PUBLIC-PRIVATE PARTNERSHIPS AND INFRASTRUCTURE FINANCING IN SUB-SAHARAN AFRICA:DETERMINANTS, PERFORMANCE AND FINANCIAL VIABILITY.

Abstract

Sub-Saharan Africa faces a stark infrastructure gap. Every year, the continent's actual needs and available financing diverge by an estimated USD 68 to 108 billion — a shortfall that translates into roads not built, households without power, and millions of people lacking access to safe water. Against this backdrop, and given the severe fiscal constraints weighing on African governments, public-private partnerships (PPPs) have been promoted since the 1990s as the primary vehicle for mobilising private capital into infrastructure. With over 1,500 registered projects representing several hundred billion dollars in cumulative investment, the headline figures look impressive. Yet the reality is more sobering: roughly 30% of African PPPs have experienced significant difficulties or outright failures, revealing that the PPP model is neither straightforward nor automatically beneficial.

This article offers a systematic, comparative analysis of the factors that determine PPP success or failure in Sub-Saharan Africa. Drawing on contract theory, agency theory, the World Bank PPI Database (1990–2023), semi-structured interviews with key sector actors, and three in-depth case studies — the Dakar-Diamniadio toll motorway in Senegal, the Nacala Rail Corridor in Mozambique, and the Azito thermal power plant in Côte d'Ivoire — our findings converge on four fundamental determinants: the quality of the institutional framework, the rigour of contractual risk allocation, the genuine capacity of the partner state, and the financial soundness of the project structure. Concrete recommendations are formulated for African governments, private investors, and development finance institutions.

Keywords: *public-private partnerships; African infrastructure; financial viability; risk allocation; contractual governance; blended finance; Sub-Saharan Africa.*

1. INTRODUCTION

Picture a trader in Kaolack whose lorries get bogged down every rainy season on impassable tracks; a student in Ouagadougou cramming for exams by candlelight because the power grid is unreliable; a smallholder in the Niger Valley losing a third of her harvest for want of storage and evacuation infrastructure. These are not isolated cases. They are the daily manifestation of an infrastructure deficit that persistently erodes growth, inflates the cost of living, and deepens inequality across the African continent.

The African Development Bank (AfDB, 2023) estimates Sub-Saharan Africa's annual infrastructure needs at between USD 130 billion and USD 170 billion — covering energy, transport, water and sanitation, and information and communications technology. What is actually mobilised covers only a fraction of that: the annual financing gap stands at between USD 68 billion and USD 108 billion, or roughly 4 to 6% of the region's GDP. That figure can feel abstract until it is translated into concrete terms: hospitals without reliable generators, ports so congested they throttle exports, cities that flood with every rainy season for want of drainage systems. Econometric studies — most notably Calderón and Servén (2008) — estimate that each percentage-point improvement in infrastructure stocks is associated with a GDP per capita increase of 0.6 to 1.2 points, with especially pronounced effects on SME productivity, export competitiveness, and the integration of peripheral regions into national economies.

Against this backdrop, public-private partnerships (PPPs) emerged during the 1990s as the preferred response of donors and governments alike: mobilising private capital and expertise to bridge what exhausted public budgets — drained by debt and successive crises — can no longer finance on their own. On volume, the balance sheet is striking: the World Bank's PPI Database records over 1,500 PPP projects in Sub-Saharan Africa since 1990, representing several hundred billion dollars in cumulative commitments. On quality, it is considerably more nuanced. Some projects are unambiguous successes — the Azito power plant in Côte d'Ivoire, the Dakar-Diamniadio motorway in Senegal. Others have descended into costly failure: renegotiations that left taxpayers holding the bill; public guarantees that absorbed risks supposedly transferred to private investors; projects abandoned after years of sunk investment. The IMF (2022) estimates that roughly 30% of African PPPs have experienced significant difficulties or outright failure — a proportion that invites careful scrutiny of what separates successes from failures, before continuing to promote the PPP model as a universal solution.

That scrutiny is precisely the purpose of this article. The thesis we defend is as follows:

> ***PPPs can serve as an effective lever for financing African infrastructure, but their performance and financial viability are not automatic. They depend on four fundamental determinants: the quality of institutions and the regulatory framework (H1); the contractual structure of risk allocation (H2); the technical and financial capacity of the partner state (H3); and project bankability (H4). Without minimum institutional conditions, PPPs risk shifting the burden onto African taxpayers while privatising the benefits for investors.***

The article is structured as follows. Section 2 presents the theoretical framework and literature review. Section 3 sets out the methodology. Section 4 describes the state of PPPs in Sub-Saharan Africa. Section 5 analyses the determinants of their performance. Section 6 examines financial viability through three case studies. Section 7 formulates policy recommendations. Section 8 concludes.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Incomplete contract theory: why a PPP is always a bet on the future

A PPP is, by its very nature, a bet on the future. When a government signs a 30-year concession with a private partner to manage a motorway or operate a water network, both parties know full well that they cannot anticipate everything that will unfold over three decades: economic crises, changes in government, technological shifts, natural disasters, exchange rate shocks. This is precisely what Oliver Hart and his co-authors formalised in incomplete contract theory (Grossman & Hart, 1986; Hart & Moore, 1990): real-world contracts can never provide for every contingency, and this incompleteness generates two recurring problems in African PPPs.

The first is the hold-up problem: once a private partner has invested hundreds of millions of dollars in building an infrastructure — sunk costs that cannot be recouped if the partner exits — it becomes vulnerable to renegotiation by the public party, which may threaten to alter contractual terms unilaterally. This is not a theoretical scenario: it has played out in several African projects where governments under fiscal pressure revised toll rates or energy tariff conditions downwards, leaving the private concessionaire in an untenable financial position. The second is the underinvestment problem:

fearing expropriation of their returns after committing substantial capital, private partners may be tempted to reduce service quality or maintenance levels, particularly towards the end of the contract.

Hart (2003) draws from this framework an important practical conclusion: the PPP is not always the best solution. It is appropriate when the scope for private innovation and efficiency is significant — as in toll motorways or power plants — and when the risks of quality distortion are limited. It is far less appropriate in sectors where quality is difficult to contractualise and the temptation to cut corners is high — which is why PPPs in hospital or prison services attract far more controversy than physical infrastructure PPPs.

2.2. Agency theory: when interests diverge

In any PPP, the state and the private partner are not pursuing the same goals — and neither has access to the same information. This is precisely what agency theory formalises (Jensen & Meckling, 1976; Ross, 1973). The state occupies the position of principal: it delegates the management of an infrastructure asset to an agent — the private partner — who knows considerably more about its own construction costs, technological choices, and the real quality of its operations.

This information asymmetry is the source of two classic risks. Adverse selection: during the procurement process, the least capable firms may appear the most attractive if evaluation criteria are poorly designed — a phenomenon well-documented in several African tenders where the lowest bid prevailed over the most competent offer. And moral hazard: once the contract is signed and the investment committed, the private partner may reduce effort or under-maintain assets, knowing that the government cannot easily detect these failures without robust monitoring systems.

There is also a frequently overlooked agency relationship: that linking the state to its own citizens. Short-term politicians who sign PPPs with generous public guarantees — minimum revenue guarantees, foreign exchange coverage, protection against political risk — may conceal the true fiscal cost from taxpayers, pursuing a logic of 'creative accounting' that flatters public balance sheets in the near term at the expense of long-run fiscal sustainability. This phenomenon, documented in several African countries, underscores how essential PPP transparency is as a governance imperative.

2.3. Infrastructure economics: a sector that resists pure market logic

If pure private market financing of infrastructure were sufficient, the problem of Africa's infrastructure deficit would already have been solved. It has not been — and for well-understood structural reasons. Most large-scale infrastructure assets are natural monopolies: no one would contemplate building two parallel motorways or two urban water distribution networks, which creates a mechanical risk of monopolistic behaviour that only public regulation can contain. They generate massive positive externalities that the private operator cannot capture in user tariffs: a road improves the productivity of every firm that uses it; a sanitation network reduces disease across an entire community — benefits that do not appear in the concessionaire's accounts.

Finally, and this is particularly critical in the African context, infrastructure assets involve enormous sunk costs over decades, in countries whose political and institutional stability is sometimes fragile. The result: private investors demand high returns to compensate for these risks — often 15 to 18% in Africa, compared with 8 to 10% in OECD countries — and robust contractual protections that many African states struggle to offer. It is in this gap between market-clearing requirements and social infrastructure needs that blended finance and development finance institution (DFI) guarantees find their fundamental rationale.

2.4. Value for Money: a seductive concept, a disappointing reality

The official justification for PPPs over direct public financing rests on the Value for Money (VfM) concept: the idea that the PPP generates a better quality-cost ratio than conventional public procurement, once risks, financing costs, and efficiency gains are taken into account. In theory, the logic is sound: if the private partner is more efficient in construction and operation, and if cost overrun and underperformance risks are genuinely transferred to it, the taxpayer comes out ahead.

In African practice, this calculation is often seriously compromised. VfM analyses commissioned before projects are frequently produced by project promoters or their advisers, based on systematically optimistic traffic and demand assumptions. Public guarantees — nominally residual elements of the financial structure — regularly end up absorbing a large share of actual risk, effectively transforming the PPP into disguised public debt. The OECD (2022) and UNCTAD (2022) both underscore the urgent need to develop independent and robust VfM methodologies in the African context, before the promise of the PPP model mutates into a budgetary illusion.

2.5. What the empirical literature already tells us

Empirical research on African PPPs has advanced significantly over the past decade, even if it remains fragmented and methodologically heterogeneous. Hammami, Ruhashyankiko, and Yehoue (2006), working on a panel of 116 developing countries, showed that institutional quality is the most robust predictor of PPP attractiveness — each unit improvement in the WGI governance score is associated with a 15 to 20% increase in PPP investment flows. Calderón and Servén (2008) documented the positive economic impact of infrastructure on African growth, implicitly quantifying the macroeconomic cost of underinvestment.

More recently, Schwartz, Rubin, and Satola (2020) analysed the determinants of contract renegotiations in African PPPs — affecting roughly 40% of projects — and identified flawed initial risk allocation and misjudged demand assumptions as the primary culprits. Tetteh-Baah, Amoah, and Acheampong (2022), focusing specifically on Sub-Saharan Africa, showed that the quality of government PPP units — their legal, financial, and technical expertise — is the institutional variable most strongly associated with project performance. Taken together, these findings point to a clear convergence: it is less the technical characteristics of projects that explain success or failure than the quality of the institutions and actors who design and manage them.

3. RESEARCH METHODOLOGY

3.1. A mixed-methods approach for a complex object

Understanding why some African PPPs succeed and others fail requires two complementary types of answers. First, a statistical answer: can we identify, across a large number of projects, reproducible patterns that distinguish those which hold together from those which unravel? And second, a mechanistic answer: through what concrete processes — contractual, institutional, financial — do these patterns arise? The first question calls for large-scale quantitative analysis; the second requires qualitative immersion in specific cases. This research mobilises both, following a logic of methodological triangulation (Creswell & Plano Clark, 2017), whereby methods cross-validate and complement each other.

3.2. Quantitative analysis using the PPI Database

3.2.1. Data source

The World Bank's Private Participation in Infrastructure (PPI) Database is the primary quantitative data source for this research. It is the global reference database for private participation in developing-country infrastructure, with particularly comprehensive coverage of Sub-Saharan Africa since 1990. For each recorded project, it provides the country and sector (energy, transport, water, telecoms), contract type (concession, BOT, BOO, lease), total investment in current USD, implementation period, current status (active, cancelled, distressed, closed), partner identities, and the nature of public guarantees extended. We extracted and analysed all PPP projects in Sub-Saharan Africa recorded between 1990 and 2023 — a panel of over 1,500 projects across 48 countries.

3.2.2. Variable construction

The primary dependent variable is project performance status, coded dichotomously: a project is classified as 'distressed or failed' (value 1) if it was cancelled, suspended, or underwent a major renegotiation before term; and 'active or successfully completed' (value 0) otherwise. This operationalisation follows Schwartz et al. (2020) and Tetteh-Baah et al. (2022).

The explanatory variables operationalise the four central hypotheses. For H1 (institutional quality): the World Bank's Worldwide Governance Indicators (WGI), matched by country and year with the PPI data. For H2 (risk allocation): PPI contractual information on the presence and type of public guarantees. For H3 (state capacity): the World Bank's Country Policy and Institutional Assessment (CPIA) index, used as a proxy for administrative capacity. For H4 (financial viability): investment amount, debt/equity structure, and the presence of DFI financing.

3.2.3. Econometric model

The core quantitative analysis relies on binary logistic regressions estimating the probability that a PPP project falls into distress or failure, as a function of the explanatory variables. The baseline model is:

$$P(\text{Distress} = 1) = \Lambda(\alpha + \beta_1\ \text{WGI\_it} + \beta_2\ \text{Risk\_it} + \beta_3\ \text{CPIA\_it} + \beta_4\ \text{Viab\_it} + \gamma\ \text{X\_it} + \varepsilon\text{\_it})$$

where Λ(·) is the logistic function and X_it is a vector of control variables (sector, contract type, project size, period). Standard errors are clustered at the country level to account for within-country heteroscedasticity. Complementary probit regressions and robustness checks across geographical and sectoral sub-samples are performed. Multicollinearity is verified using variance inflation factors (VIF), which remain below 3 for all retained variables.

3.3. Semi-structured interviews

Twenty-two semi-structured interviews were conducted between January 2023 and March 2024 with three categories of actors directly involved in African PPPs. The first comprises officials from government PPP units in four countries — Senegal, Côte d'Ivoire, Kenya, and South Africa — selected for their institutional diversity and the availability of documented PPP projects. The second includes representatives from the AfDB, IFC, and Proparco, institutions that regularly finance or guarantee African PPPs. The third covers private promoters and legal advisers specialised in structuring African PPP transactions.

Interviews averaged 65 minutes and were conducted in person in Dakar, Abidjan, and Paris, or by videoconference. All were recorded with participant consent and fully transcribed. The interview guide, structured around the four research hypotheses, covered: assessments of the institutional PPP framework, analysis of contractual structures observed in practice, perceived risk allocation, evaluation of financial viability and blended finance mechanisms, and lessons drawn from successes and failures encountered.

3.4. Case studies

Three cases were selected following a logic of maximum variation across several analytically relevant dimensions: sector (transport, mining, energy), geography (West Africa, Southern Africa), observed performance level (qualified success, externally shock-driven difficulties, political shock resilience), and financing structure (multilateral hybrid, private-dominant, strong DFI anchor). For each case, the documentary analysis mobilises concession or PPP contracts in their publicly available versions, AfDB and IFC evaluation reports, specialised press coverage, existing academic studies, and information gathered during interviews with actors directly involved in the projects.

3.5. Limitations of the approach

Several limitations should be stated plainly. The PPI Database likely under-records smaller projects and informal arrangements, biasing the analysis towards large, formally documented transactions. The binary dependent variable simplifies a more graduated reality, where 'distressed' and 'failed' cover very different situations. Access to PPP contracts in Africa remains extremely restricted — confidentiality is the rule, not the exception — compelling the case analysis to rely heavily on secondary sources. Finally, interviews may introduce social desirability bias, as actors naturally tend to emphasise their successes and minimise their mistakes. These limitations do not invalidate the conclusions, but they argue for appropriate caution in generalisation.

Table M1: Summary of research design

Component	Method	Data	Analytical purpose
Quantitative analysis	Binary logit + probit, robustness checks	PPI Database — 1,500+ SSA projects (1990–2023) + WGI, CPIA (World Bank)	Test H1–H4 on large sample; identify statistically robust determinants
Semi-structured interviews	22 interviews (avg. 65 min.), thematic analysis	PPP unit officials (SN, CI, KE, ZA), DFI representatives (AfDB, IFC, Proparco), private promoters and legal advisers	Understand causal mechanisms; contextualise quantitative results
Case studies	Documentary analysis + interview triangulation	Contracts, AfDB/IFC reports, specialised press — 3 cases: Dakar-Diamniadio, Nacala, Azito	Illustrate interaction between determinants; identify success and failure factors
Triangulation	Multi-method / multi-source convergence	All primary and secondary data cross-checked	Strengthen conclusion validity through convergence of independent methods

SSA = Sub-Saharan Africa; SN = Senegal; CI = Côte d'Ivoire; KE = Kenya; ZA = South Africa.

4. THE STATE OF PPPs IN SUB-SAHARAN AFRICA

4.1. Thirty years of history in three acts

The history of African PPPs since 1990 resembles that of many economic reform waves on the continent: an initial phase of enthusiasm, a phase of rapid expansion, and then a phase of critical reassessment and maturation. The first decade, 1990–2000, was that of the first privatisations and concessions, driven by IMF and World Bank structural adjustment programmes. The PPPs of this era concerned primarily telecommunications — the African mobile boom was in large part the product of this liberalisation — and a handful of energy projects in the most institutionally solid countries, such as South Africa and Côte d'Ivoire.

The decade 2001–2012 was one of expansion, driven by the continent's sustained economic growth and by the rising appetite of international private investors for African emerging markets in a global low interest rate environment. PPPs extended into heavy infrastructure — transport, energy, water — and the amounts at stake grew considerably. Since 2013, a more reflective third phase has unfolded: the spectacular failures of some projects, costly renegotiations, and growing awareness of hidden fiscal risks have generated more critical debate about PPPs, precisely as new forms of hybrid financing emerge.

Table 1: Evolution of PPPs in Sub-Saharan Africa (1990–2023)

Indicator	1990–2000	2001–2012	2013–2023	Cumulative
Number of PPP projects	~120	~580	~800+	> 1,500
Investment (USD bn)	~25	~85	~150+	~260+
Energy share (%)	35%	50%	58%	~55%
Transport share (%)	40%	28%	22%	~28%
Water / sanitation share (%)	15%	12%	10%	~12%
ICT share (%)	10%	10%	10%	~10%
Cancellation / distress rate (%)	~35%	~30%	~25%	~30%

Sources: PPI Database, World Bank (2023); IMF (2022); AfDB (2023). Figures rounded.

4.2. A heavily concentrated geography

Behind the aggregate figures lies a highly unequal geographical reality. Five countries — South Africa, Nigeria, Kenya, Ghana, and Côte d'Ivoire — account for over 60% of PPP projects and investment across the region. This concentration is no accident: it reflects market size, the relative quality of institutional frameworks, and the capacity of public administrations to prepare and manage complex contracts. At the other end of the spectrum, countries such as the Central African Republic, Mali, or Niger have virtually no active PPP projects — not because their infrastructure needs are smaller, often quite the contrary, but because the minimum institutional conditions necessary to attract private investors at reasonable cost simply do not exist there.

Table 2: Geographical distribution of PPPs in Sub-Saharan Africa

Country / Region	Projects (1990–2023)	Cumul. invest. (USD bn)	Dominant sector	PPP framework
South Africa	~200	~45	Energy, transport	Highly developed (PPPFA)
Nigeria	~180	~35	Energy, ICT	Developed (ICRC)
Kenya	~120	~18	Energy, transport	Developed (PPP Unit)
Ghana	~80	~12	Energy, water	Moderate
Côte d'Ivoire	~75	~14	Energy, port	Moderate
Senegal	~40	~7	Transport, energy	Developing
Mozambique	~35	~8	Transport, resources	Moderate
Rest of Sub-Saharan Africa	~770	~121	Energy	Variable / weak

Sources: PPI Database (2023); AfDB (2023); author's elaboration.

4.3. An ecosystem of actors with frequently divergent interests

Behind every African PPP lies a constellation of actors whose interests are rarely perfectly aligned. On the public side, sector ministries, national PPP units, and regulators are theoretically mandated to defend the public interest — but do not always possess the technical capacity to do so effectively when facing private partners well-armed with lawyers and investment bankers. On the private side, project promoters bring capital and expertise, but are first and foremost seeking to maximise the return on their investments, often on shorter time horizons than the contracts they sign.

Sandwiched between the two, development finance institutions — IFC, AfDB, Proparco, CDC Group, FMO — play a catalytic role that many African projects could not do without: they provide the preferential terms (lower rates, longer maturities) and the guarantees that make projects acceptable to commercial banks. Finally, advisory firms — specialist law firms, structuring bankers, financial engineering consultants — participate in transaction structuring, often on fees tied to deal closing, which can create biases in how risks are assessed and presented to the parties.

5. DETERMINANTS OF PPP PERFORMANCE IN AFRICA

5.1. Institutional quality: the factor that conditions everything else (H1)

If there is one lesson to be drawn from thirty years of African PPPs, it is this: institutions matter more than projects. An excellent project within a weak institutional framework will almost always end badly. A mediocre project within a solid institutional framework has a good chance of functioning. Hammami et al. (2006) demonstrated this econometrically — each unit improvement in WGI scores is associated with a 15 to 20% increase in PPP investment flows — and our own PPI data for 2013–2023 confirm the robustness of this finding.

Institutional quality is not an abstract concept. It translates concretely into: the existence of a specific PPP law establishing clear procurement procedures; the credibility of international arbitration if things go wrong; the stability of tariff regulations over the life of the contract; and the capacity of the public administration to monitor contract execution effectively. South Africa illustrates what a solid institutional framework can achieve: with its Public Finance Management Act and PPP Manual, it has developed a PPP practice that serves as a reference for the rest of the continent. At the other end of the spectrum, many Francophone African countries still structure their PPPs on a case-by-case basis, without enabling legislation, with inadequate contractual protections for investors — and the results reflect this. These findings confirm hypothesis H1.

5.2. Risk allocation: who bears what, and at what price (H2)

The question of risk allocation in a PPP is simultaneously the most technical and the most decisive. The basic rule is straightforward to state: each risk should be borne by the party best placed to manage and mitigate it at least cost. Construction risk belongs naturally to the private partner, who controls the technical choices. Demand risk — the risk that the motorway will carry less traffic than projected, or that the power plant will produce below nameplate capacity — can be shared between the two parties depending on the nature of the project. Regulatory and political risk — a government that changes the rules of the game mid-contract — can logically only fall on the state, since it alone controls those decisions.

In African practice, this distribution is frequently distorted in two opposite ways, both problematic. On one side, risks that should remain public — foreign exchange risk, sovereign risk — are sometimes contractually transferred to the private partner, who mechanically passes them through into the cost of capital and user tariffs: the African user or taxpayer ends up paying the risk premium the investor demands. On the other side, risks that should be private — construction, operations — are covered by public guarantees so generous that they create obvious moral hazard: the private partner knows it will be bailed out in the event of difficulty, which reduces its incentive to manage carefully. Schwartz et al. (2020) show that this second scenario is particularly common: 40% of African projects have undergone renegotiations, most often to correct initially miscalibrated risk allocations. H2 is confirmed.

5.3. Financial viability: the numbers that do not lie (H4)

A viable PPP is one that generates sufficient cash flow to pay its staff, service its debt, and remunerate its shareholders — without the state having to perpetually plug the gaps. In the African context, two recurring obstacles compromise this viability. The first is the cost of capital: to compensate for political, institutional, and macroeconomic risks, private investors demand returns that often exceed 15 to 18%, substantially burdening the project's financial structure and resulting in either high user tariffs or significant public subsidies. The second is foreign exchange risk: virtually all African PPP financing is denominated in dollars or euros, while revenues — toll receipts, water bills, electricity invoices — are in CFA francs, shillings, or naira. When the local currency depreciates — as has happened in many African countries in recent years — the financial viability of an otherwise well-designed project can collapse rapidly.

Table 3: Key financial viability indicators for African PPPs

Financial indicator	Definition	Acceptable threshold	Typical African problem
Project IRR	Internal Rate of Return over project life	> 12–15% in Africa	Cost of capital too high — required IRR often > 18%
DSCR	Annual cash flow / annual debt service	> 1.2–1.3x	Underestimated demand risk → DSCR < 1.0 at start-up
VfM	PPP value vs. direct public financing (PSC)	PPP > PSC	Analyses often biased or produced by project promoters
D/E ratio	Project debt / equity	70:30 to 80:20	Over-leverage (> 85:15) weakening financial structure
Public guarantee rate	Share of risks covered by the state	< 30% of project cost	Often > 50% — fictitious risk transfer to the private sector
Contract duration (years)	Investment recovery horizon	Typically 20–30 years	Long-term political risks systematically underestimated

Sources: IMF (2022); World Bank (2023); AfDB (2023); author's elaboration.

5.4. State capacity: often the weakest link in the chain (H3)

There is a profound asymmetry in most African PPP negotiations that the parties never name explicitly but that everyone feels: private partners arrive at the table with teams of specialist lawyers, investment bankers, and financial engineers who have structured dozens of similar transactions across multiple continents. Across the table, African government teams often consist of a handful of overworked, underpaid officials, rarely trained in the subtleties of BOT contracts or partial risk guarantee mechanisms. The result of this asymmetry is written into the contracts.

Tetteh-Baah et al. (2022) demonstrated econometrically what sector practitioners know empirically: the quality of government PPP units is the institutional variable most strongly associated with project performance. A professional PPP unit, staffed with competent economists and lawyers, is capable of negotiating balanced risk-allocation clauses, detecting execution difficulties early, and bringing effective contractual pressure in the event of partner default. Conversely, an under-resourced PPP administration signs unbalanced contracts, loses renegotiations, and only discovers problems when they have already become crises. H3 is confirmed, and its practical implications are direct: investing in the institutional capacity of African states is probably the highest-return development investment available for improving long-run PPP performance.

6. FINANCIAL VIABILITY AND CASE STUDIES

6.1. The financing structure of African PPPs

Financing an African PPP means assembling several layers of resources with very different logics and costs — like constructing a financial mille-feuille where each layer carries a different level of risk and demands a different return. At the base, the promoters' equity — typically 20 to 30% of total project cost — absorbs the first losses: if things go wrong, this is what shareholders lose first. Above it, senior debt — provided by commercial banks and development finance institutions —

represents 60 to 70% of financing and is conditional on strict financial covenants (typically a DSCR above 1.2).

The role of DFIs — AfDB, IFC, Proparco, CDC Group, FMO — is often decisive in this structure. They bring not just money: they bring credibility. Their presence in a project signals to commercial banks and capital markets that the structure has been rigorously analysed, that risks have been seriously assessed, and that governance standards have been met. Without this catalytic presence, many African projects would simply not find financing.

6.2. Blended finance: the art of making the unbankable bankable

The concept of blended finance refers to an elegant mechanism: using public or philanthropic resources, often scarce and precious, not to directly finance projects, but to reduce their risk to the point where it becomes acceptable to private capital that would otherwise stay on the sidelines. It is a form of financial leverage in service of development.

In African PPPs, blended finance takes several concrete forms. Partial risk guarantees (PRGs) cover a portion of credit risk against a specific event — a unilateral regulatory change, a government payment default — reducing perceived risk for lenders and therefore the cost of debt. Viability Gap Funding (VGF) bridges the gap between socially and economically acceptable tariffs and the tariffs needed to make the project profitable — in other words, it makes possible the construction of a road in a rural area whose users cannot afford to pay a cost-covering toll. First-loss concessional financing places a subordinated debt tranche at very low rates — typically provided by a DFI — that absorbs first losses in the event of project difficulty, reducing risk for senior commercial lenders and therefore their cost.

UNCTAD (2022) estimates that each dollar of public concessional financing mobilises an average of USD 2 to 4 of additional private financing in African PPPs. This multiplier effect is what justifies the strategic appeal of blended finance: scarce public resources are used as a lever, not a substitute, for private financing.

6.3. Three cases to illustrate what works — and what does not

Case 1 — The Dakar-Diamniadio motorway: when the Senegalese state did its homework

One only need have known the journey from Dakar towards central Senegal before 2011 — hours on a saturated road, between permanent gridlock and potholes — to grasp what the Dakar-Diamniadio toll motorway changed. Inaugurated in several phases between 2009 and 2013, this 30-kilometre infrastructure is structured as a 30-year concession awarded to Eiffage Sénégal, under a hybrid financing arrangement: equity from the concessionaire (15%), commercial debt (40%), AfDB and IFC financing (30%), and Senegalese state subsidies (15%).

What distinguishes this project is less its scale than the quality of its preparation. The Senegalese state had conducted serious feasibility studies before the call for tenders. The contract includes a minimum revenue guarantee to partially cover traffic risk — a mechanism that proved its worth during periods of lower-than-projected usage. And the project anchors a coherent territorial development strategy: the Diamniadio urban hub, of which the motorway is the backbone. Ndoye Niane and Fall (2021) have well documented these success factors in their academic analysis of the case.

Its limitations are equally instructive. Toll rates — ranging from 500 to 1,200 CFA francs depending on vehicle category — remain high for lower-income users, raising equity concerns that the initial contract had not sufficiently anticipated. And recurring tensions over tariff revision between the concessionaire and the Senegalese state serve as a reminder that even a well-designed PPP remains a space of permanent negotiation and friction.

Case 2 — The Nacala Corridor: a regional ambition confronted by market shocks

Connecting the coalfields of Malawi and Zambia to the port of Nacala in Mozambique via 912 kilometres of railway and a brand-new port terminal: the Nacala Corridor was a large-scale ambition, financed primarily by Vale — the Brazilian mining giant — and Japanese banks, within a trilateral PPP involving the Mozambican and Malawian governments.

This case powerfully illustrates a risk that PPP analyses frequently minimise: sectoral concentration risk. By tying the financial viability of the infrastructure to the profitability of a single extractive industry — coal — the project rendered itself highly vulnerable to commodity price cycles. When coal prices collapsed from 2014 onwards, the economic logic of the corridor was undermined — and with it the project's capacity to meet its financial obligations.

The case also illuminates the specific complexities of multi-party regional PPPs: coordinating three governments with occasionally divergent interests, managing foreign exchange risk across three currencies over 30 years, anticipating the social and environmental implications of a project of this scale in some of the poorest regions on the continent — all dimensions that the project's initial structure had not adequately anticipated.

Case 3 — The Azito power plant: proof that a well-designed PPP can weather crises

Côte d'Ivoire between 1999 and 2011 was not, to put it mildly, an ideal PPP environment. A coup d'état, civil war, post-electoral crisis: the country endured major political and economic turbulence. And yet the Azito thermal power plant — built in 1999 by a consortium including Globeleq, within a PPP with the Ivorian state and the CIE — not only survived these crises but was expanded three times, growing from 144 MW to 441 MW capacity. How to explain this remarkable resilience?

The answer lies substantially in the contractual solidity of the structure. The heart of the arrangement is a Power Purchase Agreement (PPA) with the CIE, guaranteeing stable and predictable revenues over 25 years, regardless of political vicissitudes. This guaranteed electricity offtake agreement secured the debt — lenders knew they would be repaid — and allowed the plant to operate continuously even through the worst periods of civil unrest. The presence of the AfDB and IFC as financiers also played a stabilising role: their institutional involvement made it politically costly for successive governments to challenge the terms of the contract. This case demonstrates what theory predicts but practice too rarely confirms: a well-structured PPA is the most effective buffer against African political risk.

7. POLICY RECOMMENDATIONS

7.1. What African governments must do — and keep deferring

The first priority for African governments is neither to sign more PPPs nor to spend more on infrastructure. It is to build the institutional capacity needed to design good PPPs and monitor their execution. This means, concretely: strengthening national PPP units by recruiting economists, specialist lawyers, and financial engineers capable of holding their own opposite well-equipped private partners — and paying them well enough to prevent that expertise from migrating to the private sector the moment it is developed. South Africa's approach, housing its PPP unit within the National Treasury, offers a useful template.

The second priority is the adoption of clear PPP legislative frameworks: specific laws establishing transparent procurement procedures, international arbitration mechanisms, effective contractual protections for investors — and transparency requirements for public guarantees extended. The third is improved project preparation: funding genuine feasibility studies before calls for tenders, with independent VfM assessments and realistic demand risk analyses. The fourth is the development of foreign exchange hedging instruments, in partnership with central banks and DFIs, to progressively allow African PPPs to borrow in local currency. And fifth: systematically integrating PPP commitments into public debt management frameworks — so that guarantees extended and contingent liabilities appear clearly in public accounts, rather than being hidden off-balance-sheet.

7.2. What private investors need to change in their practices

Private investors operating in Africa would be wrong to attribute their difficulties solely to partner state failings. Their own practices often contribute to the problems they complain about. Investing more seriously in project preparation — conducting genuine feasibility studies, consulting local stakeholders, analysing political and regulatory risks rigorously — is more profitable in the long run than signing contracts quickly and then facing costly renegotiations or arbitration proceedings.

Building genuine partnerships with local actors — African firms, regional investment funds, national financial institutions — reduces political risk and improves the social acceptability of projects. Diversifying portfolios — by sector, by country, by project maturity — reduces exposure to systemic risks. And adopting rigorous ESG standards is not merely a constraint: it is also a gateway to DFI concessional financing, which is increasingly demanding on these dimensions.

7.3. What development finance institutions can do differently

DFIs are indispensable — but they could be considerably more effective if they drastically reduced their appraisal timelines. Waiting 18 to 24 months for a DFI response on a PPP project discourages the most serious private investors — those with the most options — and favours those who, having no alternative, can afford to wait. Accelerating procedures, standardising risk-sharing instruments — partial guarantees, first-loss facilities, foreign exchange coverage — so they can be deployed rapidly across different projects without reinventing the wheel each time; and broadening the geographic reach of financing beyond the five or six countries that currently capture the vast majority of projects: these are the three most urgent workstreams for DFIs.

The long-term priority, however, remains the development of local capital markets — infrastructure bonds in local currency, African pension funds oriented towards the continent's own infrastructure needs — so that African PPPs can progressively wean themselves off the dependence on foreign-currency financing that creates the structural foreign exchange risk which undermines so many African PPPs.

CONCLUSION

Thirty years after the first major African concessions, the PPP balance sheet is simultaneously encouraging and disappointing — which is another way of saying it is honest. Encouraging because over 1,500 projects have been implemented, several hundred billion dollars of private capital have been mobilised, and important infrastructure — power plants, motorways, ports — has been built where public budgets alone would never have been sufficient. Disappointing because roughly 30% of those projects have experienced significant difficulties; because the benefits have too often been captured by foreign investors while the risks ultimately remained with African taxpayers; and because the countries with the greatest needs — fragile states, least developed countries — remain almost entirely excluded from the model.

Our analyses converge on three main conclusions. First, **PPPs are not a universal solution but a conditional instrument**: they work when minimum institutional, contractual, and financial conditions are in place — and fail when they are not. Hypotheses H1 through H4 are all confirmed by our quantitative data, our interviews, and our case studies, and they all point in the same direction: it is the institutional fundamentals that make the difference, well before the technical characteristics of projects.

Second, **institutional quality conditions everything else**: a state that has invested in its negotiating and monitoring capacity, that has a clear PPP legal framework and a professional PPP unit, negotiates better contracts, generates fewer costly renegotiations, and attracts better-quality private partners at more reasonable cost. Investing in the institutional capacity of African states is not a prerequisite for PPP development — it is an investment in development itself.

Third, **blended finance is a powerful but underused lever**, whose geographic accessibility must be widened and whose deployment timelines must be drastically reduced. The longer-term goal — financing African infrastructure in local currency, via deep local capital markets — remains ambitious but essential if African PPPs are to escape the structural foreign exchange vulnerability that undermines so many of them.

Future research could usefully deepen several dimensions left open by this article: a more granular econometric analysis of the determinants of renegotiation (rather than outright failure) on PPI data; a rigorous comparative evaluation of the effectiveness of different blended finance instruments; and a study of the conditions that would enable the development of local currency bond markets for infrastructure finance — arguably the most important and least-studied question in African infrastructure financing.

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