

Urban Infrastructure Financing and Service Delivery Outcomes: Evidence from the Federal Capital Territory, Nigeria

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ABSTRACT: Urban infrastructure financing is a critical determinant of sustainable service delivery in rapidly urbanising cities. This study examines the effectiveness of existing financing models in delivering infrastructure services that are available, affordable, and accessible to residents of the Abuja Municipal Area Council (AMAC), Federal Capital Territory (FCT), Nigeria. Anchored on the Finance–Mediators–Outcome (FMO) framework and guided by Sustainable Development Goal 11, the study employed a mixed-methods approach, integrating quantitative data from 384 household surveys with qualitative insights from semi-structured interviews of policymakers and community representatives. Findings reveal a diversified financing landscape, including government funding, private sector investment, Public–Private Partnerships (PPPs), and community-based arrangements. Electricity and water supply services recorded higher availability, while housing and waste management exhibited significant service gaps. Affordability and accessibility challenges persist, particularly for low-income and peri-urban populations. The study concludes that although current financing mechanisms have enhanced resource mobilisation,

they do not automatically guarantee equitable and sustainable service delivery. Recommendations include strengthening PPPs with equity safeguards, improving institutional coordination, enhancing transparency, and supporting community-based initiatives to bridge service gaps. The study contributes empirical evidence on the relationship between financing models and urban infrastructure outcomes, providing actionable insights for policymakers, urban planners, and development stakeholders in the FCT.

Keywords: *Urban Infrastructure, Financing Models, Service Delivery, Abuja, Sustainable Development*

Introduction

Urban infrastructure financing remains a central challenge in many developing countries, where rapid urbanization has created growing demand for roads, water, sanitation, housing, and other basic services (Magaji et al., 2025a). In Nigeria, cities have struggled to mobilize adequate financial resources to deliver sustainable infrastructure services, resulting in gaps in availability, affordability, and accessibility for urban residents (Magaji & Ismail, 2025). Despite multiple financing strategies at federal and sub-national levels, the capacity to translate funds into effective service delivery continues to fall short of urban needs (Udoudo & Udoidem, 2017; Emoh et al., n.d.; Al-Amin et al., 2025). This situation is particularly pronounced in the Federal Capital Territory (FCT), where population growth and increased urban expansion have exerted pressure on existing infrastructure and public finances (Suleiman et al., 2025).

Urban infrastructure in the context of Nigeria embodies a wide range of public goods and services that sustain economic activity and social welfare (Musa et al., 2022; Sadiq et al., 2025). These include transportation networks, housing systems, potable water supply, sanitation, and drainage systems, each of which demands sustained investment and maintenance (ProjectClue, n.d.; Magaji et al., 2025b). The financing of these sectors largely depends on government budgetary allocations, donor funding, public-private partnerships (PPPs), and community-based initiatives. However, the effectiveness of these financial models in achieving equitable service

outcomes has been questioned, as many urban residents still experience deficient or costly services (Emoh et al., n.d.; Udouido & Udoidem, 2017).

The FCT represents a unique case within Nigeria, serving as the nation's political capital and growth center, yet its infrastructure systems face persistent financing and delivery challenges. Rapid urbanization and unplanned settlement growth in areas such as Abuja metropolis highlight strains on housing and service systems, where the pace of infrastructure provision lags behind population increases (Oriyomi, 2025). This underscores not only the financing constraints but also the shortcomings in planning integration and service distribution across different socio-economic groups in the territory.

Existing research underscores several barriers to effective urban infrastructure financing in Nigeria, including inadequate budgetary prioritization, weak revenue mobilization, and limited engagement of private capital in infrastructure delivery (Udouido & Udoidem, 2017; Emoh et al., n.d.). Additionally, community-oriented financing approaches and grassroots involvement have been proposed as complementary mechanisms to traditional public financing to improve service outcomes in underserved neighborhoods (Fateye et al., 2021). These diverse perspectives highlight the need to critically evaluate whether current financing models align with the broader goals of service availability, affordability, and accessibility for all residents in the FCT.

Therefore, this study seeks to examine the effectiveness of existing urban infrastructure financing models and their service delivery outcomes within the Federal Capital Territory. By assessing the strengths and limitations of current approaches, the research aims to contribute evidence-based insights that can inform policy reforms and strategic investment decisions to enhance service delivery performance. Moreover, understanding how different financing mechanisms impact the lived experiences of urban residents provides a crucial foundation for advancing sustainable and inclusive infrastructure development in rapidly urbanizing contexts.

Literature Review And Theoretical Framework

Urban Infrastructure Financing

Urban infrastructure financing refers to the processes, mechanisms, and instruments through which financial resources are mobilized, allocated, and managed for the development, operation, and maintenance of urban infrastructure such as transportation systems, water supply, sanitation, housing, and energy services (Tanko et al., 2025; Hafizu et al., 2025). In developing countries, including Nigeria, urban infrastructure financing is dominated by public sector funding through government budgets, intergovernmental transfers, and external borrowing, complemented by private sector participation via public–private partnerships (PPPs) and donor assistance (World Bank, 2019). However, rapid urbanization, fiscal constraints, and weak revenue-generation capacity have limited the effectiveness of these financing models, often resulting in infrastructure deficits and uneven service provision (African Development Bank [AfDB], 2020). Additionally, conventional commercial banks have constraints in lending for long-term investment in urban infrastructure (Okoroafor et al., 2018; Magaji et al., 2025c). Effective urban infrastructure financing, therefore, requires not only adequate funding levels but also efficient financial governance, sustainability of funding sources, and alignment with long-term urban development goals (United Nations Human Settlements Programme [UN-Habitat], 2020).

Service Delivery

Service delivery refers to the manner in which public goods and services are provided to citizens to meet social and economic needs, including accessibility, quality, affordability, and reliability of services. In the context of urban infrastructure, service delivery outcomes are shaped by institutional capacity, financing adequacy, policy frameworks, and governance structures that determine how infrastructure investments translate into tangible benefits for residents (Batley & McLoughlin, 2015). In many urban areas of Nigeria, service delivery challenges persist due to insufficient funding, inefficient project implementation, and weak accountability mechanisms, resulting to disparities in access to basic services across

socio-economic groups (Akinola & Adesopo, 2011). Consequently, effective service delivery is increasingly viewed as an outcome-oriented process that emphasizes citizen satisfaction, equity, and sustainability, rather than merely the provision of physical infrastructure (UN-Habitat, 2020).

Theoretical Review

Public Finance Theory

Public Finance Theory is highly relevant to this study as it explains the role of government in mobilizing, allocating, and managing financial resources to provide public goods and services, including urban infrastructure. The theory posits that because infrastructure services such as roads, water supply, sanitation, and drainage exhibit characteristics of public goods or merit goods, the state has a primary responsibility to finance and regulate their provision to ensure efficiency, equity, and social welfare maximization (Musgrave & Musgrave, 1989). In the context of urban infrastructure financing, Public Finance Theory emphasizes the importance of revenue generation, budgeting, public expenditure management, and fiscal decentralization in determining service delivery outcomes (Oates, 1999). This theoretical lens is particularly relevant to the Federal Capital Territory, Nigeria, where government-led financing models dominate infrastructure provision and where challenges such as limited fiscal capacity, inefficient allocation of funds, and governance constraints affect the availability, affordability, and accessibility of services. By applying Public Finance Theory, this study provides a framework for evaluating whether existing financing arrangements in the FCT effectively translate public resources into improved infrastructure service delivery for urban residents.

Empirical Review

Empirical evidence from Nigeria indicates that inadequate and unstable financing remains a major constraint to effective urban infrastructure service delivery. A study by Udouo and Udoidem (2017) examined urban infrastructure funding strategies across selected Nigerian cities and found that heavy dependence on government budgetary allocations limited infrastructure availability and quality. The study revealed that delayed fund releases, poor fiscal discipline, and insufficient internally

generated revenue weakened service delivery outcomes, particularly in transportation and water supply systems. The authors concluded that diversified financing mechanisms, including private sector participation, were necessary to enhance affordability and accessibility of urban infrastructure services.

In a related study, Emoh, Ajator, and Ugonabo (2015) empirically assessed infrastructure financing and management practices in urban Nigeria using survey data from public officials and residents. Their findings showed a significant relationship between financing adequacy and service delivery performance, with underfunded infrastructure projects often experiencing poor maintenance and limited coverage. The study further revealed that inefficient fund management reduced service reliability and increased user costs, thereby undermining equitable access. The authors recommended improved financial governance and accountability frameworks to ensure better translation of funding into service outcomes.

At the continental level, the World Bank (2019) conducted an empirical assessment of urban infrastructure financing in Sub-Saharan Africa, including Nigeria, and found that cities with diversified financing sources—such as public–private partnerships and municipal revenues—recorded better service delivery outcomes. The report emphasized that overreliance on central government transfers constrained infrastructure expansion and reduced service affordability for low-income urban residents. The findings highlight the importance of institutional capacity and innovative financing in achieving inclusive urban service delivery.

Similarly, an empirical study by Fateye, Odunfa, Ibisola, and Ibuoye (2021) investigated community-based infrastructure financing in selected Nigerian urban neighborhoods. Using a mixed-methods approach, the study found that areas supported by Community Development Associations (CDAs) recorded improved access to basic infrastructure services such as roads, drainage, and electricity. However, affordability challenges persisted due to uneven income levels among residents. The study concluded that while community-based financing complements public funding, it must be integrated with formal government financing models to achieve sustainable and equitable service delivery.

Further empirical insights were provided by the United Nations Human Settlements Programme (2020), which examined global urban service delivery outcomes in relation to infrastructure financing. The report showed that cities with weak financing frameworks experienced infrastructure deficits that disproportionately affected low-income populations. In Nigeria's rapidly urbanizing regions, including the Federal Capital Territory, inadequate financing was linked to reduced service coverage, declining infrastructure quality, and affordability concerns. The report emphasized that effective urban infrastructure financing is a critical determinant of sustainable service delivery and inclusive urban development.

Research Gap

Despite the growing body of empirical literature on urban infrastructure financing and service delivery in Nigeria and other developing contexts, notable research gaps remain. Existing studies largely focus on broad national or multi-city analyses (e.g., Udouo & Udoiem, 2017; Emoh et al., 2015) or adopt regional and continental perspectives (World Bank, 2019; UN-Habitat, 2020), with limited empirical attention to the Federal Capital Territory as a distinct administrative and socio-economic space. Moreover, much of the literature emphasizes financing sources and infrastructure provision without systematically linking specific financing models to measurable service delivery outcomes such as availability, affordability, and accessibility from the residents' perspective. Community-based approaches (Fateye et al., 2021) further highlight localized successes but do not adequately assess how these initiatives interact with formal public financing frameworks. Consequently, there is a paucity of context-specific, outcome-oriented empirical evidence that evaluates the effectiveness of existing urban infrastructure financing models in delivering inclusive and sustainable services within the FCT, thereby justifying the need for the present study.

Methodology

Research Design

A research design constitutes a systematic framework that guides the entire research process, specifying procedures for data collection, measurement, and analysis in a

coherent and logical manner (Kothari, 2004). It ensures methodological consistency and strengthens the linkage between research objectives, data-gathering techniques, and analytical strategies, thereby enhancing the rigor and credibility of empirical inquiry (Aigbavboa & Thwala, 2020). Guided by the Finance–Mediators–Outcome (FMO) framework presented in Chapter Two, this study operationalised three mediating dimensions—economic viability, social inclusiveness, and environmental sustainability—and evaluated service delivery outcomes in relation to Sustainable Development Goal 11 (SDG 11).

The adopted research design enabled a structured examination of urban infrastructure financing within the Federal Capital Territory (FCT), Nigeria, and facilitated the assessment of how different financing models influence intermediary performance indicators and sustainable urban outcomes. By following a clearly defined sequence for data collection, analysis, and interpretation, the design ensured the generation of valid, reliable, and policy-relevant evidence on the relationship between financing mechanisms and service delivery outcomes in Abuja.

Research Method

This study adopted a mixed-methods research strategy, combining quantitative and qualitative techniques to capture both measurable patterns and in-depth contextual insights (Creswell & Creswell, 2018). Quantitative methods were used to assess infrastructure investment trends, service availability, and perceived effectiveness of financing arrangements, while qualitative methods provided deeper understanding of institutional processes, stakeholder perceptions, and socio-political factors shaping financing outcomes. This integrative approach enabled a comprehensive evaluation of urban infrastructure financing that accounted for both structural and human-centred dimensions.

In addition, the study incorporated descriptive and exploratory components. The descriptive aspect focused on identifying patterns in infrastructure financing, including sectoral allocations, funding flows, and spatial coverage of investments. The exploratory component relied on interviews and document review to uncover contextual, institutional, and social factors influencing financing effectiveness.

Together, these components addressed both observable patterns and underlying drivers of service delivery performance in the FCT.

Approach and Rationale

The selection of a mixed-methods approach was closely aligned with the objectives of the study and supported triangulation of data sources to enhance validity and reliability (Bryman, 2016). While quantitative data provided empirical evidence on investment patterns and financing flows, qualitative interviews captured policy, institutional, and community-level perspectives that explained variations in service delivery outcomes. This dual strategy enabled an integrated assessment of financing performance, equity considerations, and sustainability implications.

The rationale for adopting this approach lies in the multidimensional nature of sustainable urban infrastructure, which spans economic, social, and environmental domains. Reliance on a single methodological approach would either overlook measurable trends or fail to capture stakeholder experiences and institutional realities. The mixed-methods design therefore allowed simultaneous measurement of key indicators and interpretation of contextual dynamics shaping infrastructure financing and service delivery.

Study Area

The study was carried out in Abuja Municipal Area Council (AMAC), one of the six Area Councils that constitute the Federal Capital Territory, Nigeria. Established in 1976 as Nigeria's federal capital, the FCT covers an estimated land area of about 7,315 km² (Federal Republic of Nigeria, 1976; Federal Capital Development Authority [FCDA], 2019). AMAC occupies approximately 1,200 km² and represents the primary urban core of the FCT, hosting the highest concentration of population, administrative institutions, and economic activities (National Population Commission [NPC], 2018; FCDA, 2019).

AMAC exhibits marked socio-spatial heterogeneity, comprising high-income planned districts, mixed-income residential zones, and rapidly expanding peri-urban and informal settlements (FCDA, 2019; Adama, 2022). Accelerated urbanisation has

placed increasing pressure on infrastructure systems, particularly in transportation, housing, drainage, energy, and waste management (African Development Bank [AfDB], 2021; Akinwale, 2021). The coexistence of federal and local governance structures within AMAC further complicates infrastructure financing and service delivery, making the area a suitable and representative case for this study.

Population and Sampling

The study population comprised three key stakeholder groups: residents of AMAC who represent the demand side of infrastructure services; policymakers and government officials involved in infrastructure planning and financing; and community leaders who provide grassroots and intermediary perspectives. This multi-stakeholder focus ensured that both service users and decision-makers were adequately represented.

A multistage cluster sampling technique was employed to select household respondents across the twelve wards of AMAC, ensuring spatial representativeness and inclusion of both formal and informal settlements. Households within each ward were systematically selected. Policymakers and institutional actors were purposively selected for key-informant interviews based on their direct involvement in infrastructure financing, while community representatives were purposively chosen to reflect social, cultural, and gender diversity. The final sample consisted of 384 households, two institutional key informants, and fifteen community representatives.

Data Collection Methods

Primary data were collected using structured household questionnaires and semi-structured interviews. The questionnaire captured information on socio-demographic characteristics, access to infrastructure services, perceptions of financing effectiveness, levels of community participation, and socio-economic and environmental outcomes. Semi-structured interviews with policymakers and community leaders generated qualitative insights into institutional arrangements, regulatory challenges, financing performance, and equity considerations.

Secondary data were sourced from policy documents, institutional reports, and relevant academic literature to provide contextual background and support interpretation of findings. The study did not independently analyse administrative financial datasets; rather, empirical results were derived primarily from primary data collected during fieldwork.

Validity and Reliability

Validity was enhanced by aligning data collection instruments with the research objectives and the FMO conceptual framework, ensuring coverage of economic, social, and environmental dimensions of sustainable infrastructure financing. Questionnaire items and interview guides were developed based on constructs widely used in the sustainable urban development literature. Reliability was assessed using Cronbach's alpha for quantitative variables and through consistent data collection procedures for qualitative interviews. Interview data were transcribed verbatim and triangulated with survey findings to ensure consistency and accuracy (Saunders et al., 2019).

Data Analysis

Quantitative data were analysed using descriptive statistics and inferential techniques, including Chi-square tests, Kruskal–Wallis tests, multivariate analysis of variance (MANOVA), and regression analysis. Exploratory factor analysis was employed to identify underlying clusters of challenges affecting infrastructure financing. Qualitative data were analysed thematically to identify recurring patterns, stakeholder perspectives, and explanatory narratives. Integration of quantitative and qualitative findings occurred at the interpretation stage to provide a holistic understanding of how financing models influence service delivery outcomes in AMAC.

Ethical Considerations

Ethical standards were upheld throughout the research process through informed consent, confidentiality of responses, voluntary participation, and secure handling of data. Necessary administrative approvals were obtained from relevant authorities,

and all research activities were conducted in accordance with established ethical guidelines for social science research.

Data Presentation and Analysis of Results

This section presents and interprets the empirical results derived from primary data obtained through household surveys and semi-structured interviews conducted in the Abuja Municipal Area Council (AMAC), Federal Capital Territory (FCT). The analysis follows the study objectives and is anchored on the Finance–Mediators–Outcome (FMO) framework, which links urban infrastructure financing models to economic, social, and environmental outcomes. Quantitative data from 384 resident respondents were analysed using descriptive and inferential statistical techniques, while qualitative insights from institutional and community stakeholders were employed to provide contextual depth. Sustainable Development Goal 11 (SDG 11) serves as the analytical lens for assessing the extent to which infrastructure financing supports inclusive, safe, resilient, and sustainable urban development.

The chapter is organised according to the research objectives. Objective One focuses on identifying and categorising urban infrastructure financing models in the FCT. Objective Two assesses the effectiveness of these models in terms of service delivery outcomes, while Objective Three examines their implications for sustainable urban development. Objective Four explores key challenges influencing the adoption and performance of financing models. The section concludes with a synthesis of findings across objectives to support evidence-based policy recommendations.

Objective One: Identification and Categorisation of Urban Infrastructure Financing Models in the FCT

This section examines the types of financing models employed in urban infrastructure development within the FCT, drawing on responses from residents, institutional stakeholders, and community representatives. The analysis emphasises awareness levels, prevalence, and sector-specific application of financing mechanisms, including government funding, Public–Private Partnerships (PPPs), private sector investment, and alternative arrangements. Assessment of effectiveness and outcomes is addressed in subsequent sections.

General Residents' Perspective

Water Infrastructure

Table 4.1: Awareness of Financing Models for Water Infrastructure

Financing Model	Percentage of Respondents (%)	Respondents Selecting Option (n)	Share of Mentions (Normalised to 100%)*
Government Funding	52.0	200	31.5
Private Sector Funding	36.0	139	21.8
Public–Private Partnerships	18.0	69	10.9
Foreign Aid/Grants	11.0	42	6.7
Other (e.g., community-based, cooperative)	48.0	185	29.1
No Knowledge	7.0	27	0.0

Source: Author's Field Study, 2025

Table 4.1 indicates that government funding is the most widely recognised financing mechanism for water infrastructure, identified by 52% of respondents, followed by private sector funding (36%) and Public–Private Partnerships (18%). A substantial proportion of respondents (48%) also acknowledged alternative arrangements such as community-based or cooperative models, highlighting the role of informal and localised financing structures. Only a small fraction of residents (7%) reported no knowledge of financing arrangements. Overall, the findings suggest that while formal government and private sector involvement is visible, informal mechanisms remain significant in water service provision.

Electricity Infrastructure

Table 4.2: Awareness of Financing Models for Electricity Infrastructure

Financing Model	Percentage of Respondents (%)	Respondents Selecting Option (n)	Share of Mentions (Normalised to 100%)*
Government Funding	60.2	232	39.1
Public–Private Partnerships	29.6	114	19.2
Private Sector Funding	22.2	85	14.4
Foreign Aid/Grants	11.0	42	7.1
Other (e.g., community-based models)	31.0	119	20.1
No Knowledge	4.0	15	0.0

Source: Author’s Field Study, 2025

As shown in Table 4.2, electricity infrastructure financing is predominantly associated with government funding, recognised by 60.2% of respondents. Public–Private Partnerships (29.6%) and private sector funding (22.2%) are also notable, reflecting increasing hybrid financing arrangements in the sector. Community-based and alternative models were acknowledged by 31% of respondents, while only 4% indicated no awareness. These results suggest that although the public sector remains dominant, electricity provision increasingly reflects collaborative financing structures.

Waste Management

Table 4.3: Awareness of Financing Models for Waste Management

Financing Model	Percentage of Respondents (%)	Respondents Selecting Option (n)	Share of Mentions (Normalised to 100%)*
Public–Private Partnerships	49.6	191	45.1

Financing Model	Percentage of Respondents (%)	Respondents Selecting Option (n)	Share of Mentions (Normalised to 100%)*
Government Funding	23.8	92	21.6
Private Sector Funding	15.6	60	14.2
Foreign Aid/Grants	2.0	8	1.8
Other (e.g., cooperative, community-based)	19.0	73	17.3
No Knowledge	9.0	35	0.0

Source: Author's Field Study, 2025

Table 4.3 reveals that Public–Private Partnerships are the most commonly recognised financing mechanism for waste management, cited by nearly half of respondents (49.6%). This reflects the outsourcing of waste services to private operators under regulatory oversight. Government funding (23.8%) and private sector investment (15.6%) follow, while community-based initiatives account for 19%. The minimal recognition of foreign aid indicates limited external involvement in local waste management services.

Housing Infrastructure

Table 4.4: Awareness of Financing Models for Housing Infrastructure

Financing Model	Percentage of Respondents (%)	Respondents Selecting Option (n)	Share of Mentions (Normalised to 100%)*
Private Sector Funding	55.0	212	44.0
Public–Private Partnerships	49.6	191	39.6
Government Funding	15.2	59	12.2
Foreign Aid/Grants	0.9	3	0.7
Other (e.g.,	4.4	17	3.5

Financing Model	Percentage of Respondents (%)	Respondents Selecting Option (n)	Share of Mentions (Normalised to 100%)*
cooperative, community-based)			
No Knowledge	0.9	3	0.0

Source: Author's Field Study, 2025

Table 4.4 shows that housing infrastructure financing is largely perceived as driven by the private sector (55%) and PPP arrangements (49.6%), with limited recognition of direct government funding (15.2%). Awareness of foreign aid and community-based models is negligible. This pattern underscores the increasing dominance of market-oriented financing in housing provision and suggests reduced visibility of public sector intervention in this sector.

Objective Two: Effectiveness of Urban Infrastructure Financing Models

This section evaluates the effectiveness of urban infrastructure financing models based on residents' perceptions of service availability, affordability, and accessibility. In line with the FMO framework, effectiveness is assessed from the user's experience rather than audited financial performance.

Infrastructure Availability

Table 4.5: Infrastructure Availability Overview

Infrastructure	Available (%)	Not Available (%)
Water Supply	75	25
Electricity	90	10
Waste Management	50	50
Housing	40	60
Healthcare	75	25
Education	70	30

Source: Author's Field Study, 2025

Table 4.5 indicates that electricity (90%) and water supply (75%) are perceived as the most available infrastructure services, reflecting sustained public investment and prioritisation. Healthcare and education services also demonstrate relatively high availability. In contrast, housing (40%) and waste management (50%) exhibit significant service deficits, suggesting limitations in financing effectiveness where infrastructure provision involves complex operational, regulatory, or land-use challenges.

Infrastructure Affordability

Table 4.6: Residents' Perception of Infrastructure Affordability

Affordability Category	Frequency	Percentage (%)
Very Affordable	103	26.75
Affordable	121	31.43
Not Affordable	161	41.82
Total	385	100

Source: Author's Field Study, 2025

Table 4.6 shows that a substantial proportion of respondents (41.82%) perceive infrastructure services as not affordable, indicating persistent cost barriers, particularly for low-income households. Although 58.18% of respondents consider services either affordable or very affordable, the dominance of affordability concerns highlights weaknesses in financing arrangements in translating investment into equitable access.

Infrastructure Accessibility

Table 4.7: Residents' Perception of Accessibility of Urban Infrastructure

Accessibility Level	Number of Responses	Percentage (%)
Easily Accessible	128	30.12
Accessible	149	35.06
Not Accessible	108	28.06

Source: Author's Field Study, 2025

As presented in Table 4.7, about two-thirds of respondents perceive urban infrastructure as either easily accessible or accessible, while over one-quarter report limited access. Accessibility challenges are more evident in peri-urban and rapidly expanding settlements, where infrastructure provision has not kept pace with population growth, reinforcing spatial inequalities in service delivery.

Discussion of Findings

The results demonstrate that urban infrastructure financing in AMAC operates through a combination of government funding, private sector investment, PPPs, and informal community-based arrangements, reflecting a layered institutional and governance environment. Residents show high awareness of government and private sector roles, while PPPs are particularly prominent in waste management and housing. Institutional insights from agencies such as the Federal Capital Development Authority further reveal that financing model selection is influenced by project scale, fiscal capacity, and sector-specific requirements.

In terms of effectiveness, service delivery outcomes vary considerably across sectors. Electricity and water supply record higher availability, whereas housing and waste management display notable gaps. Affordability and accessibility analyses further indicate that current financing models do not consistently deliver equitable outcomes, especially for peri-urban residents. The observed disconnect between institutional financing mechanisms and community-level understanding underscores the need for improved transparency, stakeholder engagement, and complementary policies aimed at affordability and spatial equity. Overall, the findings suggest that diversified financing alone is insufficient; inclusive service delivery in the FCT also requires targeted interventions to address cost barriers, access disparities, and public awareness.

Conclusion and Recommendation

This study examined urban infrastructure financing models and their service delivery outcomes in the Abuja Municipal Area Council (AMAC) of the Federal Capital Territory, Nigeria, using the Finance–Mediators–Outcome (FMO) framework and SDG 11 as guiding lenses. The findings show that infrastructure financing in the

FCT is characterised by a mix of government funding, private sector investment, Public–Private Partnerships, and community-based arrangements, with varying levels of awareness and application across sectors. While electricity and water supply recorded relatively higher availability, housing and waste management exhibited persistent deficits, underscoring sectoral disparities in financing effectiveness. Moreover, residents’ perceptions revealed significant affordability and accessibility challenges, particularly in peri-urban areas, indicating that existing financing mechanisms have not consistently translated into inclusive and equitable service delivery. Overall, the study concludes that although diversified financing models have improved resource mobilisation, they remain insufficient on their own to guarantee sustainable, affordable, and accessible urban infrastructure outcomes in the FCT.

Based on these findings, the study recommends strengthening the integration of financing models with equity-focused service delivery strategies. Policymakers and urban authorities should expand and refine Public–Private Partnerships to include explicit affordability and access safeguards, especially for low-income and peri-urban communities. Government agencies should also enhance transparency and stakeholder engagement to improve public understanding of financing mechanisms and build community trust. Additionally, complementary measures such as targeted subsidies, phased service expansion, and support for regulated community-based initiatives are necessary to bridge service gaps in housing and waste management. Finally, institutional coordination among federal, territorial, and local authorities should be improved to ensure that financing decisions align with long-term sustainable urban development objectives and SDG 11 targets in the Federal Capital Territory.

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