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The Efficacy of Public–Private Partnerships in Financing Transport Infrastructure in Zambia: An Institutional Political Economy Perspective

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Abstract

Public–Private Partnerships (PPPs) have increasingly been adopted by developing countries as mechanisms for addressing infrastructure financing gaps amid fiscal constraints (Helmy, 2020; Mofokeng et al., 2023). Zambia has embraced PPPs within the transport sector to mobilise private investment and accelerate infrastructure development (Muleya et al., 2019). Despite strong policy adoption, empirical evaluation of PPP effectiveness remains limited. This article critically examines the efficacy of PPPs in financing transport infrastructure in Zambia through an institutional political economy framework. Drawing on qualitative policy analysis and institutional evidence, the study finds that PPPs have contributed to infrastructure expansion and financing diversification but have achieved only partial success in risk transfer and fiscal sustainability. Institutional capacity constraints, governance fragmentation, and macroeconomic volatility significantly shape partnership outcomes. The paper argues that PPP effectiveness depends less on private participation itself and more on state capacity in managing long-term contractual relationships. The study contributes to infrastructure governance scholarship by demonstrating how institutional context mediates PPP performance in developing economies and offers policy lessons for sustainable infrastructure financing in Sub-Saharan Africa.

Keywords: Public–Private Partnerships; Infrastructure Finance; Institutional Capacity; Risk Allocation; Zambia; Infrastructure Policy

1. Introduction

Infrastructure development remains one of the most decisive determinants of economic transformation in developing countries (Ciminello, 2019; Kuete & Asongu, 2022). Efficient transport systems reduce transaction costs, facilitate trade, enhance labour mobility, and stimulate regional integration (Kozlov, 2025). For landlocked economies such as Zambia, transport infrastructure assumes heightened importance because national competitiveness depends heavily on access to regional and international markets through cross-border transport corridors (Gumbo & Nkala, 2023; Kleynhans & Mhonyera, 2024).

Despite its strategic importance, infrastructure financing presents persistent challenges. Zambia's public investment capacity has historically been constrained by limited domestic revenue mobilization, competing social expenditure priorities, and increasing debt obligations (Edwards et al., 2019; Saungweme & Odhiambo, 2018). These constraints have widened the infrastructure gap, particularly in the transport sector, where rehabilitation and expansion demand continue to exceed available public resources (Domínguez & Foster, 2011; Reinman, 2015). In response, the Government of Zambia adopted Public–Private Partnerships (PPPs) as an alternative infrastructure financing mechanism intended to mobilise private investment while improving efficiency in project delivery (Muleya et al., 2019). PPPs were expected to transfer certain project risks to private partners, accelerate infrastructure provision, and reduce fiscal pressure on government budgets (Dugal & Tiwari, 2024; Helmy, 2020). However, global experience demonstrates that PPP outcomes vary significantly across countries (Iossa & Martimort, 2014). While some jurisdictions have achieved efficiency gains and improved infrastructure outcomes, others have experienced fiscal risks, renegotiations, and governance challenges (Henckel & McKibbin, 2017; Iossa & Martimort, 2014). This divergence raises critical questions regarding the conditions under which PPPs succeed or fail.

This article, therefore, examines the extent to which Public–Private Partnerships have been effective in financing transport infrastructure in Zambia. It argues that while PPPs have contributed to the expansion of infrastructure and enabled diversification of financing sources beyond traditional public funding, their performance has been shaped by structural and institutional realities that limit the full realization of anticipated benefits. In particular, the study finds that risk transfer, which is often presented as a central advantage of PPP arrangements, has been only partially achieved due to institutional constraints and prevailing macroeconomic conditions. Consequently, the effectiveness of PPPs cannot be explained solely by contractual design or financing models; rather, it is fundamentally dependent on the strength and capacity of state institutions responsible for planning, negotiating, and regulating such partnerships. By situating Zambia's experience within broader debates on infrastructure governance, the article contributes to ongoing scholarly discussions on PPP performance in developing economies while offering policy-relevant insights for improving infrastructure financing and governance reforms.

2. Literature Review

2.1 Evolution of Public–Private Partnerships in Infrastructure Development

Public–Private Partnerships (PPPs) are collaborative arrangements between government entities and private sector organizations aimed at delivering public infrastructure, services, or facilities (Grimsey & Lewis, 2004). PPPs leverage private sector efficiency, innovation, and capital while ensuring public oversight and accountability (Breaugh et al., 2025; Liu et al., 2023). These partnerships are commonly used in sectors such as transportation, healthcare, education, and utilities (World Bank, 2017).

Public–Private Partnerships emerged as a prominent infrastructure delivery model during the late twentieth century as governments across both developed and developing economies sought alternatives to traditional public procurement systems (PPIAF, 2007). The rise of PPPs was closely associated with broader economic and governance reforms that emphasized market-oriented solutions, fiscal discipline, and efficiency in public service delivery. Periods of fiscal austerity, coupled with growing infrastructure demands driven by urbanization and globalization, compelled governments to explore mechanisms that could mobilize private-sector resources while maintaining public oversight of essential services (Bovaird, 2010). PPPs are generally understood as long-term contractual arrangements through which private entities participate in the financing, construction, operation, or maintenance of public infrastructure assets under agreed risk-sharing frameworks with government authorities (Yescombe & Farquharson, 2018). Unlike conventional procurement models in which governments retain full responsibility for infrastructure delivery, PPP arrangements integrate private-sector participation throughout the project lifecycle, thereby aligning incentives toward performance and efficiency outcomes. Proponents argue that such arrangements generate efficiency gains through innovation, lifecycle cost optimization, and managerial flexibility, as private actors are motivated by performance-based remuneration structures (Engel et al., 2014).

Early scholarly literature largely reflected optimism regarding PPPs, emphasizing the comparative advantages of private-sector management practices and the potential for cost savings and timely project completion. However, subsequent research introduced more critical perspectives, questioning whether efficiency gains were consistently realized in practice. Scholars increasingly highlighted the high transaction costs associated with negotiating complex long-term contracts, information asymmetries between public and private actors, and the risks arising from unequal bargaining power during contract formation (Thierie & Moor, 2018). These critiques shifted academic attention away from the assumption that private participation inherently improves efficiency toward a more nuanced examination of governance arrangements.

Contemporary scholarship now recognizes that PPP success depends less on the mere involvement of private actors and more on the institutional environment within which partnerships operate. Regulatory credibility, transparency, accountability mechanisms, and administrative capacity have emerged as decisive determinants of project outcomes. In this regard, PPPs are increasingly conceptualized not simply as financing tools but as governance arrangements requiring sophisticated institutional coordination and long-term state oversight (Matos & Gonçalves, 2020).

2.2 PPPs and Infrastructure Financing in Developing Economies

In developing economies, the adoption of PPPs has been driven primarily by infrastructure financing gaps rather than efficiency considerations alone. Rapid population growth, expanding urban centers, and increasing economic integration have intensified demand for infrastructure investment, while limited fiscal space has constrained governments' ability to finance large-scale projects through public budgets. International financial institutions have played a significant role in advancing PPP frameworks across developing regions by encouraging governments to adopt partnership models capable of accelerating infrastructure provision without immediate increases in public debt levels. PPPs were therefore often perceived as instruments capable of mobilizing off-budget financing while maintaining infrastructure development momentum (OECD, 2019).

However, empirical research increasingly demonstrates that PPPs rarely eliminate public financial obligations. Instead, they transform the nature and timing of those obligations. Governments commonly provide guarantees, revenue assurances, or viability gap funding to attract private investors operating in high-risk environments. These arrangements convert upfront public investment into long-term contractual commitments and contingent liabilities that may only become visible during periods of fiscal stress (IMF, 2022). Consequently, PPPs may obscure rather than reduce fiscal exposure if monitoring systems are weak.

Evidence from Sub-Saharan Africa illustrates recurring challenges associated with PPP implementation. Limited project preparation capacity often results in overly optimistic demand projections, while insufficient negotiation expertise can weaken governments' ability to secure balanced contractual terms. Political considerations may influence project selection, and macroeconomic instability, particularly exchange rate volatility, can undermine financial sustainability where project revenues are denominated in local currency but financing obligations are foreign-denominated (world Bank,2023). These structural challenges frequently lead to contract renegotiations, thereby altering initial risk allocations and reducing anticipated efficiency gains. The experience of developing economies therefore suggests that PPPs function most effectively where institutional safeguards and fiscal oversight mechanisms are sufficiently developed to manage long-term contractual complexity.

2.3 Transport Infrastructure and Economic Development

Transport infrastructure occupies a central position in economic development theory due to its capacity to reduce transaction costs, facilitate trade, and enhance spatial economic integration (Rochana, Kombaitan, & Purwanda, 2016). Efficient transport systems enable the movement of goods, services, and labour, thereby improving productivity and supporting regional development. Empirical studies consistently demonstrate a strong relationship between transport infrastructure investment and economic growth, particularly in countries seeking industrial diversification and export competitiveness (Kodongo & Ojah, 2016; Calderón & Servén, 2014).

For landlocked countries such as Zambia, transport infrastructure assumes even greater strategic importance. Without direct access to seaports, national economic performance depends heavily on the efficiency of road and rail networks connecting domestic production centers to regional and international trade corridors. Zambia's economic structure, characterized by significant reliance on mineral exports, increases sensitivity to transport costs and logistical inefficiencies. Infrastructure investment is therefore deeply embedded within national development planning and regional integration strategies.

Transport infrastructure projects, however, are among the most capital-intensive forms of public investment and typically involve long gestation periods before financial returns are realized (Oladepo & Oyediji, 2025). These characteristics make them attractive candidates for PPP arrangements, as private financing can support large upfront investments while operational revenues are generated over extended concession periods. At the same time, the long payback horizon introduces significant uncertainty relating to demand forecasts, macroeconomic stability, and regulatory continuity, thereby increasing project risk (Ganuza & Llobet, 2020; Thierie & Moor, Loan tenor in project finance, 2018). PPPs in the transport sector thus embody both opportunity and vulnerability, requiring careful institutional management to balance developmental objectives with financial sustainability.

2.4 Institutional Capacity and PPP Performance

A growing body of literature identifies institutional capacity as the most decisive determinant of PPP performance. Institutional capacity encompasses not only technical expertise but also the broader administrative and regulatory capabilities necessary to design, negotiate, and monitor complex long-term infrastructure contracts. Effective PPP governance requires rigorous project appraisal processes, legal competence during negotiations, credible regulatory enforcement, transparent fiscal monitoring systems, and strong coordination across government agencies (Hodge & Greve, 2007; OECD, 2019). Where such capacities are limited, governments may enter agreements that appear financially attractive in the short term but generate significant long-term obligations. Weak oversight mechanisms can also hinder performance monitoring, allowing inefficiencies or contractual deviations to persist throughout project implementation. In such contexts, PPPs risk reinforcing institutional weaknesses rather than overcoming infrastructure constraints. This perspective represents a significant shift within PPP scholarship. Earlier debates focused primarily on whether PPPs were inherently superior or inferior to traditional procurement methods. Contemporary research instead emphasizes the conditions under which PPPs function effectively. Institutional quality, governance stability, and administrative learning processes have become central explanatory variables in assessing partnership outcomes (Estache & Saussier, 2014).

The Zambian case provides a particularly valuable empirical context for examining these dynamics. As a developing economy actively pursuing PPP-based infrastructure financing while simultaneously strengthening institutional frameworks, Zambia illustrates how governance capacity mediates the relationship between policy design and development outcomes. Analyzing PPP performance within this institutional context, therefore, contributes to broader debates on infrastructure governance in developing economies.

2.5 Institutional and Policy Context of PPPs in Zambia

The emergence of PPPs in Zambia must be understood against the broader trajectory of public sector reform and infrastructure financing challenges experienced since economic liberalisation. Following structural adjustments and fiscal consolidation pressures, the Zambian state increasingly confronted limitations in directly financing large-scale infrastructure projects. Transport infrastructure, in particular, required substantial capital investments that exceeded annual public expenditure capacity. In response, policymakers adopted PPPs as a strategic mechanism to bridge the infrastructure financing gap while maintaining development momentum. The enactment of a dedicated PPP legal and institutional framework represented a deliberate attempt to institutionalise private participation in public infrastructure delivery. The framework aimed to provide regulatory certainty to investors while safeguarding public interests through

structured procurement and oversight mechanisms.

However, the institutionalisation of PPPs did not occur within a vacuum. Zambia's administrative system continues to grapple with capacity asymmetries between public institutions and private investors, particularly multinational infrastructure firms possessing advanced financial and legal expertise (Stritzke, 2018; Zulu, et al., 2023). This imbalance shapes negotiation dynamics and influences project outcomes. Furthermore, PPP implementation has been affected by overlapping institutional mandates among government agencies responsible for finance, transport, and infrastructure planning (Mwelwa & Mwanza, 2024; Muleya, Zulu, & Nanchengwa, 2019). Coordination challenges sometimes delay project preparation and approval processes, increasing transaction costs and discouraging private participation. While reforms have progressively strengthened institutional clarity, implementation capacity remains uneven across sectors (Public-Private Partnership Monitor, 2017; Stritzke, 2018). Importantly, PPP adoption in Zambia has often been motivated by developmental urgency rather than institutional readiness (Mwanaumo, et al., 2025; Zulu, et al., 2023). Infrastructure deficits generated political pressure for rapid project delivery, occasionally compressing project preparation stages that are essential for effective risk assessment (Mwanaumo, et al., 2025; Zulu, et al., 2023). As international experience demonstrates, insufficient preparation frequently leads to contract renegotiations or fiscal exposure later in the project lifecycle (Wu & Yang, 2016; Guasch, Benítez, Portabales, & Flor, 2014).

2.6 PPPs and Transport Infrastructure Financing in Zambia

The transport sector represents one of the most prominent areas of PPP application in Zambia due to its central role in facilitating economic activity and regional trade integration (Mwanaumo, Chisumbe, Mbewe, Mambwe, & Haabazoka, 2020). Road infrastructure development, rehabilitation of transport corridors, and logistics connectivity have attracted private sector participation under PPP arrangements aimed at supplementing public financing (Evdorides & Shōji, 2013). PPP financing has contributed to mobilising capital beyond traditional government borrowing channels (Zulu, et al., 2023). By leveraging private investment, Zambia has been able to accelerate infrastructure expansion that might otherwise have been delayed due to budgetary constraints. In this respect, PPPs have partially achieved their intended objective of diversifying infrastructure financing sources.

Nevertheless, a closer examination reveals that PPP financing does not eliminate public financial responsibility. Many projects involve government guarantees, viability gap funding, or revenue assurances designed to attract private investors operating in environments perceived as high-risk (Sarmento & Renneboog, 2020). Consequently, fiscal obligations are often deferred rather than removed, shifting costs into long-term commitments rather than immediate expenditures (Guasch, Benítez, Portabales, & Flor, 2014). Macroeconomic volatility further complicates PPP financing arrangements (Gifford, Bolaños, Daito, & Mason, 2017). Exchange rate fluctuations and inflationary pressures influence project profitability, particularly where revenues are denominated in local currency while financing obligations are tied to foreign currency loans. Under such circumstances, governments frequently assume additional financial burdens to maintain project viability, thereby weakening the theoretical premise of risk transfer (Guasch, Benítez, Portabales, & Flor, 2014). Thus, while PPPs have expanded financing capacity in Zambia, their fiscal implications remain significant and require careful long-term management.

2.7 Risk Allocation and Contractual Realities

Risk allocation constitutes the conceptual core of PPP arrangements (Rybnicek, Plakolm, & Baumgartner, 2020). In theory, risks should be assigned to the party best positioned to manage them efficiently. However, empirical evidence from Zambia suggests that contractual risk allocation often diverges from practical risk outcomes (Muleya, Zulu, & Nanchengwa, 2019). Construction risks are generally transferred successfully to private partners, reflecting their technical expertise and operational control during project implementation (Rybnicek, Plakolm, & Baumgartner, 2020). Projects benefit from improved timelines and performance monitoring mechanisms compared to traditional procurement approaches (Mwanaumo, et al., 2025). Yet financial and demand risks frequently revert to the public sector when economic conditions change or revenue projections fail to materialise (Guasch, Benítez, Portabales, & Flor, 2014).

This phenomenon reflects structural realities rather than contractual failure alone. Government cannot easily allow essential transport infrastructure to fail due to political and economic consequences. As a result, renegotiations become common mechanisms for maintaining service continuity, effectively reallocating risks back to the state (Castelblanco, Guevara, & Marco, 2023; Gifford, Bolaños, Daito, & Mason, 2017). Institutional negotiation capacity plays a decisive role in shaping these outcomes (Castaño, Mahalingam, & Dewulf, 2014; Raynor, Warren-Myers, Paladino, Palm, & Judge, 2022). Where public officials lack specialized expertise in financial modelling or contract management, private partners may secure terms that appear balanced contractually but generate asymmetric risks over time (Raman & Lahariya, 2022; Fall, 2019). The complexity of PPP agreements, often extending over several decades, intensifies this challenge (Wulandari & Septian, 2024; Bader, 2021). Risk allocation in Zambia therefore illustrates a broader lesson observed across developing economies: formal contractual provisions do not guarantee substantive risk transfer unless supported by strong institutional oversight and adaptive regulatory capacity (Rivadeneira & Schuknecht, 2019; Ahmad, Vinella, & Xiao, 2018).

2.8 Governance, Institutional Capacity, and Implementation Challenges

The effectiveness of PPPs ultimately depends on governance structures capable of managing long-term partnerships (Matos

& Gonçalves, 2020; Rivadeneira & Schuknecht, 2019). Zambia's experience demonstrates gradual institutional learning but also persistent structural constraints. Capacity limitations manifest in several interconnected ways. Project preparation stages sometimes lack rigorous feasibility analysis, leading to optimistic demand forecasts (Makovšek & Moszoro, 2017; Alasad, Motawa, & Ougunlana, 2013). Monitoring mechanisms also struggle to track performance obligations throughout the contract lifecycle, particularly where specialised technical expertise is required (Edwards, DeMatthews, & Hartley, 2017; Batjargal & Zhang, 2021).

Moreover, political economy factors influence infrastructure decisions. Infrastructure projects carry symbolic and developmental significance, creating incentives for accelerated implementation even when institutional safeguards remain incomplete (Biygautane, Clegg, & Al-Yahya, 2020). Such dynamics prioritize short-term visibility over long-term sustainability (Pot, 2020; Straub, 2011).

Despite these challenges, PPP implementation has contributed to institutional maturation. Government agencies increasingly recognize the importance of structured appraisal processes, transparent procurement, and fiscal risk monitoring. Over time, repeated engagement with PPP projects has fostered administrative learning and improved regulatory awareness (Marcelo, et al, 2019; Castaño, Mahalingam, & Dewulf, 2014). The Zambian experience therefore reflects a transitional governance trajectory rather than outright success or failure. PPPs function simultaneously as infrastructure financing mechanisms and institutional learning platforms through which the state gradually strengthens its capacity to manage complex economic partnerships.

2.9 Theoretical Framework

Institutional Political Economy Approach

This study is grounded in an institutional political economy framework that conceptualizes infrastructure delivery as the outcome of dynamic interactions between formal institutions, economic incentives, and political constraints. Rather than viewing Public–Private Partnerships purely as financial arrangements designed to mobilize private capital, the framework interprets them as governance systems embedded within broader political, administrative, and macroeconomic structures. Infrastructure projects are therefore understood not simply as technical undertakings but as institutional processes shaped by state capacity, regulatory credibility, and the distribution of power between public and private actors.

Institutional political economy scholarship emphasizes that markets do not operate independently of institutions; instead, economic outcomes are mediated by rules, norms, and governance arrangements that structure incentives and constrain behaviour (Acemoğlu & Robinson, 2012). Within PPP arrangements, contracts alone cannot guarantee efficiency or equitable outcomes because long-term infrastructure agreements inevitably encounter unforeseen economic and political changes. Consequently, institutional credibility becomes central to sustaining cooperation between governments and private investors over extended concession periods. From this perspective, PPP performance depends on the alignment between institutional stability and economic incentives. Investors require predictable regulatory environments to commit long-term capital, while governments must retain sufficient authority to safeguard public interests. Where institutional credibility is weak, private actors may demand guarantees that increase fiscal exposure, or alternatively may avoid participation altogether. Conversely, excessively rigid state control may undermine innovation and efficiency gains expected from private participation.

The institutional political economy approach further recognizes the influence of macroeconomic conditions on contractual governance. Infrastructure projects operate across decades, during which exchange rates, inflation, and fiscal conditions inevitably fluctuate. Such uncertainty transforms PPPs into adaptive governance arrangements rather than fixed contractual solutions. As Williamson (2000) argues, long-term economic contracts function within evolving institutional environments, requiring continuous renegotiation and adjustment. The sustainability of PPPs, therefore, depends less on initial contractual design and more on institutional resilience capable of managing change without undermining investor confidence or public accountability. Applying this framework to Zambia enables analysis beyond narrow financial metrics by situating PPP outcomes within the country's evolving governance architecture. The approach highlights how institutional capacity, policy credibility, and macroeconomic stability collectively shape infrastructure financing outcomes.

Risk Allocation Theory

Risk allocation theory provides a complementary analytical lens for understanding the operational logic of PPP arrangements. At its core, the theory posits that efficiency gains arise when project risks are allocated to the party best positioned to manage them at the lowest cost (Engel, Fischer, & Galetovic, 2014). PPP contracts are, therefore, designed to distribute responsibilities across public and private actors according to comparative advantage, with private partners typically assuming construction and operational risks while governments retain regulatory and policy-related risks.

In theory, such allocation enhances efficiency by aligning incentives with managerial competence. Private firms, motivated by profit and performance-based remuneration, are expected to manage construction timelines, cost control, and operational performance more effectively than public bureaucracies. Governments, meanwhile, remain responsible for regulatory stability and broader socio-economic policy considerations. Demand risks are often shared, reflecting uncertainty surrounding long-term infrastructure usage patterns. However, an important strand of contemporary scholarship challenges the assumption that contractual allocation automatically translates into real risk transfer. Empirical evidence demonstrates that PPPs frequently experience what scholars describe as risk reversion, whereby risks formally

assigned to private actors ultimately return to governments when projects encounter financial distress or political resistance (Hodge & Greve, 2007; Yescombe, 2018). This phenomenon arises because infrastructure services are typically essential public goods; governments cannot credibly allow transport systems or utilities to fail without incurring substantial economic and political costs.

In developing economies, risk reversion is further intensified by macroeconomic volatility and institutional asymmetries. Exchange rate fluctuations, regulatory uncertainty, and limited financial markets increase project risk profiles, prompting private investors to seek contractual protections such as guarantees or revenue assurances. While these mechanisms facilitate investment, they simultaneously weaken genuine risk transfer by embedding contingent liabilities within public finances (IMF, 2022). Risk allocation theory, therefore, reveals a central tension within PPP governance: efficiency depends on transferring risk, yet political and economic realities often compel governments to reassume those risks. Analyzing Zambia's PPP experience through this theoretical lens allows examination of whether contractual risk allocation has translated into substantive risk redistribution or merely symbolic transfer.

Analytical Model for Evaluating PPP Efficacy

Building on the institutional political economy framework and risk allocation theory, this study develops an analytical model for evaluating PPP efficacy that moves beyond conventional project-level assessments. Traditional evaluations often focus narrowly on whether infrastructure projects are completed on time or within budget. While such indicators are important, they provide limited insight into long-term governance and fiscal implications. The analytical model adopted in this study instead conceptualises PPP effectiveness as a multidimensional outcome emerging from the interaction between financing performance, risk governance, and institutional sustainability. Financing outcomes are assessed in terms of the extent to which PPPs successfully mobilise additional capital and accelerate infrastructure provision beyond what would have been achievable through public financing alone. This dimension recognises that infrastructure expansion remains a central policy objective for developing economies confronting investment gaps.

Equally important is the effectiveness of risk allocation, which examines whether risks have been substantively transferred or whether governments continue to bear financial exposure through guarantees, renegotiations, or contingent liabilities. This perspective reflects growing scholarly recognition that PPP contracts must be evaluated across their entire lifecycle rather than solely at financial close (Liu et al, 2018). The third-dimension concerns governance sustainability, which captures the long-term institutional and fiscal consequences of PPP arrangements. Sustainable partnerships require regulatory systems capable of monitoring performance, adapting to economic shocks, and maintaining accountability across decades-long contractual relationships. Without such governance capacity, short-term infrastructure gains may generate long-term fiscal vulnerabilities.

Taken together, these dimensions provide an integrated framework for analyzing PPP performance as an institutional process rather than a discrete financing event. The model enables assessment of how infrastructure expansion, risk distribution, and governance capacity interact to shape development outcomes in Zambia's transport sector. By embedding empirical analysis within this theoretically informed structure, the study contributes to broader debates on infrastructure governance and state capacity in developing economies.

2.10 Conceptual Framework: Linking Institutions, Risk Allocation, and PPP Outcomes

Building on the institutional political economy perspective and risk allocation theory, this study develops a conceptual framework that explains how Public–Private Partnership outcomes emerge from the interaction between governance institutions, economic incentives, and macroeconomic conditions. The framework conceptualizes PPP performance not as a direct product of contractual design but as the result of mediating institutional processes that shape financing effectiveness, risk distribution, and long-term sustainability. At the core of the framework is the assumption that PPP arrangements operate within an institutional environment that conditions both public and private behaviour. Institutional credibility, regulatory capacity, and policy stability influence investor confidence and determine the extent to which contractual obligations remain enforceable over time. These institutional factors interact with incentive structures embedded in PPP contracts, shaping how risks are allocated, managed, and, in some cases, renegotiated throughout the project lifecycle. As institutional economics literature suggests, long-term contracts cannot anticipate all future contingencies; therefore, institutional quality becomes the mechanism through which uncertainty is managed (North, 1990; Williamson, 2000).

The framework further recognises macroeconomic conditions as an intervening variable influencing PPP outcomes. Exchange rate volatility, inflation dynamics, and fiscal constraints affect project revenues and financing sustainability, often triggering renegotiations that reshape initial risk allocations. Consequently, PPP performance must be understood as a dynamic process rather than a static contractual outcome. Within this structure, financing outcomes represent the first observable dimension of PPP effectiveness, reflecting the extent to which partnerships mobilise capital and facilitate infrastructure expansion. However, financing success alone does not guarantee efficiency or sustainability. The second dimension concerns risk allocation effectiveness, examining whether risks are substantively transferred to private actors or ultimately revert to the public sector due to institutional or political pressures. The third dimension captures governance sustainability, assessing whether PPP arrangements strengthen institutional capacity and maintain fiscal stability over the long term.

Figure 1 below illustrates the conceptual relationships underpinning this study. Institutional capacity and governance

quality form the foundational layer influencing incentive alignment and risk allocation mechanisms. These factors interact within broader macroeconomic conditions to produce observable PPP outcomes in terms of infrastructure financing, risk distribution, and governance sustainability. The framework, therefore, positions institutional capacity as the primary mediating variable linking PPP design to development outcomes. By integrating institutional political economy with risk allocation theory, the conceptual framework provides an analytical bridge between abstract theoretical debates and empirical evaluation of Zambia's transport infrastructure partnerships. It enables systematic examination of how governance structures shape partnership performance and offers a transferable model for analysing PPP implementation in comparable developing economy contexts.

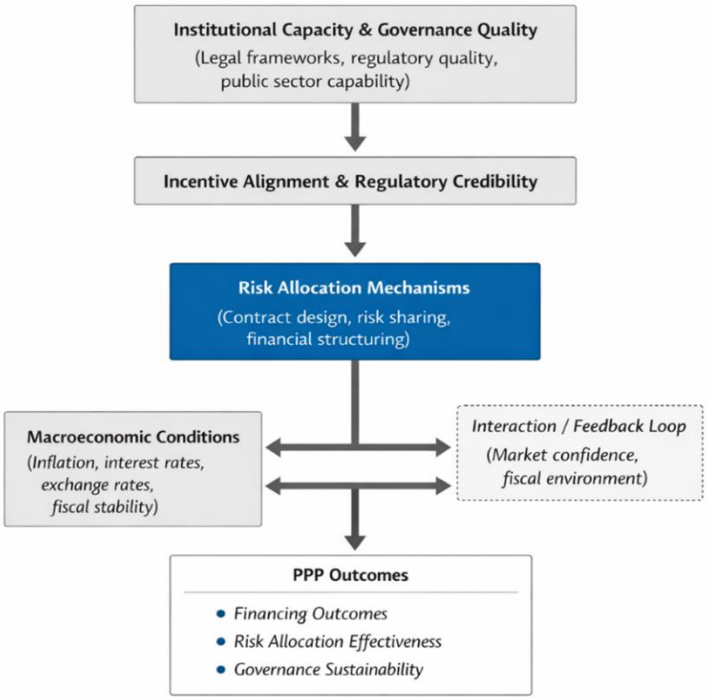

Figure 1: Conceptual Framework for Analysing PPP Effectiveness

3 Research Methodology

This study adopts a qualitative institutional research design grounded in interpretive policy analysis and political economy inquiry to examine the efficacy of PPP in financing transport infrastructure in Zambia. The methodological approach moves beyond descriptive assessment to critically interrogate how PPP arrangements function as governance mechanisms embedded within specific institutional and socio-economic contexts. Rather than treating infrastructure delivery as a purely technical or financial exercise, the study conceptualises it as a multidimensional process shaped by legal frameworks, policy priorities, administrative capacity, and market dynamics. This orientation reflects growing recognition within infrastructure governance scholarship that institutional processes, rather than project outputs alone, determine long-term development outcomes (Hodge & Greve, 2007; Estache & Saussier, 2014).

The research is situated within an interpretivist epistemological tradition, which assumes that policy outcomes emerge from interactions among actors, institutions, and incentives rather than from mechanically observable variables. PPP arrangements involve negotiated relationships between governments and private investors, evolving regulatory environments, and context-specific decision-making processes that cannot be fully captured through purely quantitative methodologies. As Flyvbjerg (2001) argues, large infrastructure projects are deeply political and institutional phenomena, requiring analytical approaches capable of uncovering underlying governance dynamics. Accordingly, this study prioritises qualitative institutional analysis as the most appropriate method for understanding how PPP policies translate into practical outcomes within Zambia's transport sector.

Empirically, the research relies primarily on systematic documentary analysis. Policy documents, legislative instruments, infrastructure strategies, and publicly available project materials relating to PPP implementation form the core data sources. These include national development plans, PPP policy frameworks, transport sector strategies, and institutional reports governing infrastructure investment and oversight. Documentary analysis is particularly valuable in policy-oriented research because official documents represent formal expressions of state intent, regulatory design, and institutional priorities (Bowen, 2009). Examining these materials enabled reconstruction of the policy logic underpinning PPP adoption while also revealing implicit assumptions regarding risk allocation, financing expectations, and governance

capacity.

The documentary evidence is analyzed alongside secondary academic literature on PPP performance in developing economies, allowing for analytical triangulation between theoretical debates and Zambia's institutional experience. Triangulation enhances methodological robustness by situating national policy practice within broader comparative scholarship, thereby reducing the risk of context-specific bias (Yin, 2018). Through this process, the study evaluates whether Zambia's PPP outcomes reflect global patterns identified in existing literature or whether they reveal distinctive institutional dynamics.

A qualitative methodological approach is particularly appropriate given the nature of PPP governance. Infrastructure financing arrangements involve complex contractual negotiations, evolving institutional learning processes, and long-term relationships characterized by uncertainty and adaptation. Quantitative indicators such as investment volumes or project completion rates may capture surface-level outcomes but often obscure underlying governance realities, including renegotiations, contingent liabilities, and institutional constraints. Scholars increasingly caution against evaluating PPP success solely through financial metrics, emphasising instead the importance of examining governance processes and institutional performance (Yescombe, 2018; World Bank, 2023).

The analytical strategy employed in this study therefore focuses on interpreting how policy intentions are translated into operational outcomes within Zambia's administrative and economic environment. Particular attention is paid to institutional interactions among regulatory bodies, policy frameworks shaping investor incentives, and the broader macroeconomic conditions influencing project sustainability. This approach aligns with institutional political economy analysis, which emphasizes the role of governance structures in mediating economic policy outcomes (North, 1990). The analytical framework developed in the preceding section guides the empirical evaluation by structuring analysis around three interrelated dimensions: financing mobilization, risk allocation effectiveness, and governance sustainability. These dimensions are not treated as isolated variables but as mutually reinforcing processes. Financing outcomes, for example, are interpreted in relation to institutional credibility and regulatory stability, while risk allocation is assessed in light of macroeconomic volatility and political constraints. Governance sustainability, in turn, captures the long-term institutional consequences of PPP adoption, including fiscal exposure and administrative learning.

By examining the interaction among these dimensions, the methodology enables a holistic assessment of PPP efficacy that transcends conventional project evaluation metrics. The approach recognizes that infrastructure partnerships generate outcomes over extended time horizons and that their success depends on evolving institutional capacity rather than static contractual arrangements. In this sense, the methodological design reflects an understanding of PPPs as adaptive governance systems whose effectiveness must be evaluated within the broader trajectory of institutional development. This qualitative institutional methodology therefore provides an appropriate and theoretically consistent basis for analyzing Zambia's experience with PPP-financed transport infrastructure. It allows the study to bridge theory and practice by connecting macro-level governance debates with empirical policy analysis, thereby contributing both methodological and substantive insights to scholarship on infrastructure financing in developing economies.

4 Results

4.1 Drivers and Challenges

The evidence suggests that Zambia's increasing reliance on Public–Private Partnerships is not merely a matter of policy preference but rather a structural response to deep-seated fiscal and developmental pressures. At the core of this shift lies the country's substantial infrastructure deficit, particularly within the transport sector, where decades of underinvestment have resulted in deteriorating road networks, limited rail connectivity, and high logistics costs. This infrastructure gap has direct implications for economic productivity, as it constrains trade, raises the cost of doing business, and limits the integration of rural economies into national markets. In this context, PPPs emerge as an ostensibly attractive mechanism for mobilizing capital and accelerating project delivery without placing immediate strain on public finances.

Closely intertwined with this infrastructure imperative is the constraint imposed by Zambia's fiscal position. The country's elevated public debt levels, compounded by debt servicing obligations and macroeconomic instability, have significantly reduced the government's ability to finance large-scale infrastructure through traditional public expenditure. As Vandome (2023) observes, debt distress not only limits fiscal space but also shapes the government's risk appetite, often compelling it to pursue off-balance-sheet financing arrangements such as PPPs. However, this fiscal motivation introduces a paradox: while PPPs are intended to alleviate public financial pressure, the underlying fiscal fragility often weakens the government's negotiating position, thereby influencing the structure and outcomes of PPP agreements.

Despite these strong drivers, the institutional environment within which PPPs are implemented in Zambia presents substantial challenges that undermine their effectiveness. Bureaucratic complexity, characterized by multiple layers of administrative review, overlapping mandates, and protracted decision-making timelines, remains a defining feature of the PPP approval and procurement process in Zambia, creating significant delays and increasing transaction costs for private investors. Zulu et al. (2023) emphasize that such bureaucratic inefficiencies are major challenges to private participation.

The opaqueness of procurement processes further compounds these challenges. Transparency is a fundamental requirement for efficient PPP markets, as it ensures fair competition, reduces the risk of corruption, and enhances investor confidence. In the Zambian context, however, concerns persist regarding the clarity and openness of bidding procedures.

Opaque procurement processes create opportunities for rent-seeking behaviour, thereby undermining value for money. From an institutional political economy perspective, this lack of transparency reflects deeper governance issues, including weak accountability mechanisms and limited oversight capacity.

At the same time, the policy framework governing PPPs incorporates a range of incentives designed to attract private sector participation, such as government guarantees to mitigate risks associated with demand uncertainty and revenue generation (Zulu, et al., 2023). While these incentives are theoretically justified as mechanisms for risk sharing, their practical implications are more complex. In many cases, they serve to shift risks back to the public sector, particularly when project assumptions prove overly optimistic or when macroeconomic conditions deteriorate.

Macroeconomic risks constitute another critical dimension shaping PPP outcomes in Zambia. The country's exposure to currency volatility is particularly significant, given that many infrastructure projects are financed in foreign currency while revenues are generated in local currency. This mismatch creates substantial exchange rate risk, which can dramatically increase project costs and undermine financial viability. In addition, debt distress exacerbates these risks by limiting the government's ability to provide credible guarantees without further jeopardizing fiscal sustainability. As a result, macroeconomic instability not only affects the feasibility of individual projects but also influences the broader investment climate, shaping the perceptions and expectations of private investors.

Taken together, these findings suggest that while the drivers of PPP adoption in Zambia are compelling, the institutional and macroeconomic environment within which they operate significantly constrains their effectiveness. The interaction between fiscal pressures, bureaucratic inefficiencies, governance challenges, and macroeconomic volatility creates a complex landscape in which the theoretical advantages of PPPs are difficult to realize in practice.

Table 1: Key Challenges and Drivers for PPPs in Zambia

Category	Key Findings in Zambia
Main Drivers	Massive infrastructure backlog; Lack of public funds; Economic growth potential.
Incentives	Government guarantees; Long-term concessions.
Primary Barriers	Excessive bureaucracy; Long procurement procedures; Lack of transparency.
Macroeconomic Risk	Debt sustainability and currency volatility.

4.2 Risk Allocation Analysis

A central insight emerging from this study is that the formal architecture of risk allocation embedded in Public–Private Partnership agreements in Zambia diverges significantly from the realities of implementation. While PPP contracts are typically structured around the principle that risks should be borne by the party best positioned to manage them, the Zambian experience demonstrates that this principle is frequently compromised by institutional constraints, political considerations, and the structural characteristics of the economy. In particular, the designation of certain infrastructure projects as "essential services" fundamentally alters the distribution of risk by positioning the state as the ultimate guarantor of continuity, irrespective of contractual provisions. This creates a situation in which risks that are ostensibly transferred to private actors are, in practice, reabsorbed by the public sector.

Construction risk provides the clearest example of alignment between theoretical design and practical outcome. In PPP arrangements, construction risk encompassing cost overruns, delays, and technical deficiencies, is typically assigned to the private partner on the basis of its superior technical expertise and project management capabilities (Chan & Cheung, 2014; Chung, Hensher, & Rose, 2010). In Zambia, this allocation has largely functioned as intended. Private contractors, often with significant international experience, possess the capacity to manage engineering complexities, coordinate supply chains, and implement cost-control mechanisms (Chan & Cheung, 2014; Chou, Hsu, Lin, & Chang, 2016). The contractual frameworks governing PPP projects generally include performance benchmarks and penalties for delays, which reinforce the incentives for timely and efficient delivery (Iossa & Martimort, 2012; Nilsson, 2009). As a result, the transfer of construction risk to the private sector has been relatively successful, contributing to improved project execution compared to traditional public procurement models. This outcome underscores the broader argument that PPPs can be effective in contexts where risks are clearly defined, measurable, and within the operational control of private actors.

The allocation of demand or revenue risk, however, reveals a more complex and problematic dynamic. In theory, this risk is assigned to the private partner, particularly in user-pay models such as toll roads, where revenue generation depends on usage levels (Soliño & Albornoz, 2019; Iossa & Martimort, 2014). The rationale is that private investors, motivated by profit, will undertake rigorous feasibility studies and implement strategies to optimize demand (Zhou & Liu, 2021; Tien, Likhitruangsilp, Onishi, & Nguyen, 2017). In the Zambian context, however, the assumption that private actors can fully bear demand risk is often undermined by structural uncertainties, including fluctuating traffic volumes, income levels, and broader economic conditions. To mitigate these uncertainties and attract investment, the state frequently provides minimum revenue guarantees or other forms of financial support (Jiang, 2016; Kokkaew & Chiara, 2013). These mechanisms effectively shield private investors from downside risks, ensuring a baseline level of return regardless of actual demand (Jiang, 2016; Kokkaew & Chiara, 2013). While such arrangements may be necessary to render projects bankable, they fundamentally alter the risk profile of PPPs by transferring the burden of demand shortfalls to the public sector. Over time, this can create significant contingent liabilities, particularly if projected usage levels are not realized. From an Institutional Political Economy perspective, this pattern reflects both the bargaining power of private investors and the state's imperative to deliver infrastructure, even at the cost of assuming additional financial risk.

Political and legal risk, by contrast, remains firmly anchored within the public domain, as it relates to the stability and predictability of the regulatory environment. This category of risk encompasses changes in legislation, policy shifts, and the broader governance framework within which PPPs operate. In Zambia, recent reforms and adjustments to the PPP framework, particularly under the current administration, have introduced both opportunities and uncertainties. While efforts have been made to streamline processes and enhance investor confidence, the evolving nature of the regulatory environment creates a degree of unpredictability that cannot be easily mitigated through contractual arrangements. Private investors, recognizing the limits of their ability to influence political outcomes, typically require safeguards such as stabilization clauses or compensation mechanisms to protect against adverse policy changes. However, these safeguards often translate into additional obligations for the state, reinforcing its role as the ultimate bearer of political risk. The persistence of this risk within the public sector is not inherently problematic, as governments are best positioned to manage policy-related uncertainties. Nevertheless, the magnitude and volatility of political risk in Zambia have important implications for the overall cost and feasibility of PPP projects, as they shape investor perceptions and influence the terms of engagement.

Macro-economic risk represents perhaps the most significant and pervasive challenge to effective risk allocation in Zambia's PPP framework. This category includes factors such as inflation, exchange rate volatility, interest rate fluctuations, and broader fiscal instability. In principle, macroeconomic risk is often shared between public and private partners, reflecting its systemic nature and the limited capacity of any single actor to fully control it. In practice, however, the burden of this risk in Zambia tends to fall disproportionately on the public sector. The country's high levels of external debt and exposure to foreign currency financing create a structural vulnerability that is difficult to mitigate. Many PPP projects are financed in foreign currencies, while their revenue streams are denominated in local currency, leading to significant exchange rate risk. When the domestic currency depreciates, the cost of servicing foreign-denominated debt increases, placing additional pressure on project finances. In such scenarios, the state is often compelled to intervene, either by providing additional support or by renegotiating contractual terms, thereby absorbing risks that were initially envisaged as shared.

The constraints imposed by Zambia's debt burden further exacerbate this dynamic. As Vandome (2023) notes, debt distress limits the government's ability to implement effective hedging strategies or to absorb shocks without compromising fiscal stability. This creates a feedback loop in which macroeconomic instability not only undermines existing PPP projects but also affects the design of future agreements, as investors demand greater assurances to compensate for perceived risks. Consequently, the allocation of macroeconomic risk becomes less a matter of contractual specification and more a reflection of structural economic conditions.

Taken together, these findings highlight a fundamental tension at the heart of Zambia's PPP framework. While the theoretical model emphasizes efficient risk transfer as a means of enhancing value for money, the realities of institutional capacity, political economy dynamics, and macroeconomic vulnerability often lead to outcomes in which the public sector remains the residual risk bearer. The designation of infrastructure projects as essential services reinforces this tendency, as it creates an implicit guarantee that the state will intervene to ensure continuity, regardless of contractual arrangements. In this sense, risk allocation in Zambia's PPPs is not merely a technical exercise but a deeply political process, shaped by competing priorities, power asymmetries, and the imperative to deliver development outcomes under conditions of constraint.

Table 2: Qualitative Risk Allocation Matrix

Risk Type	Theoretical Holder	Actual Risk Bearer in Zambia	Justification
Construction Risk	Private Partner	Private Partner	Transfer is successful due to technical expertise (Okoro, Nnaji, Chileshe, & Tembo, 2023, p. 310).
Demand/Revenue Risk	Private Partner	Public Sector	State often provides minimum revenue guarantees (Kokkaew & Chiara, 2013, p. 187).
Political/Legal Risk	Public Sector	Public Sector	Legislative changes under the Hichilema administration (Vandome, 2023).
Macro-Economic Risk	Shared	Public Sector	Zambia's debt burden limits the state's capacity to hedge (Vandome, 2023).

4.3 Discussion

The findings of this study challenge simplistic narratives that portray Public–Private Partnerships either as universal solutions to infrastructure deficits or as inherently flawed policy instruments. Zambia's experience instead demonstrates that PPP outcomes are contingent upon institutional capability, macroeconomic stability, and governance maturity. PPPs have neither fully resolved infrastructure financing constraints nor failed outright; rather, they have reshaped the manner in which infrastructure risks and fiscal obligations are distributed across time and institutional actors.

From a financing perspective, PPPs have undeniably expanded Zambia's capacity to undertake transport infrastructure development during periods of fiscal pressure. By attracting private capital and managerial expertise, PPP arrangements have enabled projects that might otherwise have remained unrealized under conventional public procurement systems. This contribution is particularly significant for a landlocked economy whose economic competitiveness depends heavily

on transport efficiency. However, the analysis reveals that PPP financing operates less as an alternative to public expenditure and more as a mechanism for restructuring it. Government commitments embedded within guarantees, availability payments, and renegotiated terms create long-term fiscal obligations that may not be immediately visible in public budgets. Consequently, PPPs alter the temporal structure of public finance rather than eliminating state responsibility.

The persistence of fiscal exposure highlights a critical paradox: while PPPs are often justified as instruments for transferring risk to private actors, governments remain the ultimate risk bearers where infrastructure services are socially and economically indispensable. This dynamic is particularly evident in transport infrastructure, where project failure carries national economic consequences. Zambia's experience therefore aligns with broader international evidence suggesting that risk transfer in PPPs is frequently partial and conditional. Institutional capacity emerges as the central explanatory variable shaping these outcomes. Where regulatory oversight, contract management expertise, and project appraisal mechanisms remain limited, contractual provisions alone cannot secure efficient risk allocation. The state's ability to govern partnerships becomes more important than the contractual form itself. PPPs thus function as governance-intensive arrangements requiring sustained administrative competence rather than one-time procurement decisions. Furthermore, macroeconomic instability introduces additional complexity. Exchange rate volatility, inflation fluctuations, and debt sustainability pressures undermine long-term financial projections upon which PPP contracts depend. Under such conditions, renegotiation becomes almost inevitable, reinforcing the state's continuing financial exposure. The Zambian case therefore supports an institutional political economy interpretation of PPP performance: infrastructure partnerships succeed not primarily because private actors participate, but because institutional systems effectively regulate, monitor, and adapt contractual relationships over time.

The analysis carries important implications for infrastructure governance in Zambia and comparable developing economies. First, PPP policy should shift from an emphasis on attracting private investment toward strengthening project preparation capacity. Rigorous feasibility analysis, realistic demand forecasting, and fiscal risk assessment are essential prerequisites for sustainable partnerships. Without adequate preparation, PPPs risk becoming instruments of deferred fiscal stress rather than engines of development.

Second, institutional coordination must be strengthened across government agencies involved in infrastructure planning, finance, and regulation. Fragmented oversight undermines accountability and complicates contract management. Establishing integrated monitoring systems capable of tracking contingent liabilities would enhance transparency and fiscal sustainability.

Third, investment in public-sector negotiation expertise is critical. PPP contracts are inherently complex and long-term; therefore, governments require specialized legal, financial, and technical skills to negotiate equitable agreements. Capacity development should be viewed as infrastructure investment in its own right, as institutional weakness directly affects project outcomes. Fourth, policymakers must recognize the limits of PPPs within volatile macroeconomic environments. Risk-sharing arrangements should explicitly account for currency fluctuations and economic shocks to prevent excessive fiscal exposure. Adaptive contractual mechanisms may improve resilience without undermining investor confidence.

Ultimately, PPPs should complement rather than replace traditional public investment strategies. A balanced infrastructure financing model combining public funding, concessional finance, and carefully structured PPPs is more likely to achieve sustainable development outcomes.

5 Conclusions and Recommendations

Public–Private Partnerships have become a central component of Zambia's strategy for financing transport infrastructure in the face of fiscal constraints and growing development demands (Muleya, Zulu, & Nanchengwa, 2019). While PPPs have facilitated infrastructure expansion and diversified financing sources (Lee, Han, Gaspar, & Alano, 2018), their effectiveness remains conditioned by institutional capacity, governance quality (Lee, Han, Gaspar, & Alano, 2018), and macroeconomic stability (Hyun, Park, & Tian, 2018).

The study finds that PPPs in Zambia have achieved partial success. They have enabled infrastructure delivery and mobilized investment (Ngoma, 2015), yet anticipated benefits in risk transfer (Muleya, Zulu, & Nanchengwa, 2019) and fiscal relief have been limited. Government institutions continue to bear substantial long-term obligations, reflecting structural realities inherent in essential public infrastructure provision. The broader lesson emerging from Zambia's experience is that PPPs are not primarily financial instruments but institutional arrangements requiring capable governance systems. Successful partnerships depend less on private participation itself and more on the state's ability to design, regulate, and sustain complex contractual relationships over time. Future infrastructure policy should therefore prioritize institutional strengthening alongside financing innovation. Only where governance capacity evolves in parallel with partnership expansion can PPPs fulfil their promise as instruments of sustainable development.

This study contributes to existing literature in three important ways. First, it provides a context-specific analysis of PPP implementation in Zambia, addressing a significant empirical gap within African infrastructure governance scholarship. Second, it advances the argument that PPP efficacy must be evaluated through institutional performance rather than project completion metrics alone. Third, it demonstrates how political economy dynamics mediate contractual risk allocation, thereby enriching theoretical debates on infrastructure governance in developing economies. By integrating institutional theory with empirical policy analysis, the article moves beyond normative advocacy or critique of PPPs and

instead offers a nuanced understanding of how partnerships function within real governance environments.

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The article followed all ethical standards appropriate for this kind of research.

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