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Basic residential neighborhood infrastructure financing in Nigeria urban cities: Community development associations (CDAs)-based approach

Tosin B. Fateye^{1}, Victoria O. Odunfa², Abayomi S. Ibisola³ and Ayodele A. Ibuoye⁴*

¹ Department of Estate Management, Kaduna State University, Kaduna, Kaduna State, Nigeria

² Department of Estate Management, The Polytechnic, Ibadan, Oyo State, Nigeria

³ Department of Estate Management and Valuation, Moshood Abiola Polytechnic, Abeokuta, Ogun State, Nigeria

⁴ Department of Estate Management, Kaduna State University, Kaduna, Kaduna State, Nigeria

ABSTRACT

The study examined the community-based approach to finance basic public infrastructures in residential neighborhoods. The primary objectives of the study were to determine the condition of public infrastructures, the level of community engagement, the modalities of financing and the prominent influencing factors. The study adopted convenience sampling and questionnaire survey techniques. A total of 120 questionnaires were administered to residents of selected high-income communities (HICs) and low/medium-income communities (L/MICs), out of which 48 (80%) and 52 (86.67%) were retrieved, respectively, and analyzed. The study deployed descriptive statistics of mean and standard deviation models and mean weighted score to analyze the data. The study found that the residents were satisfied with the security of the neighborhoods but deplored the state of the public potable water infrastructure in both communities. However, the residents in the HICs enjoy a better condition of road infrastructure compared with L/MICs. The residents in both communities indicated a high level of involvement in the financing of public infrastructures, with major engagement in security and waste disposal/management infrastructures. However, the HICs engaged more in road grading/maintenance, while the provision of community potable water was given as a priority by the L/MICs. The major mode of financing basic communal infrastructures is through membership levy/contribution, and prominent influencing factors are cooperation among members, fundraising and income status. Therefore, while private-sector support funds, such as from the CDAs, help in cushioning the effects of basic infrastructure decay, governments at all levels should provide an enabling environment that will motivate mutual communal relationships through integrated infrastructure policies.

Keywords: *infrastructure; community; community-based approach; infrastructure provision*

1. Introduction

Infrastructure remains a prominent indicator of physical growth and a prime mover of the socioeconomic development of any country. The provisions of basic infrastructure facilities, such as roads, water, electricity, security, drainage system, etc., occupy the top agenda of any governments, as the presence of essential social and infrastructure facilities attracts socioeconomic activities that could be linked to the

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*CORRESPONDING AUTHOR

Tosin B. Fateye, Department of Estate Management, Kaduna State University, PMB 2339, Kaduna, Kaduna State, Nigeria;
fateyetosin@gmail.com

improvement of the standard of living especially in the host community (Abdul Karim, 2012). Manggat, Zain and Jamaluddin (2018) posited that infrastructure enhances a city's expansion in socioeconomic activities. Seidu et al. (2020) explained that, in the United Kingdom, investment in infrastructure has stimulated economic growth, increase productivity and provide job opportunities. Similarly, Unnikrishnan and Kattookaran (2020) evidenced a strong positive relationship between India's infrastructure development and economic growth. However, amidst the global discussions towards scaling up the development of quality infrastructure, the Organisation for Economic Co-operation and Development (OECD) Development Centre and the African Center for Economic Transformation (ACET) reported that Africa still needs significant investment in infrastructure development (OECD/ACET, 2021).

Adequate financing of basic public infrastructures with respect to provision and maintenance is halted by different challenges, which are localized and vary across countries. Developed countries, such as the United States of America, the United Kingdom, Canada, Germany, France, etc., and fast developing economies, such as Japan, China, Malaysia, Dubai, South Africa, etc., enjoy better basic infrastructure facilities than less developed nations including Nigeria (Han et al., 2020; Mansuri and Rao, 2004). OECD (2007) estimated the number of people who lack access to roads, safe drinking water, reliable sources of energy and sanitation facilities as 1 billion, 1.2 billion, 2.3 billion and 2.4 billion, respectively, while about 4 billion are without modern communication services. In Sub-Saharan Africa, the infrastructure deficit is estimated at USD7–12 billion (Infrastructure Consortium for Africa, 2020; Saghir, 2017; Shehu, 2016)

For Nigeria, Deloitte (2018) and Ajia (2020) reported that the country's infrastructure stock account for 35% of its GDP, which is lower compared with 85% of GDP in South Africa and the average minimum benchmark of 70% recommended by the World Bank for emerging economies. Also, Oyinloye (2020) pointed out that the Nigerian infrastructure sector is grossly undeveloped. Infrastructure Consortium for Africa (ICA) (2020) estimated the country's infrastructure deficit to be \$3 trillion. This implies that Nigeria needs to be spending a sum of \$15 billion annually in the next five to six years in order to bridge its infrastructure gap.

Adeogun and Taiwo (2011) noted that the acute shortage in social and economic infrastructure provision and in the maintenance of existing ones suffers from a tactical approach. The authors explained that government efforts are mostly directed towards providing infrastructure facilities in strategic urban centers, while community-

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based infrastructural provisions are neglected. For instance, Ajia (2020) ascertained that out of 197,000km federal-owned transport infrastructure constructed to link major urban cities, 18% are in poor condition especially those in non-core urban areas. The inability of the government to adequately fund essential public infrastructure projects has led to the involvement of the organized private sector, such as community associations.

A large body of literature has shown significant contributions of the organized private sector, such as community associations, to infrastructure project development especially in the host community (Jamaludin et al., 2012; Wentworth and Grant Makokera, 2015; Muhammad, 2016). Wentworth and Grant Makokera (2015) opined that one of the effective sources of financing for infrastructure development is private sector funds. Muhammad (2016) posited that infrastructure projects provided by communities substantially improved the host community's quality of life. Harris (2003) concluded that, over decades, governments at all levels have been pursuing policies that effectively and efficiently engage the active participation of the private sector in infrastructure development. Araloyin and Balogun (2018) encouraged the privatization of Nigeria's infrastructure, in line with the global best practice for integrated and accelerated development.

Hence, the present study investigated the modalities of infrastructure project financing by analyzing the CDAs' experience in selected residential neighborhoods in Abeokuta, Ogun State, Nigeria. The study addressed, among others, the condition of available basic public infrastructures, the level of involvement of community associations, the modalities of financing community projects and the prominent factors influencing the success of community infrastructure development in the studied area. The results from the findings of the research will be of benefit to the communities for an enhanced quality of life and to policy makers for policy implications, and contribute to the literature especially in the area of community-based approach to infrastructure financing in the Nigerian context.

2. Review of literature

2.1. Concept of infrastructure facilities: Meaning and classification

Generally, the term "infrastructure" has been given different meanings from different views in order to reflect its physical, social and economic attributes. Torrisi (2009) explained that infrastructure has no standard definition, but the general idea is linked to the basic structures and facilities necessary for a country or an organization to function efficiently. Such facilities include buildings, transport, water and energy resources, administrative systems, etc. In an early study, Jochimsen (1966) considered infrastructure as an important precondition of economic development that is related to material infrastructure. Youngson (1967) and Biehl (1986; 1991) described the attributes of infrastructure as a capital project and a public good. More recently, OECD (2015) described public infrastructures as facilities, structures, networks, systems, plants, properties, equipment or physical assets, including the enterprises that employ them, that provide public goods or goods that meet a politically mandated, fundamental need that the market is not able to provide on its own.

In addition, Buhr (2003) and Torrisi (2009) classified infrastructure into three major categories, i.e., personal, institutional and material infrastructures. More recently, OECD (2001) defined

Table 1. Classification of infrastructure

Infrastructure Type	Infrastructure Output	Material Infrastructure
<i>Physical Requirement</i>		
Water	Drinking water, water for industrial uses, irrigation water, water for generating hydro-electric power	Reservoirs, canals, waterways, pipes, irrigation facilities
Warmth	Gas, oil, electricity, coal, nuclear energy	Drilling platforms, pipelines, generation plants, coal mines
Light	Electricity, gas	Generation plants, drilling plants, circuits, pipelines
Health	Medical care, refuse collection, waste water disposal	Hospitals, dumps, sewerage systems
Protection against nature and weather	Accommodation, working places, flood protection	Houses, buildings, plants, levees
<i>Social Requirement</i>		
Security	Legislation (laws), judiciary, stability of value of money, protection against crimes, outward defense, military goods	Public buildings, police stations, military installations
Information	Usage of telephones, mobile phones, radio, television, Internet, newspapers	Telecommunication facilities, post offices, newspaper production works
Education	Child care, lectures, research, lending out books	Roads, highways
Mobility	Usage of roads by cars, buses, trucks	Tracks, train stations
	Usage of tracks by trains	Airports
	Usage of airports by airplanes	Ports
	Usage of ports by ships	Air purification filters, waterworks
Environmental protection	Clean air and water	Air purification filters, waterworks

Source: Torrisi (2009) and Buhr (2003)

personal infrastructure as the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being. Institutional infrastructure is referred to as the set norms, institutions, constitutional provisions and procedures that are linked to the institutional/regulatory framework of any country. Material infrastructure is identified to comprise two attributes: fulfillment of social needs and economic necessity, and mass production (see Table 1).

2.2. Housing infrastructure provision

Housing infrastructure encompasses all physical, social and economic structures that add extrinsic and intrinsic values to shelter and create a habitable environment. Since housing is said to be more than mere shelter, housing infrastructure therefore denotes the sum total of on-site infrastructures, off-site infrastructures and accommodation unit facilities. Off-site infrastructure provision (public goods) is the responsibility of the government, whereas owners are accountable for the provision of housing facilities and the duty to provide on-site infrastructures for housing estates falls on the sponsor of the project, whether an individual, the developer or an association (Fadairo and Taiwo, 2009; Okoye, 2014; Oloke, 2015).

Off-site infrastructures with respect to residential neighborhoods (housing estates) encompass facilities such as accessible roads, drainage, paved walkways, electricity distribution system, public

water mains, gas pipelines, street lights, primary healthcare facilities, basic education facilities, security facilities, banks, post office, sport and recreational facilities and waste disposal system. These and many others in this category are provided by the government. On the other hand, on-site infrastructures within the housing units are electrical services, indoor and outdoor lighting, common areas, car parks, paved walkways, perimeter fencing, and plumbing and sanitary services, as well as physical features of housing units, such as the size of rooms, the quality of finishes, and proper ventilation, which are all the responsibilities of house owners.

Housing estate facilities entail all basic and complementary facilities located within the residential estate that make it habitable for the residents. Such infrastructure facilities include estate link roads, good estate road network, paved walkways, good drainage system, street lighting, independent power supply system, independent water supply system, closed-circuit televisions (CCTVs), transformer, healthcare facilities, crèche, estate recreational area, swimming pool, gymnasium, sewage disposal, perimeter fencing, postal and telecommunication facilities, and domestic waste collection and disposal system. Udoka (2013) stated that the capital-intensive characteristic of urban infrastructure provision makes it to be left in the hands of the government for their development.

2.3. Organized private sector's involvement in infrastructure provision

Regarding infrastructure decay in some countries, such as Germany and France, von Hirschhausen, Beckers and Brenck (2004) noted that the primary source of financing of infrastructure has been the government through the income generated from government levies (taxes) and other public sectors. But Newbery (2000) reported that in countries such as the United Kingdom and the United States, public infrastructure is jointly developed with the active participation of private entrepreneurs. Thus, Hamdan, Yusof and Marzukhi (2014) argued that, while infrastructures such as railways, telecommunication, electricity and gas have been characterized to be strictly government-owned public goods, the involvement of the private sector in the provision of public infrastructures has not been felt until the 1980s.

Tomori (2014) explained that the involvement of the private sector in Nigeria in the provision of basic neighborhood facilities is due to the inability of the government to meet the demand of the increasing urban population as a result of the shortage of finance. The insufficient fund has not only affected urban infrastructure provision but also housing, and has compelled people to look for alternative ways of financing these needs. Okoye (2014) noted that public housing estates are experiencing infrastructure decay. The author observed that, while some basic infrastructure facilities are not provided in some housing estates, others are lacking maintenance. Durodola, Oloke and Opoko (2016) added that non-available/inadequate infrastructures and the poor maintenance of existing ones constitute critical challenges confronting different residential communities across the country.

2.4. Community-based approach to housing infrastructure development and financing

The concept of community-based development has been noted to be one of the key successful strategies recorded across different sectors of the economy in the 21st century. Schirin (2010) and Ngiri (2012) emphasized that the popularity of the strategy in solving issues involving key infrastructure provision and financing is linked to the significant contribution by the strategy in the

implementation of physical developmental projects, especially at the grassroot level. Conceptually, the community-based approach is likened to community development, empowerment, self-help or participatory development (Laurens, 2012; Mwaura and Ngugi, 2014; Muhammad, 2016). Schirin (2010) explained that the community development approach is geared towards enhancing the quality of the lives of the citizens.

Jamaludin, Othman and Awang (2012) described it as a tool for development and empowerment and for improving efficiency, and as a means of advocating the needs of a set of people who share common neighborhood facilities with one another. From the context of self-help, Ogundipe (2003) and Ibem (2009) expressed the approach in two ways: firstly, as a reaction from the people neglected by the government in the provision of basic social and economic infrastructure facilities and secondly, as a reflection of the level of awareness among the people on the government and its activities and programs, including its limitations. Afigbo (2000) and Rojs et al. (2020) added that it is a development strategy in which people of common goals in the community promote development based on self-assessment aimed at bringing positive changes to the immediate environment.

Musa (2005) posited that the community-based approach entails the willingness of the people to participate in identifying and prioritizing the community's needs, in planning and implementing programs aimed at meeting their needs and in improving their condition of living. Muhammad (2016) argued that a community participatory development scheme is different from the service delivery approach by the government, whereby the government is the benefactor and the community is the recipient. Laurens (2012) added that in a participatory scheme, the community takes great control of the planning, operation and maintenance of the project.

The literature has documented the significant contributions of the community development strategy to the robust development of a country's economy and the livelihood of the citizens, as well as factors influencing the success of the scheme. In the examination of impacts, Hamdan, Yusof and Marzukhi (2014) examined the social capital and quality of life in urban neighborhoods' high-density housing and found that active community participation in developments significantly improves the quality of living of the urban poor. Ogu (2000) and Peerapun (2012) noted the positive impacts of community development in environmental resources and management, and studies such as by Ogundipe (2003), Ibem (2009), Laurens (2012), Mwaura and Ngugi (2014) and Muhammad (2016) have established the positive correlation of the performance of the community-based approach to infrastructure development in various communities.

Influencing factors have been noted to include the prioritization of essential community needs, adequate resources and community capacity (Hermann, 2007; Muhammed, 2008; Ngiri, 2012; Mwaura and Ngugi, 2014). Merino and de los Ríos Carmenado (2012) added funding, materials, labor and technical skills, while Rubin and Rubin (2000), Xu (2007) and Abdullah, Mohamad Said and Omar (2014) opined that factors such as income level, education background, local leadership, organizational structure and occupational skills could influence the success of community participatory development schemes.

Another vital influencing factor is finance. Finance is the bloodstream of any proposed project either big or small. Challenges associated with financing projects especially capital-intensive ones, such as infrastructures, share similar attributes but vary across stakeholders, owing to the financial strength of the individuals and corporate and government entities. Tomori (2014) argued that the

acute shortage of finance remains one of the strong reasons for the engagement of the organized private sector in infrastructure development, especially in developing economies including Nigeria.

In Nigeria, government efforts to adequately finance basic infrastructures such as water, electricity, good roads, healthcare facilities, educational facilities and drainage and waste management facilities in core urban cities have left alone the interior parts, including residential neighborhoods. The situation experienced in residential neighborhoods ranges from the lack of some basic infrastructures to poor maintenance, and total neglect in some cases, attributable to inadequate finance, which has led the government to prioritize competitive infrastructure demands majorly at core areas and strategic places within cities (Mwaura and Ngugi, 2014).

The financing of basic infrastructures is necessary because of its essential contribution to good habitable living and quality of life with a higher impact in the host community. As a result of government failure, communities at different locations now shoulder the responsibilities of providing assistance to the government in the area of raising funds through available means to meet the infrastructure challenges in their respective domain. Communities through community development associations raise funds for infrastructure development via membership voluntary contribution/levy or/and a bank loan. In the case of loaning money from commercial banks, the decision is often based on the size and peculiarities of the project, the urgency of the needs and the cost of finance compared with the value to be derived from the development (Muhammad, 2016).

The government also participates through special intervention by providing an enabling environment or special aids to encourage community participation. In some cases, non-governmental organizations engage in some infrastructure projects, such as the provision of community borehole water and environmental sanitation kits, and social infrastructures, such as enlightenment, sensitization, orientation and empowerment especially for some categories in the community, such as women, widows, youths and female children in small communities or communities dominated by the low-income class.

3. Methodology

3.1. Studied area

The research was carried out in Abeokuta, Ogun State, Nigeria. The study selected three residential communities each for the high-income and low/medium-income classes. For the high-income residential neighborhoods, the study purposively considered residential neighborhoods comprising the Ibara, Kemta (Idi-Aba), and Obasanjo Hill-Top housing estates. For the low/medium-income residential communities, areas comprising Asero, Alagada and Laderin were examined. GRA Ibara is one of the high-class residential areas and is very close to the major central business district (CBD) of the state capital (Okelewo/Ibara). The neighborhood hosts the presidential lodge and also houses major senior civil servants and big-name politicians, including past governors and senators and a past president (Obasanjo). The Kemta Idi-Aba housing estate shares similar characteristics with Ibara, is close to Federal Medical Centre (FMC) and is occupied by big-name people in the state. Obasanjo Hill-Top is an emerging first-class furnished residential apartment and enjoyed proximity with the state secretariat. On the other hand, the low/medium-income class of residential neighborhoods comprised mixed residents of medium-income (e.g., civil servants) and low-income earners' apartments (tenement buildings). The choice of selecting these

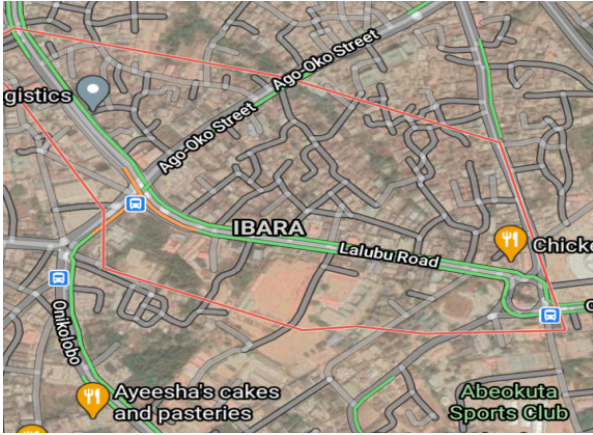


Figure 1a. Google map showing Ibara neighborhood.

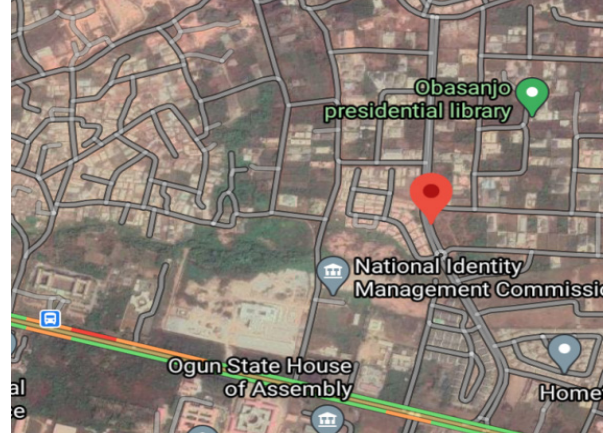


Figure 1b. Google map showing Hill-Top neighborhood.

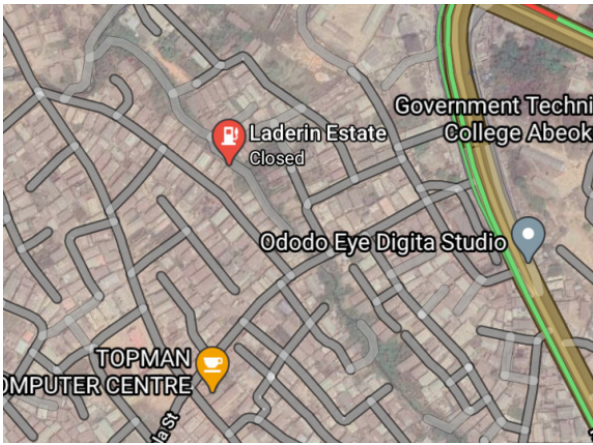


Figure 1c. Google map showing Laderin neighborhood.

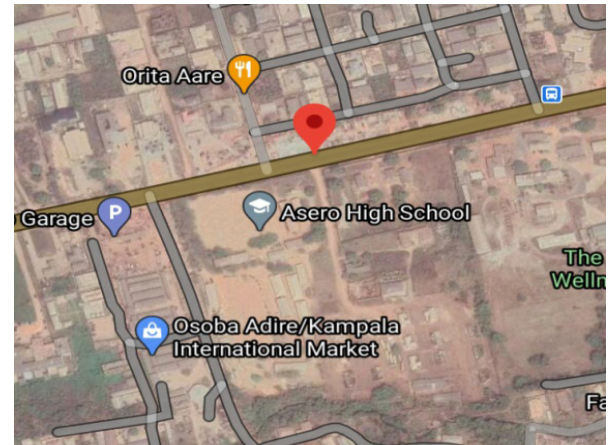


Figure 1d. Google map showing Asero neighborhood.

areas for study was based on the feedback from a pilot survey carried out by the study in order to ensure the suitability of the residents for the study and the reliability of the information obtained (see Figures 1a–d).

3.2. Method of data analysis

The study population was the residents of the selected communities. A mixed-approach research technique was adopted. Firstly, the study used the purposive sampling technique to choose the residential neighborhoods, i.e., the high-income and low/medium-income residential neighborhoods. Secondly, to give the residents in the communities an equal chance of being selected, the study deployed the random sampling technique to pick 20 residents in each residential neighborhood. Therefore, the total sample size for the six communities was 120 samples. The study deployed statistical tools comprising frequency distribution, percentage, mean weighted score and student t-test to analyze the data. Mean weighted score (MWS) can be expressed mathematically as:

$$\text{Mean weighted score (MWS)} = \frac{\sum TWE}{N} \quad (1)$$

$(1 \leq \text{MWS} \leq 5)$

The weighting given to each factor by the respondents was on a five-point scale. It ranges from 1 (least) to 5 (highest). The study adapted the ranking style recommended by Rooshdi et al. (2018). The authors' specification and the modification by the present study is presented in **Table 2**.

Table 2. Scale for weighted options

Likert Scale	Authors' specification for RI		Modifications by the study	
	Scale Range	Remarks	Scale Range	Remarks
5	$0.8 \leq RI \leq 1.0$	High	$4.1 \leq MS \leq 5.0$	Excellent
4	$0.6 \leq RI \leq 0.8$	High-Medium	$3.1 \leq MS \leq 4.0$	Good
3	$0.4 \leq RI \leq 0.6$	Medium	$2.1 \leq MS \leq 3.0$	Fair
2	$0.2 \leq RI \leq 0.4$	Medium-Low	$1.1 \leq MS \leq 2.0$	Bad
1	$0 \leq RI \leq 0.2$	Low	$0 \leq MS \leq 1.0$	Poor

Note: RI = Relative Importance, MS = Mean Score

Source: Rooshdi et al. (2018)

4. Result and discussion

The study administered 20 questionnaires each to the selected communities, i.e., Ibara, Kemta, and Obasanjo Hill-Top for high-income residential neighborhoods, and Asero, Alagada, and Laderin for the low/medium-income residential neighborhoods. Thus, there were a total of 120 questionnaires, out of which 100 (48 from high-income areas and 52 from low/medium-income areas) were retrieved, representing above 80% of the study population. The breakdown of the distribution is shown in **Table 3**. The reason for the high rate of response recorded can be attributed to the willingness of the respondents to participate in the survey exercise as a result of the relevance of the study especially at this time, when the country is witnessing increasing infrastructure decay.

In **Table 4**, the data of the respondents' age, sex, educational qualification, marital status and occupation were examined. The analysis was carried out for the two categories, i.e., the high-income and the low/medium-income residential neighborhoods. For respondents in the high-income residential neighborhoods (RNs) category, the analysis of age showed that a majority of them fall within the age bracket of 41–50, representing 56.25%, followed by respondents in the age range of 31–40, while the age groups of below 21 and above 60 were not captured in the survey exercise. For the distribution of sex, the percentage of male respondents (68.75%) was higher than their female counterparts (31.25%). Investigation into the highest educational level attained by the respondents indicated that the lowest education level among the respondents was tertiary, which represents 66.67% (i.e., university/polytechnic qualification and its equivalent), while respondents with additional qualifications (post-graduate) represent 33.33%. For the analysis of the marital status of the respondents in these neighborhoods, the study discovered that 85.42% are married, while 8.33%

Table 3. Analysis of rate of response

Category	Residential area	Administered	Retrieved	% Retrieved
High income	Ibara (GRA)	20	16	80.00
	Kemta	20	18	90.00
	Obasanjo Hill-Top	20	14	70.00
	Total	60	48	80.00
Low/medium income	Asero	20	17	85.00
	Alagada	20	19	95.00
	Laderin	20	16	80.00
	Total	60	52	86.67

Table 4. Profile of respondents in residential neighborhoods

Category	Parameter	High-Income RNs		Low/Medium-Income RNs	
		Freq.	%	Freq.	%
Age (years)	<21	-	-	3	5.77
	21–30	3	6.25	6	11.54
	31–40	11	22.92	13	25.00
	41–50	27	56.25	15	28.85
	51–60	7	14.58	11	21.15
	>60	-	-	4	7.69
	Total	48	100.00	52	100.00
Sex	Male	33	68.75	46	88.46
	Female	15	31.25	6	11.54
	Total	48	100.00	52	100.00
Marital status	Single	4	8.33	2	3.85
	Married	41	85.42	47	90.38
	Widow/widower	3	6.25	-	-
	Divorced	-	-	3	5.77
	Total	48	100.00	52	100.00
Highest educational level	Primary	-	-	3	5.77
	Secondary	-	-	14	26.92
	Tertiary	32	66.67	29	55.77
	Post-graduate	16	33.33	6	11.54
	Total	48	100.00	52	100.00
Occupation	Govt.-employed	27	56.25	21	40.38
	Private-employed	12	25.00	11	21.15
	Self-employed	9	18.75	20	38.46
	Unemployed	-	-	-	-
	Total	48	100.00	52	100.00

and 6.25% of them are single and widowed, respectively. Investigation into the occupation of the respondents reveals that 56.25% are either employed by local, state or federal government, 25.00% are employed by private organizations, while 18.75% are engaged in their own business. None of the respondents identified as unemployed, as shown in Table 4.

For respondents in the low/medium-income residential neighborhoods, the higher responses in the age group category were from age brackets of 41–50, 31–40 and 51–60 with the percentage of 28.85%, 25.00% and 21.15%, respectively. Male respondents (88.46%) participated more than female respondents (11.54%). 90.38% of them are married and 55.77%, 26.92% and 11.54% attained the education level of tertiary, secondary and post-graduate, respectively. 40.38% work for the government and 38.46% are self-employed, while 21.15% have employment with private firms/organizations.

Table 5 shows the demographics of the respondents in terms of their length of stay in the community, ownership status and membership in the community development association (CDA). The result of the analysis reveals that 60.42% of the respondents in the high-income residential areas have stayed in the community for a minimum of 10 years, while 95.83% of them are property

Table 5. Demographics of respondents in residential neighborhoods

Category	Parameter	High-Income RNs		Low/Medium-Income RNs	
		Freq.	%	Freq.	%
Length of stay (years)	<1	-	-	2	3.85
	1–5	8	16.67	9	17.31
	6–9	12	25.00	27	51.92
	10–15	23	47.92	13	25.00
	16–20	4	8.33	1	1.92
	>20	2	4.17	-	-
	Total	48	100.00	52	100.00
Ownership status	Owners	46	95.83	47	90.38
	Tenant	2	4.17	5	9.62
	Total	48	100.00	52	100.00
Membership in CDA	Executive	1	2.08	-	-
	Ex-officio	-	-	-	-
	Member	38	79.17	44	84.62
	Non-member	9	18.75	8	15.38
	Total	48	100.00	52	100.00

owners and 79.17% are members of their community association. This depicts their level of familiarity with several events that had happened in the community at one time or another.

On the other hand, 51.92% of the respondents in the low/medium-income residential communities have been living in the community between six to nine years and 25.00% have stayed for a period of 10–15 years, while those who have lived in their community for a period below a year and a period above 16 years represent 3.85% and 1.92%, respectively. Approximately, about 78.84% have lived in the community for a period above six years and above. Those who own their property account for 90.38%, and 84.62% participated in their community association's activities as a member. Thus, a majority of them are property owners in the community, have a longer stay of at least six years and have engaged in community activities as a member of the CDA, implying their good knowledge of the association's project activities in the neighborhood. It can be inferred that the respondents' experiences with respect to activities in their communities are sufficient to proffer quality information on the subject matters of the study.

Prior to the examination of the condition of the public infrastructures available in the communities, a reconnaissance survey was carried to identify the public infrastructures present in the communities. In the course of the exercise, public infrastructures comprising roads, water, electricity, security, public education and health facilities, and drainage/waste management were identified and the analysis of their condition is presented in **Tables 6** and **7**. The condition was rated on a five-point Likert scale and the result shows that the residents of high-income communities enjoyed a better condition of some facilities above the others.

For instance, in the high-income communities, the respondents rated security provision in the neighborhood to be good, while other facilities, which are road network, public schools, healthcare facilities, drainage/waste management and electricity, were rated as fair; on the other hand, the condition of potable water provided by the relevant government agencies was rated as poor in these

Table 6. Condition of public infrastructure facilities in high-income communities

Public Infrastructure	Weighted Frequency					TWF	MWS	Rating
	E (5)	G (4)	F (3)	P (2)	B (1)			
Security	18	17	13	-	-	197	4.10	<i>Good</i>
Road network	7	17	21	3	-	188	3.92	
Public schools	-	32	16	-	-	176	3.67	
Healthcare facilities	-	24	19	5	-	157	3.27	<i>Fair</i>
Drainage/waste mgt.	-	19	22	7	-	156	3.25	
Electricity supply	-	12	26	10	-	146	3.04	
Potable water	-	-	24	17	7	113	2.35	<i>Poor</i>

Note: Excellent (E), Good (G), Fair (F), Bad (B), Poor (P)

Table 7. Condition of public infrastructure facilities in low/medium-income communities

Public Infrastructure	Weighted Frequency					TWF	MWS	Rating
	E (5)	G (4)	F (3)	P (2)	B (1)			
Security	2	13	37	-	-	173	3.33	
Electricity supply	-	22	19	11	-	167	3.21	<i>Fair</i>
Public schools	-	16	28	8	-	164	3.15	
Road network	-	-	24	21	7	121	2.33	
Healthcare facilities	-	-	17	29	6	115	2.21	<i>Bad</i>
Drainage/waste mgt.	-	-	12	37	3	113	2.17	
Potable water	-	-	-	42	10	94	1.81	<i>Poor</i>

Note: Excellent (E), Good (G), Fair (F), Bad (B), Poor (P)

neighborhoods. For the low/medium-income communities (see Table 7), the condition of security, electricity and public schools were rated as fair, while road network, healthcare facilities and drainage/waste management were expressed to be in a bad condition and the provision of drinkable water through public mains was said to be in a poor state by the respondents.

The result of this analysis can be attributed to many reasons. The relatively better public infrastructure facilities enjoyed by the residents of the high-income communities may be linked to the social status of the people living there, which may pull the attention of the government to their areas. For example, GRA Ibara has among its residents some past governors of the state, senators and House of Representative members, who by the virtue of the political weight can attract community infrastructure projects, such as heightened security and accessible roads, although not for every need of the community. In contrast, the residents in low/medium-income settlements, which comprise mixed social and economic classes, may be at a disadvantage in terms of articulating and advocating their common needs for the attention of the government or lack people who could help in attracting infrastructure projects to their environment.

In order to know the extent to which the communities contribute to the development of their neighborhoods, since government attention in the area of providing neighborhood-based infrastructure facilities is dwindling, the study identified nine (9) community-based infrastructure facilities and investigated the level of involvement of the community associations in supporting the government to provide the facilities. The result of the analysis is presented in **Tables 8 and 9**. For the high-income residential neighborhoods (Table 8), the residents ranked the involvement of

Table 8. Level of involvement of community associations in the provision of neighborhood infrastructures in high-income communities

Public Infrastructure	Weighted Frequency					TWF	MWS	Rank
	H (5)	M (4)	F (3)	U (2)	NI (1)			
Neighborhood security	19	22	7	-	-	204	4.25	1st
Road grading/ maintenance	17	17	10	4	-	191	3.98	2nd
Waste management/ disposal	24	13	5	-	-	187	3.90	3rd
Installment of electrical polls and cables	16	15	11	6	-	185	3.85	4th
Street lighting	31	17	-	-	-	183	3.81	5th
Procurement of transformer	14	18	6	9	1	178	3.71	6th
Potable water	9	13	21	4	1	169	3.52	7th
Healthcare facilities	-	-	23	12	13	106	2.21	8th
Educational facilities	-	-	7	30	11	92	1.91	9th

Note: High (H), Moderate (M), Fair (F), Unsure (U), Not Involved (NI), Total Weighted Frequency (TWF), Mean Weighted Score (MWS)

Table 9. Level of involvement of community associations in the provision of neighborhood infrastructures in low/medium-income communities

Public Infrastructure	Weighted Frequency					TWF	MWS	Rank
	H (5)	M (4)	F (3)	U (2)	NI (1)			
Neighborhood security	30	19	3	-	-	235	4.51	1st
Waste management/ disposal	14	16	22	-	-	200	3.85	2nd
Potable water	7	24	20	1	-	193	3.71	3rd
Installment of electrical polls and cables	13	20	11	8	-	183	3.52	4th
Grading of roads	-	4	33	15	-	173	3.33	5th
Street lighting	-	23	11	18	-	161	3.10	6th
Healthcare facilities	-	2	41	6	2	146	2.81	7th
Procurement of transformer	-	-	17	29	8	117	2.25	8th
Educational facilities	-	8	18	23	3	106	2.04	9th

Note: High (H), Moderate (M), Fair (F), Unsure (U), Not Involved (NI), Total Weighted Frequency (TWF), Mean Weighted Score (MWS)

the community in the provision of security as high, with an MWS value of 4.25, occupying the top ranking in the table. The next highest-ranked is road grading/maintenance (MWS of 3.98) and waste management/disposal (3.90), while community services in the area of providing community potable water (3.52), healthcare facilities (2.21) and educational facilities (1.91) were ranked at the bottom of the table. For the low/medium-income communities, infrastructures of neighborhood security, waste management/disposal and community potable water with MWS of 4.51, 3.88 and 3.71 occupy the 1st, 2nd and 3rd positions, respectively, in the table. However, they contribute less in the area of providing healthcare facilities (2.81), the procurement of a transformer (2.25) and education facilities (2.04) in the communities.

The result of this analysis corresponds to the result in Tables 6 and 7. The substantial level of engagement of community associations in the area of neighborhood policing is reflected in the condition of the security of the areas being deemed as good. This may be attributed to the fact that the country as a whole is experiencing security challenges, and the populace has been advised to be security conscious. This directive has necessitated individuals to provide a certain level of security for themselves, especially at the community level, to prevent any attempt of security risk/attack. The joint agreement of the respondents from different socioeconomic classes to the substantial involvement in maintaining a hygienic environment (waste management/disposal) may be linked to the current state government's policy on environmental sanitation across the state, which may encourage citizens to engage in the cleanliness of their immediate environment and at the community level, including their drainage system. However, the relatively good condition of the linkage roads in the communities of the high-income residents is attributable to the high commitment of the communities to the grading and maintenance of roads, as indicated in Table 8, while notable engagement of the low/medium-income communities in the provision of community drinkable water is observed. Generally, the low contribution of both communities in the provision of community healthcare and educational facilities may be the result of the huge capital commitment in the physical development and operational maintenance of such projects. In addition, the emergence of private-owned health and educational facilities has complemented the effort of the communities in the provision of essential infrastructures in the neighborhoods.

In addition, the above discussion is further illustrated as a graphical presentation in **Figure 2**.

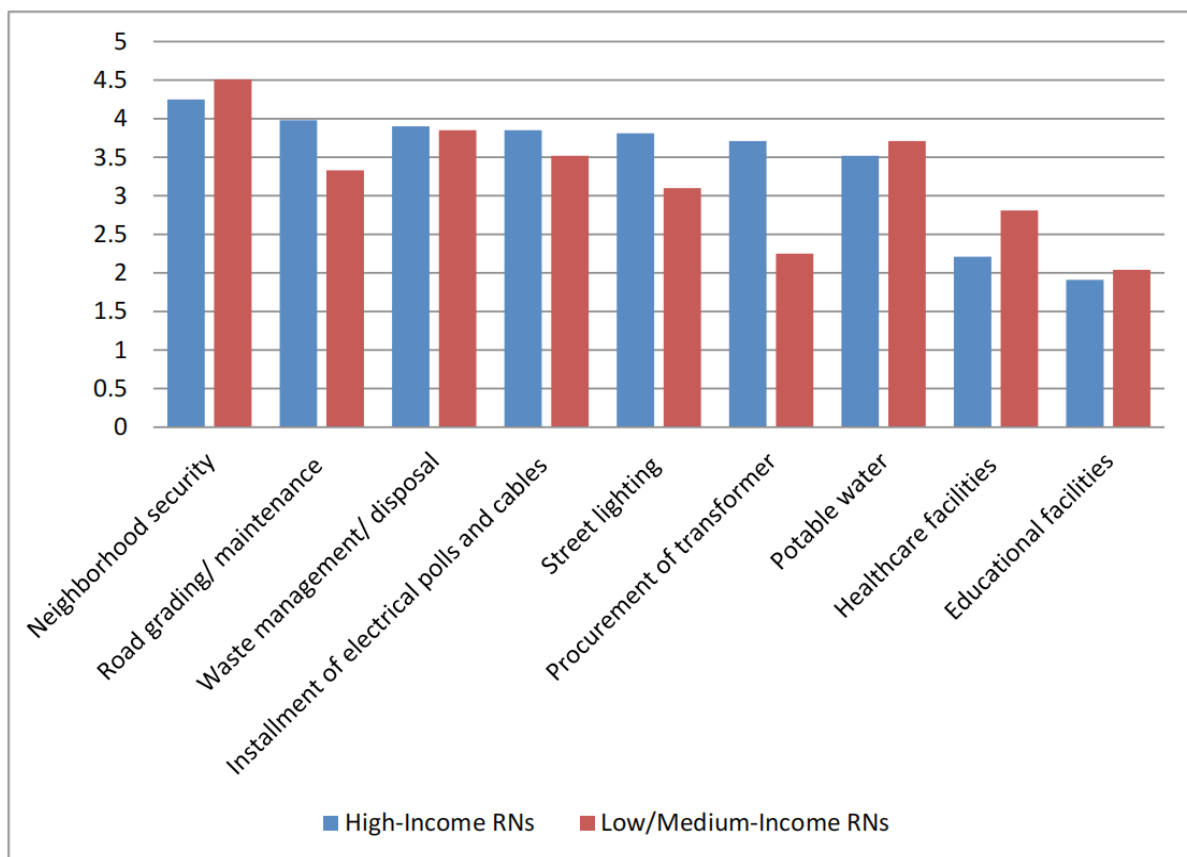


Figure 2. Comparative analysis between high-income and low/medium-income communities on their level of involvement in infrastructure provision.

Tables 10–11 show the modes of financing the provision/maintenance of infrastructures by the communities in the studied areas. Five (5) modes were highlighted by the study, and the mode option of “others” was made available for the respondents to specify other means of financing the community projects apart from the ones identified in the study. The result in Table 10 shows that the major source of funds for community infrastructure provision is by levying the community members. An alternative or complementary means of raising funds is via donations/gifts either from within (especially politicians) or outside the community. Additional modes considered include loans from banks, especially when the community intended to embark on big infrastructure projects, such as the procurement of a high-rated-capacity transformer.

The low/medium-income communities share similar modes with the high-income communities in two major ways of providing community infrastructure: contribution/levy of members and donation/gift. In addition to these, they also noted the provision of infrastructures by non-governmental organizations (NGOs). This may be as a result of the working vision of some NGOs, which include providing available basic needs that are lacking in particular communities. Such projects include boreholes for drinkable water and the distribution of materials to aid the educational and healthcare facilities in the neighborhoods.

As recorded in some previous relevant studies, the success of community infrastructure projects is influenced by some factors. Some influencing factors are significant, while some have lesser effects. This study also analyzed the community projects’ influencing factors and the result is presented in **Table 12**. For communities in the high-income class, factors such as *Level of cooperation*, *Fundraising* and *Income status* with a mean score (MS) of 4.19, 4.22 and 4.01, respectively, were identified as significant influencing factors, while *Material resources* and *Government policies* were considered to be less relevant. The low/medium-income communities

Table 10. Modes of financing community infrastructure projects in high-income communities

Mode of financing	Frequency	Proportion (%)
Membership levy/contribution	52	95.42
Donation/gift	33	65.26
Loan from bank	27	60.03
Government intervention	21	53.71
NGOs	11	37.84
Others	-	-

Table 11. Modes of financing community infrastructure projects in low/medium-income communities

Mode of financing	Frequency	Proportion (%)
Membership levy/contribution	46	86.32
Donation/gift	39	67.41
NGOs	30	61.10
Government intervention	23	49.87
Loan from bank	19	42.36
Others	7	22.91

Table 12. Factors influencing the success of community infrastructure projects

Influencing Factor	High-Income Com.			Low/Medium-Income Com.		
	MS	SD	Rank	MS	SD	Rank
Level of cooperation	4.19	.498	1	3.85	1.23	3
Fundraising	4.22	1.34	2	4.07	1.43	2
Income status	4.01	.654	3	4.19	.363	1
Community capacity	3.90	1.52	4	3.51	1.64	7
Leadership style	3.94	1.31	5	3.63	1.35	6
Education level	3.87	.519	6	3.43	1.58	9
Economic indexes	3.56	2.01	7	3.46	1.66	8
Manpower/technical know-how	3.41	1.23	8	3.97	1.39	4
Material resources	3.32	1.57	9	3.38	1.93	10
Government policies	3.36	1.96	10	3.57	1.62	5

Note: Mean Score (MS), Standard Deviation (SD)

ranked higher influencing factors such as *Income status* (4.19), *Fundraising* (4.07) and *Cooperation among community members* (3.85). Meanwhile, influencing factors such as *Economic indexes* (3.46), *Education level* (3.43) and *Material resources* (3.38) were insignificant in determining the success of community infrastructure projects in the low/medium-income communities.

The results of this study corroborated the studies by Musa (2005), Hamdan, Yusof and Marzukhi (2014) and Muhammad (2016), who found that active participation by community members in community programs enhances the quality of their standard of living. The high level of participation of the members can only be achieved through the cooperation among the community members. Also, the significant impact of fundraising with respect to community projects is also noted in studies by Hermann (2007), Muhammed (2008), Ngiri (2012) and Mwaura and Ngugi (2014). These studies concluded that the lack of or insufficient funds could kill the innovative initiatives by community associations on the provision of basic infrastructures that could better the lot of the residents in the community. But the scoring of the educational background of the community members, especially in the low-income residential neighborhoods, opposed the findings by Rubin and Rubin (2000), Merino and de los Ríos Carmenado (2012) and Abdullah, Mohamad Said and Omar (2014), who indicated a significant contribution. The difference in the results can be attributable to the differences in the socioeconomic and ethnic-demographic background of the respondents and the peculiarities of their residential neighborhoods. Further comparative analysis is illustrated in **Figure 3**.

Apart from the descriptive statistics used to analyze the influencing factor between the two communities, inferential statistics of the student t-test test was also conducted. The t-test analysis was carried out to analyze the impact of the influencing factors on the community's level of involvement in the provision of community infrastructure facilities. The result of the analysis in **Tables 13–14** shows that all influencing factors contributed positively and significantly (at 5% level of confidence). But the magnitude of the contribution and the level of significance vary across the factors in both communities. For instance, in high-income communities, the level of cooperation among community members scored as 8.324 and is significant ($p < 0.05$), implying that for every unit of improvement in the performance of the communities with respect to the infrastructure provision in the communities, the level of cooperation has a significant contribution of 8.324. A similar result

was obtained for fundraising for the low-income communities, as it contributed 9.674 to every unit of positive performance in the provision of community projects. However, marginal significant levels ($0.04 \leq p \leq 0.05$) are noted for influencing factors of *Manpower/Technical Know-How* (0.0471), *Economic Indexes* (0.0427) and *Government Policies* (0.0481) in the high-income communities, while for low/medium-income community, such factors are *Material Resources* (0.0502) and *Education Level* (0.484). Thus, this implies that these factors contributed significantly but at a lesser level compared with other factors.

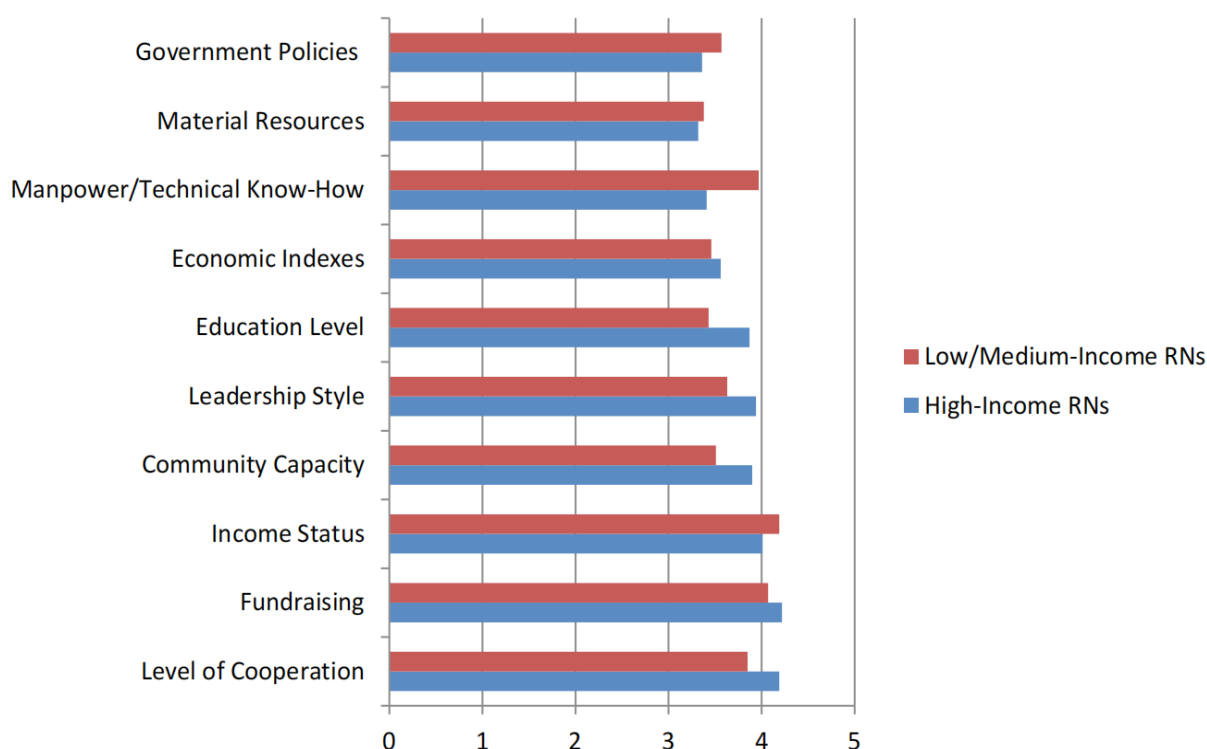


Figure 3. Comparative analysis of factor influencing the success of community infrastructure projects in high-income and low/medium-income residential areas.

Table 13. Impacts of influencing factors on community's level of involvement in the provision of infrastructures in high-income residential neighborhoods

Influencing Factor	t-stats	Sig. @ 5%	Mean Difference	95% Confidence Interval Level	
				Lower	Upper
Level of Cooperation	8.324	.0212	1.225	1.32	1.42
Fundraising	7.531	.0375	1.627	1.41	1.57
Income Status	8.045	.0297	1.604	1.50	1.74
Community Capacity	6.112	.0381	1.105	1.04	1.41
Leadership Style	5.726	.0121	1.476	1.31	1.62
Education Level	3.001	.0351	1.250	1.23	1.53
Economic Indexes	3.452	.0427	1.372	1.03	1.50
Manpower/Technical Know-How	6.335	.0471	1.704	1.31	1.59
Material Resources	6.472	.0399	1.257	1.47	1.71
Government Policies	2.286	.0481	1.353	1.24	1.39

Significant level @ 5%

Table 14. Impacts of influencing factors on community's level of involvement in the provision of infrastructures in low/medium-income residential neighborhoods

Influencing Factor	t-stats	Sig. @ 5%	Mean Difference	95% Confidence Interval Level	
				Lower	Upper
Level of Cooperation	9.021	.0161	1.531	1.14	1.38
Fundraising	9.674	.0218	1.327	1.04	1.11
Income Status	9.483	.0327	1.620	1.02	1.37
Community Capacity	8.332	.0129	1.059	1.15	1.40
Leadership Style	8.761	.0256	1.642	1.20	1.32
Education Level	3.039	.0484	1.507	1.31	1.62
Economic Indexes	3.115	.0399	1.237	1.34	1.58
Manpower/Technical Know-How	7.527	.0302	1.341	1.51	1.69
Material Resources	2.029	.0502	1.253	1.37	1.72

Significant level @ 5%

5. Conclusion

The study examined the community-based approach to infrastructure provision in selected residential neighborhoods using Abeokuta as the case study. The primary objectives of the study are to conduct a socio-demographic analysis of the community members in order to reflect their peculiarities in the residential neighborhoods; to investigate the condition of available public infrastructure facilities in the studied area in order to know the current state of those facilities, the level of involvement of community associations, and the modalities of financing community projects; and lastly to identify the key factors influencing the success of community projects. The deployed descriptive and inferential statistics and the results of the analysis show that the differences in the socio-demographic characteristics of the two communities are due to the peculiarities of their residential neighborhoods.

Both communities attested to the good condition of neighborhood security. While road network was among the facilities expressed to be in a fair state by the high-income communities, the low/medium-income communities said that they are suffering from the bad condition of their community roads. Both communities have been actively involved in the provision/maintenance of especially neighborhood security and waste disposal/management services. The major modes of sourcing funds for community projects are levy/contribution from community members and donations/gifts from within or outside the community. The high-rated factors that could influence the success of community projects are the level of cooperation, fundraising and income status, which contribute positively and significantly to the performance of the community projects.

The study therefore concluded that the active participation of community associations that is geared towards providing the common needs of their community is an innovative initiative. For this initiative to thrive, there is a need to encourage the cooperation among community members and effective intervention by the government via the strengthening of policies and programs that will provide an enabling environment for community associations in fostering their neighborhood's physical, social and economic growth and development.

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