more likely to increase their contribution level, increasing profits for both parties. The study also suggests that professional companies tend to put in more effort when an appropriate equity structure is in place. However, some experts hold differing opinions and claim that construction and equipment suppliers might participate in PPP projects not for future profitability but to secure contracts for construction or equipment supply. As a result, some prefer PPP companies that consist solely of pure investors.

6.2. Public Sector

Government Bonds

To source funding, a government can issue green government bonds to attract investors. Investors are increasingly concerned about climate change, shifting their investment preferences towards environmentally friendly options. The latter can be due to the rapid growth of green markets in a short period. Abakah et al. (2022) find that green investments are financial instruments used to mobilize and allocate funds toward projects that directly or indirectly benefit the environment and mitigate climate change. As a result, they have become a popular investment choice for those who prioritize ethical investments. The government can use the funds sourced via bonds to extend loans to PPP SPVs at beneficial rates. Government bonds can also be raised across multiple countries that collaborate in the PPP. An example of this collaboration is where multiple countries can benefit from the investment in the electricity infrastructure through the extension of the electricity grid across borders for all participating countries to benefit from the project (Hancock, 2023) or through beneficial trade agreements on the manufacturing products enabled by the stepped-up availability of electricity.

7. Financial Risks

7.1. Exchange Rate Fluctuations

The purchase of materials for constructing the electricity infrastructure will be international. Fluctuations in the exchange rates between the purchase contract and the payment of the underlying asset can hold financial risk for the SPV and require hedging to minimize the risk. Eiteman et al. (2019) found that transactions in the foreign exchange market can be on a spot, forward, or swap basis. A broader market definition, including significant derivatives, would include foreign currency options, futures, and swaps.

7.2. Interest Rate Risks

Regarding global borrowing or investing, calculating international interest rates is a significant concern for firms, as stated by Eiteman et al. (2019). The calculation of interest rates varies based on the number of days used in the period and the definition of the number of days in a year for financial purposes. Suppose the interest rate calculation assumes a 30-day month instead of the actual days used. In that case, the loan's interest payment will be significantly higher than it would be if the exact number of days used were considered.

According to Eiteman et al. (2019), Multinational Enterprises (MNEs) are primarily concerned with their ability to pay off debt. MNEs may have different debt maturities, interest rate structures, and denomination currencies in their debt portfolios. Interest rate risks can arise when a loan is tied to fluctuating interest rates, causing interest payments on the debt to fluctuate. The second most significant source of interest rate risk for MNEs is their holdings of interest-sensitive

securities, representing potential earnings or interest inflows for the firm.

7.3. Weighted Average Cost of Capital (WACC)

Hargrave (2023) explains that the weighted average cost of capital (WACC) is essentially the average after-tax cost a company pays to access funding from all sources—common stock, preferred stock, bonds, or other forms of debt. In simple terms, WACC reflects the average rate a company must offer investors to attract the capital it needs. It is a convenient single figure showing what bondholders and shareholders expect as a return for providing their money. WACC tends to be higher for companies whose stocks are more volatile or whose debt is seen as riskier, as investors demand greater compensation for taking on additional risk. To calculate it, you multiply the cost of each type of financing by its proportion of the company's total market value and then add the results together. WACC is often used as a "hurdle rate"—a benchmark for deciding whether a project or acquisition is worth pursuing. If a new project carries a similar level of risk to a company's typical activities, WACC offers a reliable measure of the return investors expect based on current market conditions. Beyond investment decisions, WACC is also a key input in discounted cash flow (DCF) analysis, helping companies value future cash flows.

8. Hedging Options

8.1. Exchange Rate Risk Hedging

8.1.1. Money Market Hedge

According to Eiteman et al. (2019), with a money market hedge, the SPV must deposit the payable funds into a term deposit with the same maturity as the payment due date. If the interest rates in the market from where the assets are sourced are higher than those in the local market, the SPV can deposit the funds into a term deposit in the country from where the assets are sourced. The latter will result in additional interest income to help offset any potential price implications arising from currency exchange rate fluctuations.

8.1.2. Futures Hedge

According to Eiteman et al. (2019), a futures contract for foreign currency can be an alternative to a forward contract that requires the delivery of a standard foreign exchange at a fixed price, time, and place. While it eliminates exchange rate risk for the private sector partner in PPP, they may take advantage of the opportunity for an upside if the currency depreciates beyond the futures rate.

8.1.3. Call Options Hedge

The SPV can decide to buy a call option, giving them the right to buy the underlying currency at a pegged exchange rate at a future date to honor the contract payment in that currency (Eiteman et al., 2019). The SPV could achieve a better return on sales than with the money market hedge; however, if the currency depreciated beyond that level, the risk would be the loss of the premium.

8.2. Interest Rate Risk Hedging

8.2.1. Interest Rate Futures

Eiteman et al. (2019) state that interest rate futures markets are well-liked for their high liquidity, user-friendliness, and most firms' standardized interest rate exposures. The SPV would sell a future and take a short position to hedge a floating interest payment due when the expectation is that interest rates will increase. If the interest rates rise, future prices will decline, and the SBV can close its position at a profit. The profit will balance the losses associated with the increasing interest rate payments on the debt. However, if interest rates decrease, the SPV will suffer losses that will wipe out the savings on the lower interest amount due.

8.2.2. Forward Rate Agreement (FRA)

With an FRA, the parties agree to buy or sell interest rate payments on an amount. Settlement of the contract is in cash. If the private sector SPV purchases an FRA, it can secure the right to lock in an interest rate for a desired period starting from a future date. The contract states that if the interest rates go beyond the agreed rate, the seller of the FRA will pay the private sector SPV the higher interest expense on a nominal sum. If interest rates fall below the agreed rate, the buyer pays the seller the differential interest expense. Maturities available for FRAs are usually 1, 3, 6, 9, and 12 months (Eiteman et al., 2019). FRAs are helpful for individual exposures, just like foreign currency forward contracts. However, they do not offer much flexibility to the private sector partner of the PPP to take advantage of favorable movements, such as when LIBOR is falling, as described in the previous section.

8.2.3. Interest Rate Swaps

Interest rate swaps are all about swapping a series of cash flows. Usually, these cash flows refer to the payments made for debt service, including fixed-rate and floating-rate debt obligations (Eiteman et al., 2019). By entering into an interest rate swap, a PPP private sector partner and any other party can agree to trade a fixed interest rate payment for a floating interest rate payment. This swap helps to modify the cash flow obligations of the PPP SPV, which means that it can change floating-rate payments into fixed-rate payments associated with an existing debt obligation.

9. Conclusion

Although Africa is rich in natural resources, enjoys growing exports, and receives significant donor support, the continent still faces major hurdles. Expanding Africa's manufacturing industry—a key driver of economic improvement—depends heavily on having a reliable, sustainable electricity supply. One promising solution is to bring the private sector into the picture through public-private partnerships (PPPs), particularly for building, operating, and maintaining hydroelectric infrastructure. This paper spotlights South Africa within the SADC region as a prime candidate for such a PPP-led electricity project. It dives into the benefits PPPs

offer, the common reasons they sometimes fail, and the critical success factors needed to get them right. Drawing from an exhaustive literature review, the paper also examines funding strategies, risks linked to exchange and interest rate fluctuations, and hedging approaches to manage these financial risks. While PPPs come with challenges, when properly structured and managed, they hold tremendous potential to power up Africa's manufacturing base, create jobs, and drive real economic growth across the continent.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Abakah, E. J. A., Tiwari, A. K., Sharma, A., & Mwamtambulo, D. J. (2022). Extreme Connectedness between Green Bonds, Government Bonds, Corporate Bonds and Other Asset Classes: Insights for Portfolio Investors. *Journal of Risk and Financial Management, 15,* Article 477. https://doi.org/10.3390/jrfm15100477

Al-Saadi, R., & Abdou, A. (2016). Factors Critical for the Success of Public-Private Partnerships in UAE Infrastructure Projects: Experts' Perception. *International Journal of Construction Management, 16,* 234-248. https://doi.org/10.1080/15623599.2016.1146110

Boviard, T. (2010). A Brief Intellectual History of the Public-Private Partnership Movement. In G. A. Hodge, C. Greve, & A. E. Boardman (Eds), *International Handbook on Public-Private Partnerships* (pp. 43-67). Edward Elgar Publishing. https://books.google.co.za/books?hl=en&lr=&id=y_ySD3JABt0C&oi=fnd&pg=PA43&dq=A+brief+intellectual+history+of+the+public-private+partnership+movement&ots=n1CqzQoSx9&sig=zrHOmFKSLFggJPin5lFM4-qlxvU&redir_esc=y#v=onepage&q=A%20brief%20intellectual%20history%20of%20the%20public-private%20partnership%20movement&f=false

Brinkerhoff, D. W., & Brinkerhoff, J. M. (2011). Public-Private Partnerships: Perspectives on Purposes, Publicness, and Good Governance. *Public Administration and Development, 31,* 2-14. https://doi.org/10.1002/pad.584

Cheung, E., Chan, A. P. C., & Kajewski, S. (2012). Factors Contributing to Successful Public Private Partnership Projects: Comparing Hong Kong SAR with Australia and the United Kingdom. *Journal of Facilities Management, 10,* 45-58. https://doi.org/10.1108/14725961211200397

Chiwira, O. (2023). Examining the Co-Integrating Relationship between Financial Development and Economic Growth. *International Journal of Research in Business and Social Science (2147-4478), 12,* 269-285. https://doi.org/10.20525/ijrbs.v12i5.2439

Chowdhury, A. N. (2012). *A Study on Particular Purpose Vehicles (SPVs) of Independent Power Producer (IPP) Projects in Asia.* Doctoral Thesis, Nanyang Technological University. https://hdl.handle.net/10356/48656

Das, S., & Jena, S. P. (2020). The Benefits and Drawbacks of Hydroelectric Power Plants. *UGC Care Group 1 Listed Journal, 10,* 708-711. http://junikhyatjournal.in/no_1_jan_20/70.pdf

del Río, P., & Gual, M. (2004). The Promotion of Green Electricity in Europe: Present and Future. *European Environment, 14,* 219-234. https://doi.org/10.1002/eet.357

Dempsey, N., Burton, M., & Selin, J. (2016). Contracting Out Parks and Roads Maintenance

in England. *International Journal of Public Sector Management, 29,* 441-456. https://doi.org/10.1108/ijpsm-02-2016-0029

Doyle, C. T. (2023). The Name Is Bond, Corporate Bond: Remedies for Breach of Bond in-Dentures after the Alarming Cash America Ruling. *Iowa Law Review, 108,* 1403-1436. https://www.proquest.com/scholarly-journals/name-is-bond-corporate-remedies-breach-indentures/docview/2892719267/se-2

Eiteman, D. K., Stonehill, A. I., & Moffett, M. H. (2019). *Multinational Business Finance* (15th ed.). Pearson Education Inc. https://online.vitalsource.com/reader/books/9780134796673/epub-cfi/6/2[%3Bvnd.vst.idref%3Dcover]!/4/2%4053:92

Grimsey, D., & Lewis, M. K. (2004b). The Governance of Contractual Relationships in Public-Private Partnerships. *Journal of Corporate Citizenship, 2004,* 91-109. https://doi.org/10.9774/gleaf.4700.2004.au.00010

Gupta, A., Chandra Gupta, M., & Agrawal, R. (2013). Identification and Ranking of Critical Success Factors for BOT Projects in India. *Management Research Review, 36,* 1040-1060. https://doi.org/10.1108/mrr-03-2012-0051

Hafner, M., Tagliapietra, S., & de Strasser, L. (2018). *Energy in Africa: Challenges and Opportunities.* Springer. https://doi.org/10.1007/978-3-319-92219-5

Hancock, K. J. (2023). Electric Regionalism: Path Dependence, Development, and the African Power Pools. *Review of Policy Research, 41,* 347-368. https://doi.org/10.1111/ropr.12561

Hargrave, M. (2023). *Weighted Average Cost of Capital (WACC): Definition and Formula.* Investopedia. https://www.investopedia.com/terms/w/wacc.asp#:~:text=WACC%20can%20be%20calculated%20by,a%20given%20project%20or%20acquisition

Helble, M., Kuchenmüller, T., Reeder, J., Kim, J., Pécoul, B., Reddy, D. et al. (2023). Collaborations between Product Development Partnerships and the World Health Organization. *Bulletin of the World Health Organization, 101,* 355-357. https://doi.org/10.2471/blt.22.289154

Hlongwane, N. W., & Daw, O. D. (2022). The Challenges and Opportunities of Electricity Generation on Economic Growth in South Africa: An ARDL Approach. *International Journal of Energy Economics and Policy, 12,* 164-174. https://doi.org/10.32479/ijeep.12541

Hodge, G. A., & Greve, C. (2007). Public-Private Partnerships: An International Performance Review. *Public Administration Review, 67,* 545-558. https://doi.org/10.1111/j.1540-6210.2007.00736.x

Ismail, S. (2013). Critical Success Factors of Public-Private Partnership (PPP) Implementation in Malaysia. *Asia Pacific Journal of Business Administration, 5,* Article 609.

Jacobson, C., & Ok Choi, S. (2008). Success Factors: Public Works and Public-Private Partnerships. *International Journal of Public Sector Management, 21,* 637-657. https://doi.org/10.1108/09513550810896514

Jefferies, M., Gameson, R., & Rowlinson, S. (2002). Critical Success Factors of the BOOT Procurement System: Reflections from the Stadium Australia Case Study. *Engineering, Construction and Architectural Management, 9,* 352-361. https://doi.org/10.1108/eb021230

Kakabadse, N. K., Kakabadse, A. P., & Summers, N. (2007). Effectiveness of Private Finance Initiatives (PFI): Study of Private Financing for the Provision of Capital Assets for Schools. *Public Administration and Development, 27,* 49-61. https://doi.org/10.1002/pad.433

Koppenjan, J. F. M. (2005). The Formation of Public-Private Partnerships: Lessons from Nine Transport Infrastructure Projects in the Netherlands. *Public Administration, 83,* 135-157. https://doi.org/10.1111/j.0033-3298.2005.00441.x

Lenoke, M. (2017). *The Impact of Load Shedding on the Economic Growth of South Africa.* Ph.D. Thesis, Northwest University. https://repository.nwu.ac.za/bitstream/handle/10394/35217/LENOKE_M.pdf?sequence=1&isAllowed=y

Li, B., Akintoye, A., Edwards, P. J., & Hardcastle, C. (2005). Critical Success Factors for PPP/PFI Projects in the UK Construction Industry. *Construction Management and Economics, 23,* 459-471. https://doi.org/10.1080/01446190500041537

Maduku, H., & Zerihun, M. F. (2023). The Impact of Manufacturing Exports on Food Poverty Reduction in South Africa. *International Journal of Business & Economic Development, 11,* 1-25. https://doi.org/10.24052/ijbed/v011n01/art-02

Malek, M. S., & Zala, L. (2022). The Attractiveness of Public-Private Partnership for Road Projects in India. *Journal of Project Management, 7,* 111-120. https://doi.org/10.5267/j.jpm.2021.10.001

Maposa, L., & Munanga, Y. (2021). Public-private Partnerships Development Finance Model in Zimbabwe Infrastructure Projects. *OALib, 8,* 1-24. https://doi.org/10.4236/oalib.1104211

Marquardt, J. (2015). How Transition Management Can Inform Development Aid. *Environmental Innovation and Societal Transitions, 14,* 182-185. https://doi.org/10.1016/j.eist.2014.11.003

Minnie, A. A. (2011). *Critical Success Factors for the Public-Private Partnerships in South Africa.* Ph.D. Thesis, Stellenbosch University. https://scholar.sun.ac.za/handle/10019.1/17869

Mohammed Abdelkader, E., Zayed, T., El Fathali, H., Alfalah, G., Al-Sakkaf, A., & Moselhi, O. (2022). An Integrated Multi-Criteria Decision Making Model for the Assessment of Public Private Partnerships in Transportation Projects. *Mathematics, 11,* Article 3559. https://doi.org/10.3390/math11163559

Mouraviev, N. (2013). *An Analysis of Governance Policy and Practice in Public-Private Partnerships in Traditional Economies: A Case Study of Kazakhstan and Russia.* Master's Thesis, University of Northampton. http://nectar.northampton.ac.uk/7250/1/Mouraviev_Nikolai_2013_An_analysis_of_governance_policy_and_practice_in_public_private_partnerships_in_transitional_economies_A_case_study_of_Kazakhstan_and_Russia.pdf

Mugambiwa, S., & Rapholo, S. F. (2023). Towards Achieving Sustainable Development Goal 7 (affordable and Clean Energy) through a Transition to Decentralised Energy Systems in South Africa. *International Journal of Research in Business and Social Science (2147-4478), 12,* 196-201. https://doi.org/10.20525/ijrbs.v12i4.2576

Ng, S. T., Wong, Y. M. W., & Wong, J. M. W. (2012). Factors Influencing the Success of PPP at Feasibility Stage—A Tripartite Comparison Study in Hong Kong SAR. *Habitat International, 36,* 423-432. https://doi.org/10.1016/j.habitatint.2012.02.002

Onyoin, M., & Bovis, C. (2021). Policy and Institutional Enablers of Public-Private Partnerships in the Electricity Sector in Uganda: A Multi-Level and Path Dependence Perspective. *International Journal of Public Sector Management, 34,* 51-70. https://doi.org/10.1108/ijpsm-01-2020-0026

Reeves, E. (2013). The Not So Good, the Bad and the Ugly: Over Twelve Years of PPP in Ireland. *Local Government Studies, 39,* 375-395. https://doi.org/10.1080/03003930.2013.781023

SADC (1992). *The Treaty of the Southern African Development Community.* https://www.sadc.int/pages/history-and-treaty#:~:text=The%20SADC%20Treaty,-The%20SADC%20Treaty&text=This%20Treaty%20sets%20out%20the,socially%20disadvantaged%20through%20regional%20integration

Slater, R. (2001). Local Government Partnerships in Urban Management: The Case of South Asia. *Local Government Studies, 27,* 79-96. https://doi.org/10.1080/714004107

Tariq, S., & Zhang, X. (2022). A Critical Analysis of Water PPP Failures in Sub-Saharan Africa. *Engineering, Construction and Architectural Management, 29,* 3157-3180. https://doi.org/10.1108/ecam-01-2021-0084

Toan, N. Q., & Hai, D. T. (2023). Assessment of Factors Influencing the Success of Public-Private Partnership Infrastructure Projects in Vietnam. *Archives of Civil Engineering, 69,* 343-365. https://doi.org/10.24425/ace.2023.144177

Van Garsse, S., Van den Broek, E., & Buyck, J. (2016). PPP Contracts: Amendments to PPP Projects Based on Experience in Flanders. *European Procurement & Public Private Partnership Law Review, 11,* 111-118. https://www.proquest.com/scholarly-journals/ppp-contracts-amendments-projects-based-on/docview/1822636384/se-2

Weihe, G. (2005). Public-Private Partnerships: Addressing a Nebulous Concept. In *The 10th International Research Symposium on Public Management* (29 p.). Department of Business and Politics. Copenhagen Business School. https://research.cbs.dk/en/publications/public-private-partnerships-addressing-a-nebulous-concept

Wettenhall, R. (2010). Mixes and Partnerships through Time. In G. A. Hough, C. Greve, & A. E. Boardman (Eds.), *International Handbook on Public-Private Partnerships* (pp. 17-42). Edward Elgar. https://books.google.co.za/books?hl=en&lr=&id=y_ySD3JABt0C&oi=fnd&pg=PA17&dq=Wettenhall,+R.+(2010).+Mixes+and+Partnerships+through+time&ots=n1CqzQmUq5&sig=UWSK-LQmY7mPv5lp1UEl_dl3popw&redir_esc=y#v=onepage&q=Wettenhall%2C%20R.%20(2010).%20Mixes%20and%20Partnerships%20through%20time&f=false

Wibowo, A., & Alfen, H. W. (2014). Identifying Macro-Environmental Critical Success Factors and Key Areas for Improvement to Promote Public-Private Partnerships in Infrastructure. *Engineering, Construction and Architectural Management, 21,* 383-402. https://doi.org/10.1108/ecam-08-2013-0078

Zhang, J., Feng, J., Zhang, K., & Han, X. (2023). Research on the Value Improvement Model of Private Parties as "Investor-Builder" Dual-Role Entity in Major River Green Public-Private Partnership Projects. *Buildings, 13,* Article 2881. https://doi.org/10.3390/buildings13112881