

Article

# A Multi-Faceted Approach to Improving Public Services in Low-Income Housing in Windhoek, Namibia

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**Abstract:** The characteristics of low-income housing in Namibia include severe inequality in housing standards, heavy reliance on non-office jobs, overcrowding, and poor infrastructure. This study uses a survey and semi-structured interviews to investigate the improved service delivery of this low-income housing. It explores this through the perspectives of community-based facilities management, sustainability, and enterprise development. In particular, the study examines opportunities for enterprise development, the willingness to participate in the production and management of public services, and the current state of public services in selected settlements in Windhoek. The results show that a lack of access to fire safety, disaster prevention, recreation, green spaces and tourist facilities are gaps in service delivery. Residents are willing to participate in both the co-production and management of public services. The study also found that residents have the appropriate skills to enable their engagement in management and production, and suitable governance structures are put in place to foster trust. The study recommends a policy that requires community visioning focused on public service improvement. It also calls for renewed trends in low-income people's participation in public service development processes. The study's contribution to existing knowledge on this subject is that it produced a multi-faceted framework for improving public services in low-income housing that is based on principles (and actions) of sustainability and policy (and planning) of land/housing access and has the potential to lead to public service-based community wellbeing.

**Keywords:** low-income housing; public services; management; Namibia; sustainability; urban resilience



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## 1. Introduction

Housing is a key component of the urban system that affects practically every other sector and impacts overall development. The housing industry is a representative sample of all facets of urban and individual life. Cities and towns' housing situations reveal information about the economic, social, and political elements that influence them [1,2]. Cities with predominant substandard housing and poorly serviced housing features tend to be characterised by informal settlements [3].

According to Ssekamatte [1], in Namibia, there are squatter settlements that do not have what we can refer to as shelter at all, and in some cases, there are small and overcrowded houses in insufficiently developed areas. Some plots of land that are allocated are small in size, less than the usual plot size. Some housing is small and does not have sanitary facilities, water taps, sewerage, or electricity. Moreover, there are site and service areas that are overcrowded. In addition, urbanisation is a driving force for many cities to seek employment. In West and East Africa, the number of people living in informal housing is increasing, and examples of such countries are Nigeria, Ghana, Mali, Liberia, and Chad. The situation is not different in Southern Africa, such as Namibia, South Africa

and Zambia [4]. In many African cities, public service delivery is poor due to insufficient finance, competence, rapid urbanisation, and poor governance structures [5].

Sustainable housing entails homes designed to reduce the cumulative environmental impact during and after construction so that the present needs can be met without compromising the ability of future needs to be met [6]. Sustainable housing can be realised through three major pathways: first, the efficient use of energy, water, land, and other resources needed to operate the general systems associated with the home; second, the promotion of the health of occupants and end-users residing within the building itself; and the third important aspect of sustainable housing is its emphasis on reducing greenhouse gas emissions, pollution, wastage, and degraded land. The benefits of sustainable housing include a reduction in energy and water usage; greater occupancy rates; and improved physical (for example, reduction in cold and infections) and psychological (reduced fatigue) health [7]. It is estimated that sustainable housing improves end-users' productivity rates compared to conventional housing by more than 20 per cent [8]. According to Golubchikov and Badyina [6], if housing is built and managed within the scope of an economic, social, cultural, and environmental sustainability framework, it will be accessible to low-income households and also respond to their heterogeneous needs with diverse positive outcomes for occupants' mental and physical well-being, the economy, and the environment.

Sustainable public services should be efficient, effective, economical, and equitable [9]. These services, in their delivery, embrace sustainability in co-production and management. The government sometimes relies on management tools and co-production to deliver public services and sometimes has to provide services through enterprises [10]. Namibia's government struggles with providing services in informal settlements [11]. Moreover, the people do not trust the government regarding public service delivery. The customers must pay their bills while the government must allocate funds. Public service delivery can be improved through initiatives that would raise funds, proper budgeting by using the funds for the intended purposes, constant research to assess customer satisfaction levels, identifying the customers' expectations, finding effective ways to meet customers' demands, providing appropriate training to employees to improve their skills, and community participation [12].

Sustainable community-based facilities management can assist in achieving local socio-economic development [13] for sustainable development [14]. Enterprise development can help create employment opportunities for those living in low-income housing. Enterprise development from the perspective of infrastructure development in low-income communities is the effective use of local resources, particularly human resources and readily available intermediate equipment. Optimising scarce financial resources also requires effectively mobilising the indigenous private sector (particularly small domestic construction enterprises) and applying sound management practices in contracting and employing organisations [15]. Resilience is important during the COVID-19 pandemic, affecting the society and community's well-being [16,17].

Problems with low-income housing in Namibia include overcrowding. In Namibia, municipalities maintain infrastructure and deliver services, and the City of Windhoek does not receive funding for this [18]. This impairs the services the poor can receive, especially in the ever-increasing informal settlements [19]. The number of shacks in Windhoek increased by 92% from 13,927 in 2001 to 26,736 in 2011. In 2021, Windhoek may anticipate having roughly 51,000 shacks; by 2031, it will have 99,000 [18].

There is also the problem of poor infrastructure, such as poor sanitary conditions, water supply, shopping facilities, and hospital facilities. Unemployment is high, and transportation is also restricted to taxis. There are low sanitary conditions and insufficient water supply. Moreover, many cannot meet the requirements of obtaining housing finance. There is also the problem with the participation of households due to their attitudes and the fact that apartheid brought a system where housing was regarded as a task of only the municipality [1]. The literature on social enterprise for the co-production of public services in developing communities showed that there are limited studies that are inclusive and focused on the mobilisation of the skills of housing enterprises for the co-

production of services [20]. Limited studies focus on developing skill sets in communities and managing urban infrastructure, especially green infrastructure, from the community facilities management point of view [21].

This study aims to develop a framework that integrates the community and municipalities' perspectives for them to participate in the co-production and management of public services to improve low-income settlements. It uses community-based facilities management, sustainability, and enterprise development concepts. The following are the specific research questions:

- What are opportunities that exist for enterprise development in low-income housing?
- What is the willingness to participate in the production of public services for enterprise development programmes?
- What is the willingness to participate in sustainable community-based facilities management for the successful management of housing projects?
- What is the current state of the low-income housing projects regarding public services and sustainability?
- What framework can be developed for the production and management of low-income housing in Windhoek?

Moreover, a hypothesis was tested: there is a significant influence of the willingness to participate in the production and management of public services on service performance.

Questions have been raised concerning the broader discourse on housing and public services for low-income communities. At the centre of discussions on sustainable urban housing and public services provision have been questions of how far society should depart from pathways of aesthetics and affordability and whether urban change should shift away from economic growth and materialism [22]. This study is focused on adopting pro-poor approaches to improving housing and public services. The study contributes to knowledge of the United Nations Sustainable Development Goal Number 11, which aims to make cities and human settlements inclusive, safe, resilient, and sustainable [23]. The study will also help with job creation, as principles of enterprise development within the context of infrastructure development within low-income housing will be explored. Community facilities have an essential role in supporting the communities within which they exist. Facilities management (FM) is well-positioned to lead to improvements in the quality of life, sense of belonging, and provision of affordable local services [24] since this research will look at how the application of community-based FM (CbFM) can lead to the regeneration of housing communities.

This study will advance our understanding of low-income housing, urban resilience, facilities management, and infrastructure management. This study suggests a novel strategy for addressing the issue of affordable housing in Windhoek, Namibia.

## 2. Literature Review

### 2.1. Public Amenities in the Context of Developing Communities

A liveable and enjoyable urban environment is facilitated by some circumstances and elements known as urban amenities. Housing constitutes a critical component of urban amenities because it has a direct relationship with liveability. It is also related to work and workplace improvements. This makes it an issue of primary interest in the built environment and any form of spatial setting [25].

The built environment, social services, and social climate are all present. The FM of public amenities is essential for the sustainable growth of the urban area in developing communities. By employing the City of Windhoek (Namibia) as an illustration, Kohima et al. [26] demonstrated how a lack of inclusivity in urban facility governance might result in "a one-city two-system (OCTS)". The OCTS idea depicts a situation in which urban FM or development promotes the development of one portion of a city but prevents the development of another section. Educational, recreational, health care, transportation, professional, cultural, and artistic services are a few amenities [27]. The availability of amenities close to the workplace might affect employee motivation and

productivity. Recreational and sporting facilities, entertainment, healthcare, and childcare facilities are a few examples of workplace perks [28,29]. Facilities for physical activity are one type of amenity [30]. A courtyard, prayer room, dining area, and entertainment rooms are amenities for social interaction. Facilities for spiritual pursuits improve people's mental health [31]. According to Thornton et al. (2012), cited in Schaeffer et al. [32], environmental amenities and supermarkets are examples of amenities. According to Rickman and Rickman (2011), cited in Schaeffer et al. [32], there may also be natural amenities that are the physical and ecological characteristics of an area: terrestrial and aquatic landscapes, topographical features, climate, air and water, and biodiversity. Consumptive and non-consumptive values of terrestrial animals, accessibility to water-related activity, and water quality are all significant amenity elements [33].

## 2.2. Sustainable Low-Income Housing

Few studies employing a multi-faceted strategy to focus on public services in low-income housing can be found when looking at current studies on sustainable housing.

In their study on applying Public Private Projects (PPP) in Ghana's pursuit of sustainable development goals, Akomea-Frimpong et al. [34] concentrated on housing. Patel [35] looked at the connection between housing and housing delivery in South Africa. It was discovered that there are additional localised eligibility requirements that, in addition to the national ones, demand that citizens submit proof of their eligibility using their identities and social connections. Tariq's [36] research in Pakistan offers a critical assessment of the policies currently or previously used in Pakistan to provide housing for the urban poor. Ezennia et al. [37] created a comprehensive set of criterion systems in Nigeria that can measure housing affordability comprehensively and sustainably. Smith et al. [38] used data from construction workers and beneficiaries of the low-income housing developments supported by CLIFF (the Community-Led Infrastructure Finance Facility) in Nairobi to develop a four-way classification to understand the livelihoods impact of housing interventions and how to measure it. To create a new, sustainable, and inexpensive housing model for Jordan's hot, dry environment, Ali et al. [39] evaluated the state of several affordable housing projects. In a 2017 study conducted in Brazil, Crosby [40] analysed the socio-economic effects of low-income housing on the local economic structure, highlighting public housing policies created by the state and federal governments. A "state-of-the-art" overview of renewable energy in social housing projects was provided by McCabe et al. [41]. Bredenoord [42] concentrated on issues of sustainable urban housing in the developing world, emphasising affordable housing for low-income households. Based on the physical attributes and traditional social components of the dwelling unit, urban planning, and the social environment in the residential area, Ibrahim [43] evaluated the degree of satisfaction with public accommodation amenities provided by the UAE government to inhabitants.

## 2.3. Housing Entrepreneurship Role in Low-Income Housing

Housing entrepreneurship seeks to make money while resolving housing issues, such as property rights and living conditions in slums. The upgrade promotes entrepreneurship. Additionally, rising housing costs impact people's behaviour, including entrepreneurship [44,45].

There have not been many studies on the co-production and management of housing for entrepreneurship in low-income communities. The scope of earlier research was restricted to places like the UK, Angola, Nigeria, Ghana, and South Africa. Home-based businesses may vary depending on the environment in other nations. While many of these studies focused on the value of home-based businesses for urban rehabilitation, there are few studies on how businesses assist in slum rehabilitation and managing such communities. Investigating the producers' and customers' readiness to participate in such social enterprises in the context of housing may also be helpful.

According to Tipple's [46] UK study on how housing might be used as a workplace, housing should be made for social enterprises. Ibem et al. [47] suggested an integrated

analytical and evaluation methodology based on housing as a social programme and sustainable development in Nigeria [48]. The social aspect of sustainability promotes inclusion, while the economic aspect may result in the development of jobs in home-based businesses. Nevertheless, Nigerians frequently place jobs in the public sector and other forms of employment above entrepreneurial endeavours. Residents in slums have low levels of faith in the state, which affects the dependability of urban governance structures [49]. The lack of security of tenure makes it difficult for businesses to grow since landlords are hesitant to let tenants run frequently ignored home-based businesses [49].

Mekawy [50] evaluated stakeholders' perspectives on the potential contribution of slum tourism and its related goods to improving living conditions in Egyptian slums. When looking at how home-based businesses (HBEs) in squatter settlements in Kenya benefit from rehabilitation, Kigochie [51] demonstrated that restoring squatter settlements and assisting HBEs creates jobs, income, and housing. The location of financial companies and several characteristics of building typology were investigated by Samburu et al. [52] in Kenya, and they discovered a strong correlation between the two.

In a participatory model incorporating social, economic, and environmental variables, Amado et al. [53] in Angola suggested a new integrated strategy for urban regeneration based on a partnership comprising the public and private sectors and the populace. The report recommended employing an approach in which various stakeholders have clear roles, and the government supports and encourages private investment by establishing favourable conditions for land development. These requirements are created by the public sector, which is also in charge of their valuation, by establishing land banks [54].

Gough et al. [55] compared and contrasted home-based enterprises (HBEs) in low-income neighbourhoods in Accra and Pretoria in a study on Ghana and South Africa. It examined the different sorts of businesses, how they affect household income, and the growth constraints. The authors of [56] investigated how a sharp value uplift has replaced informalities shared between local governments and peasants in China's state-dominated property formalisation and regularisation process. The study discovered social disparities in which low-wage tenants are no longer available and must search for cheap housing in low-income neighbourhoods [44]. In Pakistan, squatters showed socio-economic restrictions and a lack of basic infrastructure, according to Malik et al. [57], who studied the situation of informal housing in Pakistan.

Particularly in developing nations, there have not been any formal, coordinated initiatives to organise these home-based businesses to offer services to their neighbourhood or city. For instance, the Canadian government made an effort to offer financial support to Quebec home-based businesses to aid in the co-production of housekeeping services [58–61].

#### *2.4. Sustainable Community Facilities Management and Public Services in Low-Income Housing*

CbFM involves managing facilities and providing services that mirror the community and setting in which they operate. It is the processes by which all the stakeholders in a community collaborate to plan, implement, and maintain an enabling environment within which the local economy can flourish, quality services can be provided, and natural resources can be protected, allowing for the enjoyment of a high quality of life by the population [14]. Sustainable facilities management is integrating sociotechnical systems at the building level, consisting of buildings and building operation, use, maintenance and management processes, and how these systems can be managed to contribute to sustainable development in society [21].

Social enterprises in the UK with an environmental focus were considered by Alexander and Brown [14] as organisations that utilise natural resources. Roncolato et al. [49] discovered that sustainability neglected the strategic planning perspective and concentrated on environmental challenges. The social enterprise component was concerned with the delivery of services that were reasonably priced and could support business development and employment creation. From a service delivery and community management viewpoint, Hutchings et al. [62] concentrated on critical success criteria of the sustainable community



management of water. Social sustainability was the main topic of Grum et al.'s [63] 2020 study, which combined the idea with quality of life. Tammo et al. [24] concentrated on how management, utilising the SymbioCity method driven by environmental and economic variables, may create sustainability in informal settlements in South Africa. There are few studies on other facets of sustainability, such as financial sustainability. According to Elmualim et al. [64], environmental factors impact sustainable management practices more than a balanced strategy that considers social and economic sustainability factors. Research is needed on the environment other than that concerning water, energy, trash, and landscape.

### *2.5. Urban Resilience and Public Services in Low-Income Housing*

Community resilience is a term that primarily refers to the development of a community's capacity and is the consequence of effective adaptation; it is also a set of competencies that may be attained through building a community's capacity and preparing for disasters, as per Norris et al. [65]. According to Adger [66], community resilience is the capacity of communities to withstand external pressures and perturbations caused by social, political, and environmental change, as well as the capacity to draw resource concentrations and manage difficulties and changes, as per Paton et al. [67]. It reflects the capabilities of community systems to withstand and absorb adverse effects, according to Cutter et al. [68].

Much research on urban resilience has not focused on public services in low-income dwellings. In a conceptual work, Zuniga-Teran et al. [69] investigated the connections between green infrastructure and urban resilience. Shen et al. [70] looked into how resilient government platforms in China encouraged resilience during the epidemic. By comparing the significant components of attention for increasing urban resilience in Singapore, Hong Kong, and Hangzhou, [71] concentrated on experts and left out residents' perspectives. Using case studies from the Philippines, Sweden, South Africa, and India, how resilience might be applied to urban water services was examined by Johannessen et al. [72]. Moreover, it was discovered that the resilience idea does enhance the value of urban water services.

### *2.6. Theoretical Framework*

The theories that form the basis of this study are stakeholder analysis, social enterprise theory, sustainability, and community participation. Sustainable development is the idea that human societies must live and meet their needs without compromising the ability of future generations to meet their own needs. The study explored sustainability's environmental, social, and economic dimensions in managing and producing public services in low-income housing. The "official" definition of sustainable development was developed for the first time in the Brundtland Report in 1987. Stakeholder analysis encompasses a range of different methodologies for analysing stakeholder interests. Social entrepreneurship is a complementary economic approach based on value creation and operates by its own rules and logic [73]. Community participation involves involvement, empowerment, and partnership [74]. The interests of the residents and producers of low-income housing were explored regarding their participation in sustainable community development.

## **3. Materials and Methods**

This research is both qualitative and quantitative. It explored how sustainable community-based facilities management, co-production, urban resilience, and enterprise development can revitalise low-income housing projects in Windhoek, Namibia. The research collected primary data to show residents' infrastructural arrangements and employment status in low-income housing projects. The data for this study were from a household survey of selected suburbs of the City of Windhoek conducted in November 2022. A survey instrument was developed and pre-tested on 20 households. The questions were measured using ordinal and Likert scales. A five-point Likert scale was used (1—very important, 2—important, 3—moderately important, 4—low importance, and 5—not important). According to the United Nations [75], the population demographics of Namibia are 94 males per 100 females.

This translates to 1.2 million males and 1.3 million females in the country, and a female population of 52% compared to a 48% male population. So, Namibia has 78,000 more females than males. It is difficult to predict to what extent this general population demographic reflects the population of Windhoek.

The population of Windhoek in 2011 was 325,858. The suburbs were Hakahana, Okuryangava and Otjomuise. Hakahana is in Moses Garoeb and Tobias Hainyeko, Okuryangava is in Tobias Hainyeko and Katutura, and Otjomuise is in Khomasdal North. The area maps of the three suburbs surveyed are in Figures 1–4. Windhoek’s informal settlements are located around Katutura and Khomasdal North. In Katutura they are in the three northwestern constituencies of Tobias Hainyeko (Oshitenda, Okahandja Park, Kilimanjaro, and Babylon), Moses Garoeb (Hakahana and Havana Extension No. 2, No. 5), and Samora Machel (Greenwell Matongo, Goreangab, and Havana Extension No. 7). In Khomasdal North, informal structures are found in the areas of 7de, 8ste and 9de Laan. In 2011, this population was estimated to be nearly 114,000, with informal settlements growing at 9% per annum in the City of Windhoek [19].

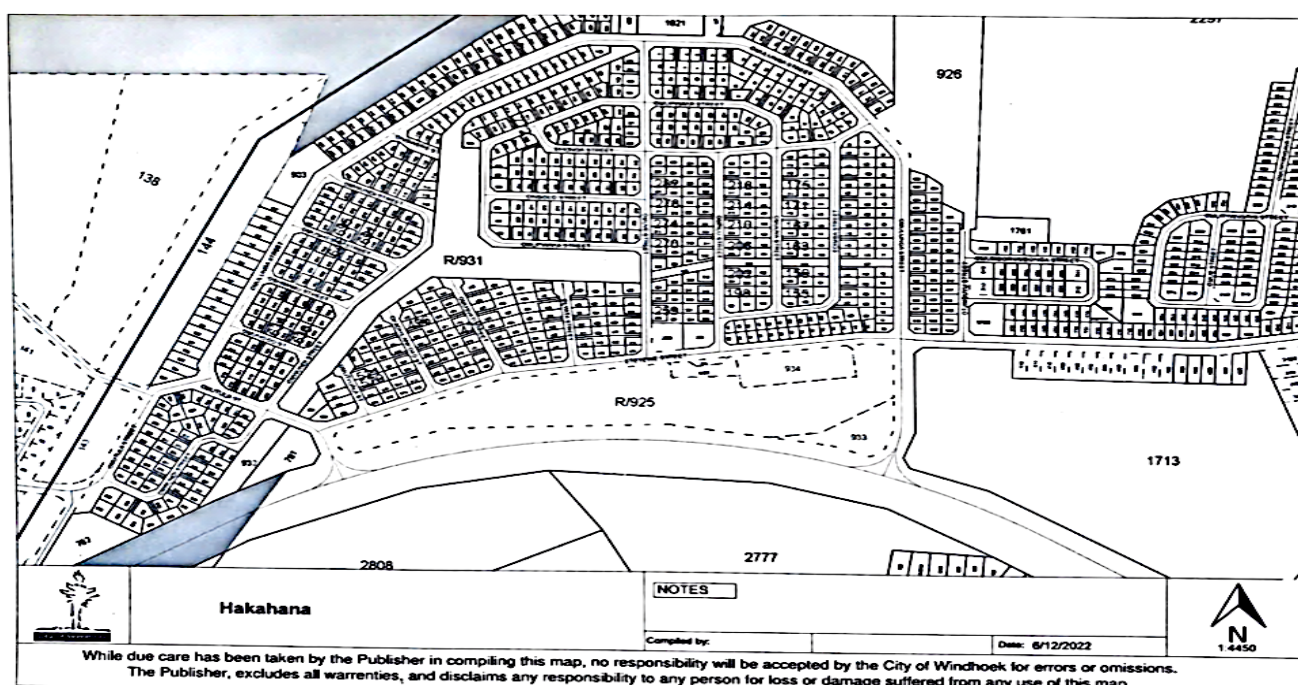


Figure 1. Hakahana.

The study randomly surveyed all three constituencies with a target population of 384 homes [19]. One hundred and twenty questionnaires were distributed in each suburb. A total of 200 questionnaires were collected, showing a response rate of 52%. A total of 70, 63, and 67 questionnaires were collected from Hakahana, Okuryangava, and Ojiomuise, respectively. A hypothesis was used to probe the significance of the influence of the willingness of people to participate in the production and management of public services on service performance. The hypothesis served as a tool to guide the research in pinpointing the variables determining the direction for answering the research questions [76]. Since enough samples were collected to test the hypothesis, the study is generalisable in Windhoek, Namibia [77,78]. The head of each household or their representative was interviewed after obtaining informed consent. In the relevant constituency, each of these households resided in low-income housing [79]. To further clarify and put the survey in context, three officers of the Shack Dwellers Federation in Windhoek, Namibia, were interviewed about the availability of infrastructure in the communities. Demographic background information, employment status, skills, membership in organised groups, trust in others, community involvement, reaction to uncertainty, access to services, willingness to participate in the co-



production and management of public services, and satisfaction with service delivery were among the questions asked in the questionnaire. The questions asked in the interviews can be found in Appendix A. The findings were analysed using frequencies, mean scores, and standard deviations. Ordinal regression was used to determine the influence of willingness to participate in the co-production and management of public services [80].

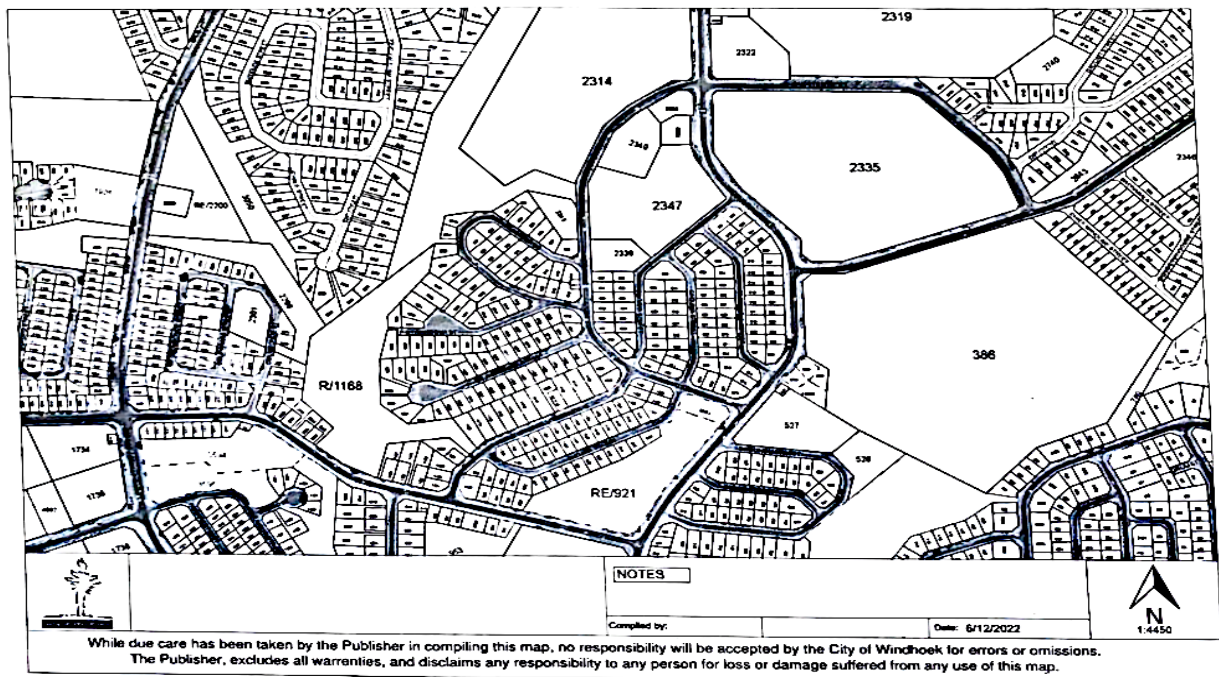
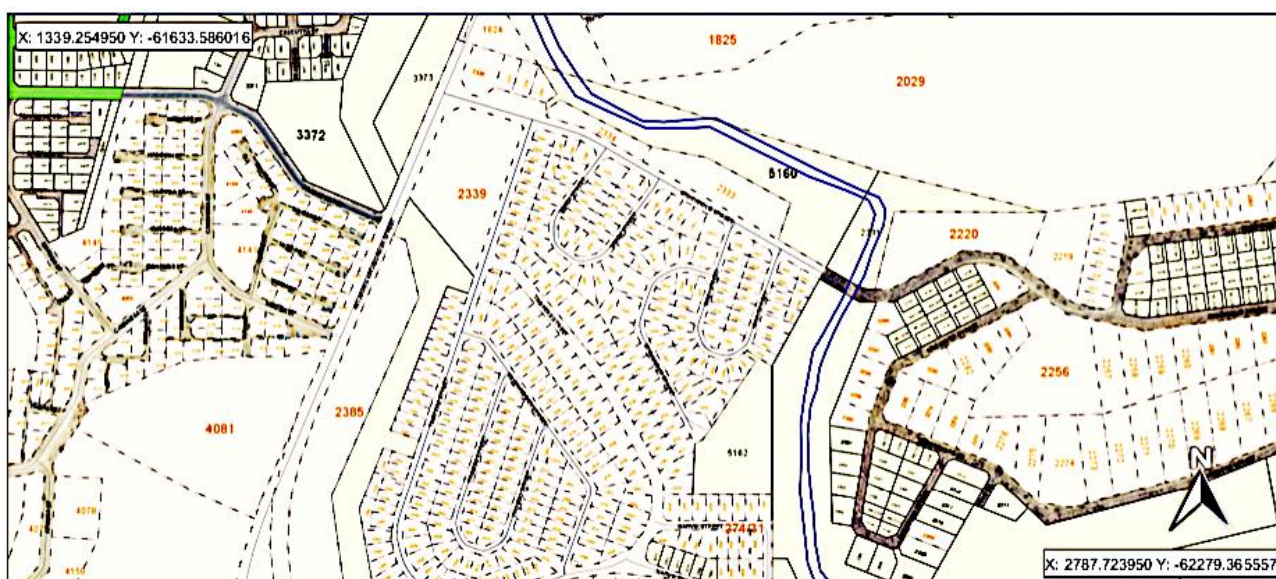


Figure 2. Okuryangava.



Figure 3. Otjomuise extension 3.





**Figure 4.** Otjomuise extension 4.

Community taps give residents of most informal settlements access to safe drinking water. The National Housing Policy regulations from 2000 require access to public restrooms and water faucets within 30 and 200 metres of each house, respectively. Although many do not connect to the city's sewage infrastructure, others have toilets. Therefore, many areas are not or are only partially supplied. After 1991, there was a significant rise in the usage of both private and communal flush toilets. However, by 2011, there were still over 57,000 urban homes with roughly 250,800 inhabitants who did not have access to any toilet facilities. By 2011, approximately 205,200 people were living in 54,000 urban houses, and the consumption of electricity (and gas) had increased significantly. Additionally, open flames risk one's health and safety, particularly during the winter when people warm their shacks with them. Those who purchase firewood incur high costs, some of which may exceed household expenditures for education or transportation [11].

Municipalities in Namibia are primarily in charge of maintaining the infrastructure in towns and cities and delivering services. The City of Windhoek operates on a cost-recovery basis, and it does not receive ongoing funding for acquiring property, supplying bulk services, or constructing specific infrastructure [81,82]. As a result, it simply does not offer services the poor can afford. The number of shacks in Windhoek increased by 92% from 13,927 in 2001 to 26,736 in 2011. By 2031, Windhoek will have 91,000 shacks, up from an estimated 51,000 in 2021 [11].

Since Namibia's independence, the CoW has spent much money on services for several squatter communities. Access roads, communal flush toilets, and communal water points have all been widely distributed. However, the expansion of informal settlements has put the city's capabilities to the test, and many neighbourhoods continue to lack basic amenities. In 2011, 34% of the city's people depended primarily on gas, paraffin, and wood, compared to 66% of residents who utilised electricity as their primary energy source. The majority of this 34% are likely in informal homes. Moreover, in 2011, 61,000 households, or 19% of Windhoek's population, lacked access to toilet facilities. The effects on public health are significant [11].

Communal water stations are a standard element in many of Windhoek's villages. Water cards are frequently unrestricted and may be recharged at regional CoW offices, including those in Ombili or Wanaheda. In 2017, 25 litres cost 40 cents, and some locals claim that N\$50 can purchase water for a household of 4–5 people each month. That translates to around 25 litres per family member daily [83].

Many of Windhoek's informal communities have strategically situated dumpsters where solid garbage is collected. In certain regions, the town gives homeowners weekly trash bags, and the dumpsters are cleaned out once a week. However, certain regions need adequate servicing, which leads to rubbish being thrown outside. The CoW's upgrading policy prevents power from being delivered to the lowest-income inhabitants, which accounts for the absence of electricity or street lighting in significant portions of Windhoek's informal settlements [11].

The government's efforts towards low-income housing include that of the City of Windhoek, which established a Beneficiary Housing Project that consists of two components, the Build Together Housing Scheme and the Windhoek Housing Scheme, to lessen the housing scarcity, particularly among the low-income sectors. There is the National Housing Enterprise established under the Ministry of Urban and Rural Development with the mandate to meet the housing needs of the low-income group. The MURP previously oversaw the Build Together Housing Scheme. The Build Together Housing Scheme's duties were devolved to local governments in 2000, including the City of Windhoek. For the benefit of the ministry, the Department of Human Settlement and Property Management oversees the Housing Schemes. The Ministry of Urban and Rural Development makes grants available through the housing programme to help low-income residents develop affordable dwellings. The programme benefits both individuals and members of various housing groups. The Build Together Housing Scheme includes private organisations and the Shack Dweller Federation (SDF). The City of Windhoek established the Windhoek Housing Scheme as a housing programme to provide low-income persons with financing to build affordable homes or add on to their current residences. The Windhoek Housing Scheme, in contrast to the Build Together Housing Scheme, solely provides housing for those who own land but lack the funds to construct it [79].

## 4. Results

### 4.1. Demographic Profile of Respondents

A field survey revealed that residents can apply for a loan from the Shack Dwellers Association to take advantage of some of these income-generating options. Some residents (59%) are employed and residents' needs are established across populations.

As illustrated in Table 1, most of the population is young, aged 18 to 45 (80.5%). Most are female (56.5%), supporting the 2011 National Census findings. Concerning the demographics, females represent a higher ratio than males, perhaps because the female population is greater than the male population in Namibia. It could also be because homes are predominantly single-women-headed households in Windhoek. These statistics justify why this study deviates from previous studies that indicate that females are less responsive to surveys [84].

A UNESCO report stated that the female gender in Namibia has a say in household decision-making [85]. Unexpectedly, many possessed tertiary education degrees (48%), which explains why they could respond to the survey's questions. Additionally, most (92%) have incomes under N\$10,000 (\$543.2), which explains their choice of residence.

Additionally, the home survey revealed that the community needs to be more formally coherent. Residents' involvement in organised clubs, organisations, and associations is minimal, and there is only a moderately high engagement rate in religion and the church.

It is also evident that people do not trust authorities, including the police, the courts, the municipality, and others. The most alarming aspect of this lack of confidence is that local government officials are the best people to approach for receiving development assistance, such as scaling up a new company initiative.

**Table 1.** Demographic profile of respondents.

Resident Characteristics	Hakahana Freq (%)	Okuryangava Freq (%)	Otjomuise Freq (%)
Age			
Less than 18	1 (1.43%)	2 (3.17%)	5 (7.46%)
18–25	12 (17.14%)	13 (20.63%)	23 (34.33%)
26–35	20 (28.57%)	27 (42.86%)	24 (35.82%)
36–45	20 (28.57%)	13 (20.63%)	9 (13.43%)
46–59	15 (21.43%)	7 (11.11%)	5 (7.46%)
Above 60	2 (2.86%)	1 (1.59%)	1 (1.49%)
Gender			
Male	29 (41.43%)	27 (42.86%)	31 (46.27%)
Female	41 (58.57%)	36 (57.14%)	36 (53.73%)
Education			
None	3 (4.29)	7 (11.11%)	1 (1.49%)
Primary	0 (0%)	4 (6.34%)	4 (5.97%)
Junior secondary	43 (61.42%)	20 (31.75%)	22 (32.83%)
Tertiary education	24 (31.28%)	32 (50.79%)	40 (59.70%)
Family size			
1–4	23 (32.85%)	33 (52.38%)	32 (47.76%)
5–8	36 (51.43%)	26 (41.27%)	32 (47.76%)
9–12	9 (12.86%)	3 (4.76%)	3 (4.47%)
12–15	0 (0%)	1 (1.58%)	0 (0%)
Above 15	2 (2.86%)	0 (0%)	0 (0%)
Monthly income			
None	38 (54.29%)	22 (34.92%)	38 (56.72%)
Less than N\$1000 (\$54.32)	11 (15.71%)	5 (7.94%)	5 (7.46%)
N\$1000–5000 (\$54.32–271.6)	11 (15.71%)	16 (25.39%)	15 (22.39%)
N\$5000–10,000 (\$271.6–543.2)	6 (8.57%)	12 (19.05%)	5 (7.46%)
N\$11,000–20,000 (\$597.5–1086.4)	4 (5.71%)	6 (9.52%)	4 (5.97%)
Above N\$20,000 (\$1086.4)	0 (0%)	2 (3.18%)	0 (0%)
Involvement in organised groups			
Religion	56 (80%)	41 (65%)	44 (65.67%)
Hobbies	7 (10%)	8 (12.7%)	12 (17.91%)
Sports club	5 (7.14%)	13 (20.63%)	18 (26.86%)
Local community organisations	7 (10%)	4 (6.35%)	3 (50%)
Trade unions	0 (0%)	3 (4.76%)	1 (1.49%)
Political party	15 (21.42%)	9 (14.29%)	7 (10.4%)
Health and welfare groups	1 (1.42%)	4 (6.35%)	4 (5.97%)
Trust in authorities			
Courts	20 (28.57%)	8 (12.70%)	17 (25.37%)
Government	16 (22.86%)	17 (26.98%)	16 (23.88%)
City of Windhoek	14 (20%)	10 (15.87%)	11 (16.42%)
Police	17 (24.29%)	27 (42.86%)	12 (17.91%)
Church	24 (34.29%)	16 (25.40%)	20 (29.85%)
NGO	3 (4.29%)	2 (3.17%)	2 (3.33%)
Local community-based organisations	4 (5.71%)	3 (4.76%)	3 (4.48%)

#### 4.2. Employment of Residents

Employment and skills profiles show the sectors where the residents can be helpful in the co-production and management of public services. The employment and skills profile cuts across the different skills, as shown in Figures 5 and 6. Regarding the respondents' employment status, many were unemployed; 28.6% in Hakahana, 17.5% in Okuryangava, and 39% in Otjomuise. Moreover, a sizeable number of residents were students; 23% in Hakahana, 9.5% in Okuryangava, and about 6% in Otjomuise. Some were in education: 5.7% in Hakahana, 3% in Okuryangava, and 8.9% in Otjomuise; or in construction: 7%



in Hakahana, 4.76% in Okraganva, and 4.5% in Otjomuise. Some were in food, drinks, and hotels; 3% in Hakahana, 8% in Okuryangava and 4.5% in Otjomuise. Some were in commerce, with 4.7% from Okuryangava, and 13% were in IT/auto mechanics/electrical. Concerning their skills profiles, most of them were unemployed; 24% in Hakahana and 14% in Okuryangava and Otjomuise, respectively. Traders were 14% in Hakahana, 9.5% in Okuryangava, and 11% in Otjomuise. Those in trades were 9% in Hakahana, 9.5% in Okuryangava, and 4.5% in Otjomuise. Some were in sports, with 6% in Hakahana and Okuryangava and 9% in Otjomuise. About 6% were technicians in Hakahana and Okuryangava and 3% in Otjomuise. In Hakahana, 6% were teachers, as were 9.5% in Okuryangava and 7.5% in Otjomuise. Many were in entertainment in Hakahana. Some were tailors in Hakahana (5.7%), as were 9.5% in Okuryangava and 7.5% in Otjomuise. These profiles indicate the need for training regarding skills that can be used for co-production services in these communities. Since many are unemployed, engaging them in social enterprises would create jobs.

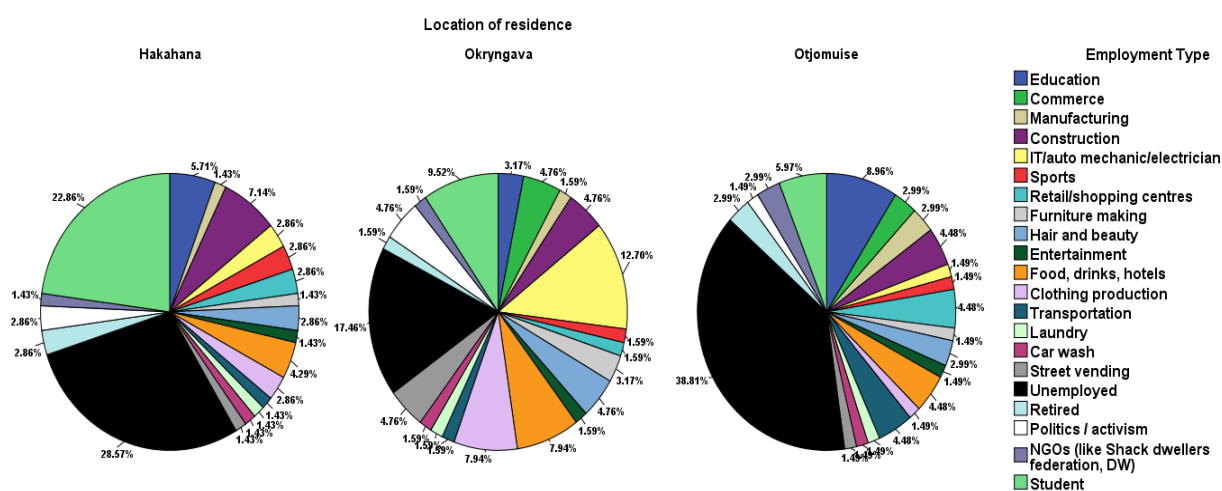


Figure 5. Employment of residents.

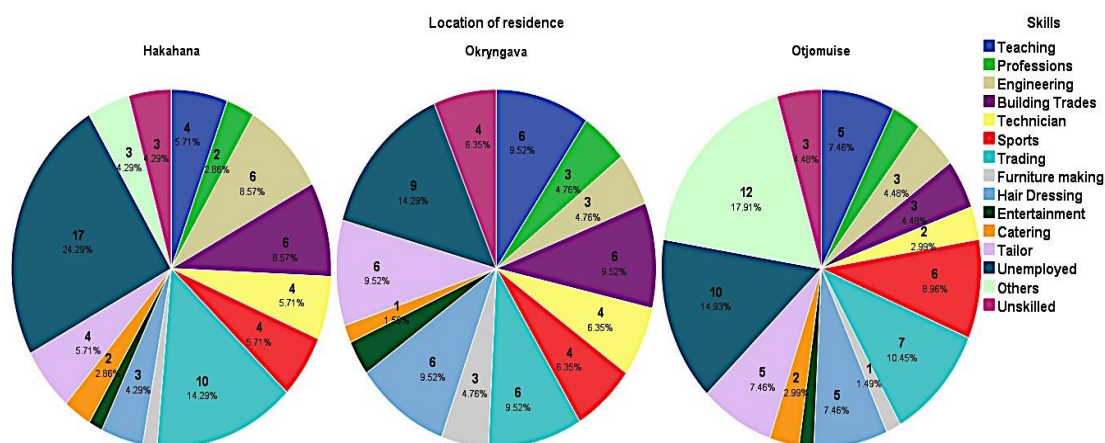


Figure 6. Skills of residents.

#### 4.3. Community Participation and Urban Resilience

Community participation is essential for the management of public services. The community can act as an enterprise when its participants work collaboratively to produce and exchange goods and services from the existing social structure of the community for organising those activities [86]. In Okuryangava and Otjomuise, most residents do not meet with the community to discuss community needs. In Hakahana, most of the residents meet monthly. This could be because this suburb is managed by the Shack Dwellers Associ-

ation of Namibia, which puts communities in a learning exchange to learn best practices. Residents are encouraged to work together, as shown in the interview with an official. They train people for cohesion in providing housing. Community information supports groups through WhatsApp, community leaders, and national facilitators communicating with the community. Through community participation, they are given opportunities to scale up the development of the land (Figure 7).

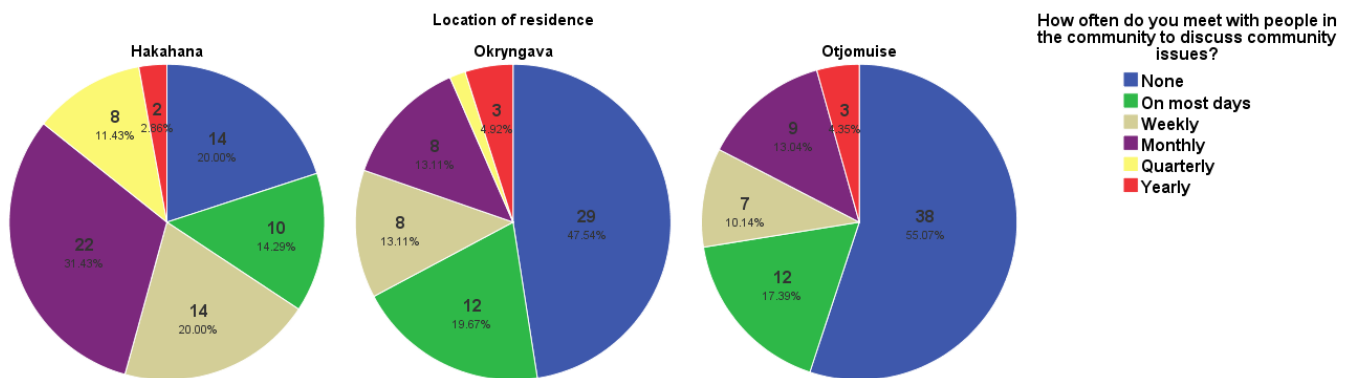


Figure 7. Community participation of residents.

Xu et al. [87] identified residents' coping styles with the risk posed by a disaster, including the variables found in Figure 8. In the three locations, the response is mainly through personal protection. This is followed by measures based on the community; 30% in Otjomuise, 24% in Hakahana, and 16% in Okuryangava. Another standard measure is that of government legislation; 27% in Hakahana, 25% in Okuryangava, and 7% in Otjomuise. Some preferred responding by planning to exit the community; 9% in both Hakahana and Otjomuise. The more recent exposure to uncertainty was during the COVID-19 pandemic; for example, the Shack Dwellers Association trained the community to comply with government legislation on disaster prevention in partnership with the Ministry of Health. The legislation to control the pandemic in Namibia is a declaration of a state of emergency: National disaster (COVID-19) Proclamation 7 of 2020. To be resilient, the association assists with more inclusive participation, and because it works with the community, it is easy to identify vulnerable people. It obtains information from the Ministry of Health in the local language to assist with managing the pandemic in the community.

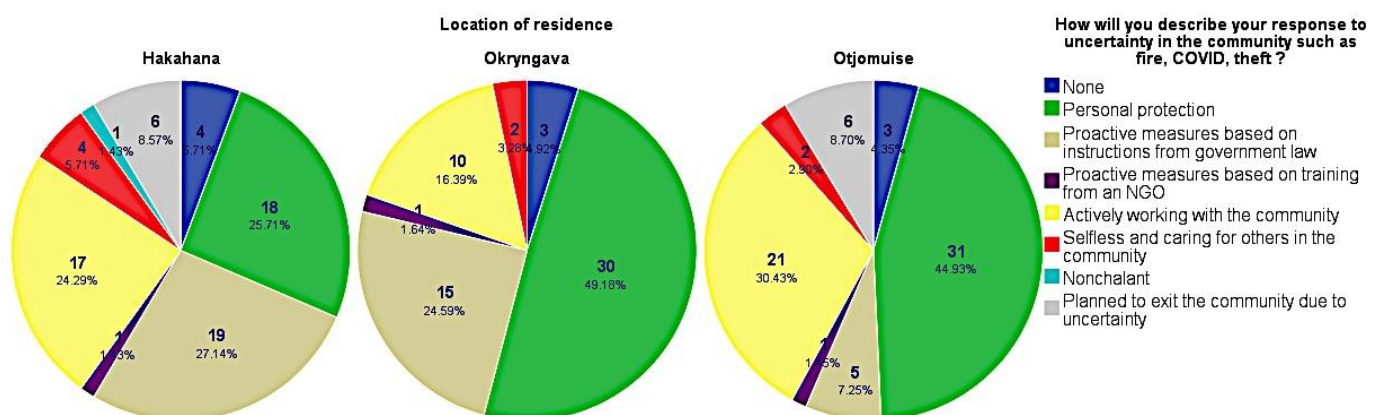


Figure 8. Urban resilience of residents.

#### 4.4. Access to Services

Some amenities include educational, recreational, health care, transportation, and professional, cultural, and artistic services [27]. Developing communities such as informal

settlements have poor services, living environments, and health, where some areas are used as spaces to dump waste, with poor urban appearance and high crime rates [88].

Table 2 shows access to basic facilities such as water, roads, toilets, waste management, housing, telecommunication, and internet facilities. Figure 9 further shows the facilities available in the communities. The residents' responses also included markets, since market facilities are close to the suburbs. Fire safety and disaster prevention had low access and were rated as high in importance (Figure 10). This also shows lapses in the urban resilience structures of the communities. Despite the opportunities for tourism and the use of green spaces, as Windhoek is a city for tourists [89], there is no access to tourism or green space facilities in the neighbourhoods studied.

**Table 2.** Access to services.

Services Provided	Hakahana	Okuryangava	Otjomuise
Water	69 (98.57%)	57 (90.47%)	63 (94.03%)
Roads	63 (90%)	59 (93.65%)	59 (88.06%)
Toilets/sanitation	68 (97.14%)	60 (95.23%)	62 (92.54%)
Energy/electricity	68 (97.14%)	58 (92.06%)	65 (97.01%)
Sports	27 (38.57%)	25 (39.68%)	27 (40.30%)
Fire safety	12 (17.14%)	16 (25.39%)	36 (53.73%)
Disaster prevention	10 (14.29%)	10 (14.29%)	18 (26.89%)
Recreation	7 (10%)	11 (15.71%)	12 (17.91%)
Waste management	63 (90%)	51 (80.95%)	58 (86.56%)
Green spaces, i.e., parks	7 (10%)	11 (15.71%)	20 (29.85%)
Markets/shops	61 (87.14%)	59 (93.65%)	60 (89.55%)
Housing	62 (88.57%)	58 (92.06%)	62 (92.54%)
Telecommunication networks (MTC, telecoms)	62 (88.57%)	58 (92.06%)	62 (92.54%)
Internet	51 (72.85%)	53 (84.13%)	58 (82.86%)
Tourism	5 (7.14%)	10 (14.29%)	15 (22.38%)
Others (please specify)	5 (7.14%)	10 (14.29%)	14 (20.90%)



(a)



(b)

**Figure 9.** (a) Okuryangava; (b) Hakahana.



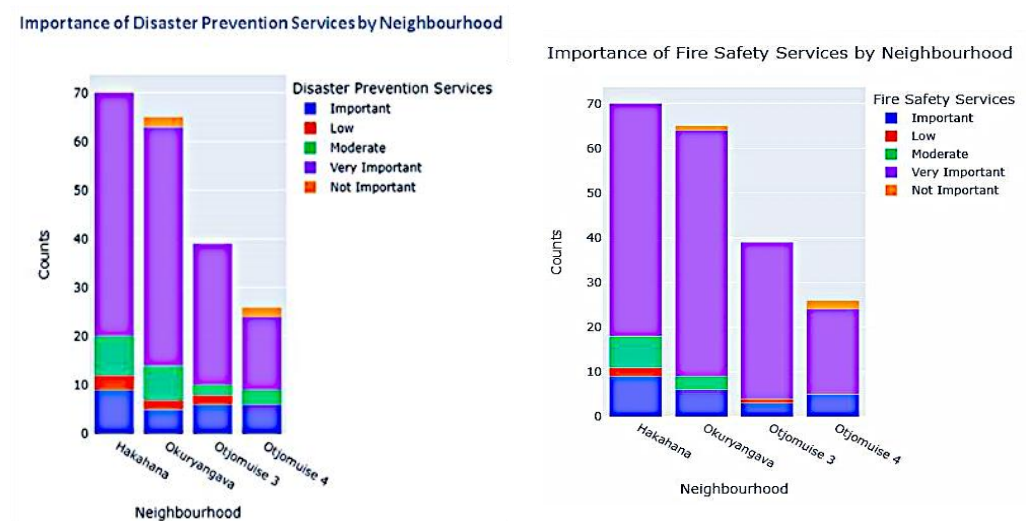


Figure 10. Access to fire safety and disaster prevention.

#### 4.5. Willingness to Participate in Co-Production and Management

Community co-production is defined as public services, service users and communities using each other's assets and resources to achieve better outcomes or improved efficiency [90].

Tables 3 and 4 demonstrate residents' willingness to participate in the co-production and management of all the service needs of the neighbourhood. Required services such as water, housing, energy, toilets, sanitisation, roads, restrooms, fire safety, and waste management are given priority. This could be the case given that many Windhoek neighbourhoods, as per Johannessen et al. [72], use electricity as their primary energy source.

Table 3. Willingness to participate in co-production.

Services	N	Sum	SD	Mean
Water	200	335	1.079	1.68
Sports	200	447	1.302	2.39
Recreation	200	499	1.276	2.50
Nature	200	464	1.271	2.32
Toilets/sanitation	200	364	1.168	1.82
Markets/shops	200	385	1.134	1.93
Green spaces	200	487	1.305	2.44
Sanitation	200	364	1.168	1.82
Energy/electricity	200	337	1.132	1.69
Disaster prevention	200	401	1.222	2.01
Fire safety	200	369	1.182	1.85
Roads	200	367	1.194	1.84
Housing	200	339	1.085	1.7
Waste management	200	374	1.162	1.87
Telecommunications	200	379	1.229	1.9
Internet	200	395	1.274	1.98
Tourism	200	521	1.575	2.61
Others (please specify)	200	419	0.598	2.10

Table 4. Willingness to participate in management.

Services	N	Sum	SD	Mean
Water	200	335	1.134	1.68
Sports	200	504	1.341	2.52
Recreation	200	536	1.314	2.68

Table 4. Cont.

Services	N	Sum	SD	Mean
Nature	200	480	1.272	2.40
Toilets/sanitation	200	376	1.189	1.88
Markets/shops	200	414	1.254	2.07
Green spaces	200	491	1.306	2.46
Energy/electricity	200	354	1.185	1.77
Disaster prevention	200	416	1.213	2.08
Fire safety	200	395	1.226	1.98
Roads	200	377	1.212	1.89
Housing	200	374	1.196	1.87
Waste management	200	403	1.270	2.02
Telecommunications	200	399	1.282	2.00
Internet	200	428	1.349	2.14
Tourism	200	522	1.490	2.61
Others (please specify)	200	419	0.623	2.10

#### 4.6. Satisfaction with Services Provided

As illustrated in Table 5, residents were somewhat dissatisfied with the service quality. Their key concerns were affordability, the environment, maintenance, location, comfort, and safety. An earlier study by Lewis et al. [82] gives credence to the idea that this could be management inadequacy due to issues with governance emanating from poor coordination between and among institutions, the requisite managerial acumen challenges and inadequacies among the management team, and funding availability, as revealed by this study. The problem of upgrading infrastructure, particularly ageing infrastructure, is also technological and economical. Rapid population expansion, extended droughts, rising service demand, rising energy costs, the compelling need to put off infrastructural upgrading projects because of a lack of funding, and dry or semi-arid climatic conditions are all issues constraining service provision.

Table 5. Satisfaction with services provided.

Aspects of Service Provision	N	Sum	SD	Mean
Affordability	200	556	1.144	2.78
Good environment	200	568	1.098	2.84
General maintenance	200	578	1.133	2.89
Situated in a good location	200	584	1.067	2.92
Comfortable to use	200	585	1.089	2.93
Promotes safety	200	591	1.217	2.96
Appearance and aesthetics	200	603	1.049	3.02
Encourages good relations with others in the community	200	577	1.210	3.05
Promotes health and well being	200	610	1.210	3.05
Good relationship with the project managers	200	622	1.088	3.11
Meets community needs	200	628	1.134	3.14
Approach of managers	200	652	1.104	3.26
Others (please specify)	200	455	0.766	2.18

#### 4.7. Hypothesis Testing: There Is a Significant Influence of the Willingness to Participate in the Production and Management of Public Services on Service Performance

In the “Model Fitting Information” (Tables 6 and 7), if the *p*-value shown in the “sig” column is less than 0.05, we conclude that willingness to participate in management significantly influences satisfaction. If the *p*-value in the “sig.” column is greater than 0.05 (alpha confidence level), we conclude to the contrary. In this example, the *p*-values are 0.01 and 0.00 (i.e.,  $p < 0.05$ ). Therefore, we conclude that willingness to participate in

co-production and management significantly influences the satisfaction level with public services.

**Table 6.** Model Fitting Information.

Model	−2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	513.979			
Final	400.326	113.653	72	0.001
Link function: Logit.				

**Table 7.** Model Fitting Information.

Model	−2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	496.379			
Final	375.846	120.533	68	0.000
Link function: Logit.				

#### 4.8. Framing an Approach for Improving Public Services in Low-Income Housing

The case study found no existing co-production (for public services) approach in the study areas. However, the survey allows for an understanding of the needs of the people in any co-production of public services. As this study seeks to contribute knowledge to an approach to the co-production and management of public services (based on the experiences of those in low-income housing in Namibia), a starting point will be to identify the critical issues revealed by the results as the basis for formulating such an approach. Two aspects of the results lend towards formulating a renewed approach to co-producing improved public services. (1) The hypothesis supports it. The hypothesis justifies a renewed approach to improving public services provision in low-income housing because there is a significant influence of the willingness to participate in the production and management of public services on service performance. Additionally, this willingness to participate in co-production and management significantly influences the satisfaction level with public services. (2) The elements of public service activities that must be improved have been identified in the results. The following elements were identified from the results (corroborated by the wider literature consulted): trust in authorities, access to land/housing, personal protection, community resilience, sustainability, and social enterprises.

These two categories of elements are also connected. For instance, the greater willingness to contribute to and participate in the production and management of public services (as a common good) suggests a potential to increase trust in officials and strengthen the social contract. It also suggests that if a people-centred practical approach is put in place, there is potential for the people to strive for the other elements (personal protection, access to land/housing, community resilience, sustainability, and social enterprises). On this basis, this study presents Figure 11.

Figure 11 is a valuable framework for exploring this issue, and it reflects an adaptation of existing models based on ideas derived from the empirical results of this paper. In the context of the co-production of public services in low-income communities, engendering improvements require *entry points*. The entry points, in most cases, already exist through two channels, and this can be via principles and actions (for *sustainability*) and policy and planning (for *land and housing access*). Together, these two entry points can facilitate *people* to facilitate *leadership* and *partnerships*, which can serve as enablers of the co-production process.

At the centre of enablement is people because co-production is impossible without people. Public services are not needed without people. Hence, people-driven leadership and partnerships are essential to enable co-production. This is possible through community housing and community participation propelled through community visioning. This can happen in three main community-driven ways.



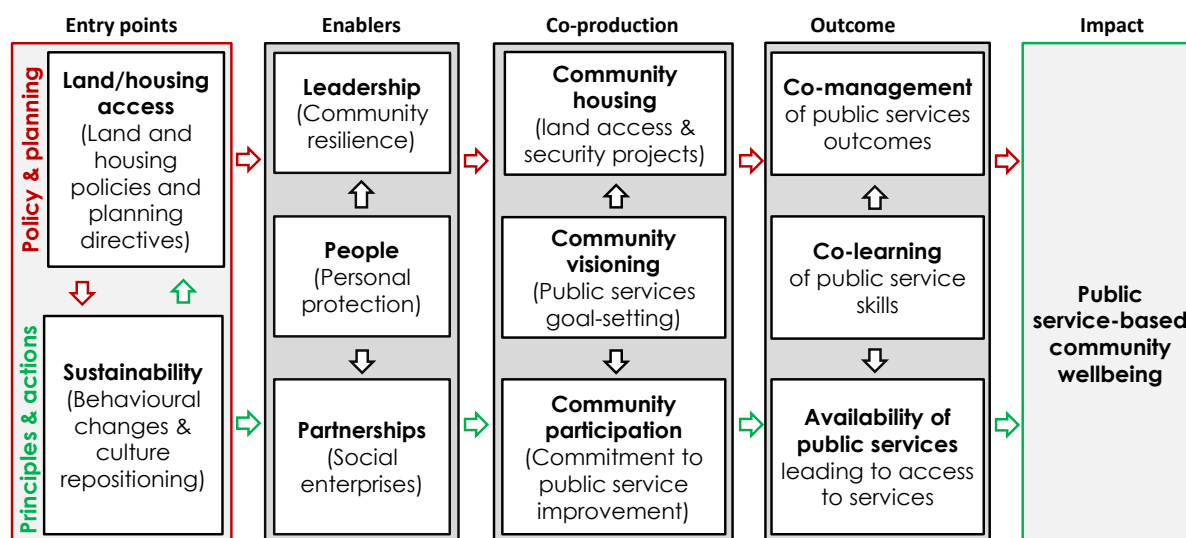


Figure 11. A framework for improving public services in low-income housing.

Suppose the co-production process is a learning-focused scenario. In that case, an immediate outcome will use the co-learning of public service skills as a platform for the improved co-management of public service outcomes and the availability of public services. By impact, all of these can have a causal effect, leading to public service-based community well-being.

## 5. Discussion—General Issues from a Renewed Framework for Improving Public Services in Low-Income Housing

This study is necessary because no approach was found in the case studies for improving public services. Introducing an approach has policy and behavioural implications on the existing literature. From an empirical ground, a key question from the framework presented is what sustainability, housing access, and public service-based community well-being mean to low-income people.

Enablers of public services in the context of developing nations exist mostly in the form of (un)coordinated initiatives to organise home-based businesses to offer services to their neighbourhood or city [61]. In the case of Namibia, the skills profile showed “residents” dominant skills profiles to include the unemployed, traders, sports, technicians, education, teachers, and those in construction. This implies that the issue of housing is an issue of basic living, coupled with the issue of sustainability at the core of life continuity. Achieving public service-based community well-being generally ensures the availability (quantity) and security (quality) of basic services such as housing, energy, mobility, and sustained income. At the base of these issues in Namibia is the issue of land access and housing tenure security. In most cases, these cannot be fully achieved without partnerships and socio-political leadership (including community leadership, political representation, and activism).

The issue of skills can vary from community to community in different cities in different countries. For instance, trading was the focus of a study in Tanzania by Mbisso et al. [91], and trading along the main roads transforms the socio-spatial aspects of communities. Other studies, such as that by Mekawy [50], discovered that traditional rural food celebrations and urban family visits—activities that encourage direct engagement in infrastructure improvement—would benefit visitors and low-income people. The primary issue affecting slum tourism is that slum tours invite visitors to assist in preparing food and water for some of the area’s less fortunate residents. In Kenya, benefiting from rehabilitation, Kigochie [51] discovered that people were engaged in HBEs in retail, grocery, manufacturing, and other sectors. The study demonstrated that restoring squatter settlements and assisting HBEs creates jobs, income, and housing.

Gough et al. [55] found that the industries recognised as home-based businesses included manufacturing, fashion, salons, daycare, and traditional healers. While South Africa had a sizable and closely regulated official industrial base alongside informal activity, Ghana had a vibrant and outgoing informal economy for decades [38]. Liu et al. [56] found that peasants dominated China's state-dominated property formalisation and regularisation process. According to Malik et al. [57], listing home-based businesses, some households employ the shop house by turning the area on the bottom floor of their home into a store. The economic trend of "work from home" has developed into a more lucrative option than jobs requiring long commutes. A study by Tipple [46] from the UK focused on how housing can be used as a workplace, and it found that housing should be designed for social enterprises. In Korea, Ha [92], in a study on low-income housing and urban regeneration, regarded housing enterprises as physical, economic, and human capital. The most popular form of occupation was construction. In Pakistan, Malik et al. [57] examined the state of informal housing in Pakistan and found that squatters exhibited socio-economic limitations and a lack of basic infrastructure. Malik et al. identified home-based enterprises to include some households that use the shop house by converting the space on the ground floor of their house into a shop. The economic initiative "work from home" has evolved as a better earning resource than work that involves long commuting hours.

Irrespective of which country low-income communities are located behavioural/cultural and policy implications are not uncommon. From a policy angle, sustaining housing challenges (and their associated public service issues) is impossible without engaging in proactive planning. People-centred policies are necessary to align the actions of people towards the fulfilment of their needs. This will call for policy changes. However, while this is a challenge, it presents ample opportunities for planning and participation. These create platforms for co-learning and co-management. It is also impossible to achieve or embrace sustainability in public service production without appropriate behavioural transformation or changing and repositioning cultures. Generally, "culture repositioning will ensure that small interventions lead to significant behavioural changes that strengthen development actions" [93] (p. 348). Likewise, achieving housing goals is challenging without land tenure security.

This study also bears relation to other studies on the subject matter. For instance, this study contrasts with that of Pugalís et al. [54], which found no skills shortage, as many of the residents were unemployed. In the study of Pugalís et al. [54], skills shortages were in teaching, IT/auto/electrical technicians, engineering professionals, and sports. The study found access to essential services such as water, electricity, roads, and energy [72]. Surprisingly, access was restricted to tourism, green spaces, safety, and disaster prevention. This contrasts with the findings of Winschiers-Theophilus et al. [89], which focused on tourism and green spaces. Limited studies have focused on fire safety, and many residents in Windhoek emphasised this because of the hot weather in summer and the use of wood as a source of heat energy with the potential for fire outbreaks in informal settlements [72].

Trust and community cooperation are essential for achieving the co-production of public services. In this regard, it is important to note that in the communities studied, the residents did not trust the authorities, which could indicate a deficiency in the governance structure, as discovered in the study of Pugalís et al. [54]. In the three locations, the response was mainly through personal protection. This is followed by measures based on the community; 30% in Otjomuise, 24% in Hakahana, and 16% in Okuryangava. Another standard measure is that of government legislation; 27% in Hakahana, 25% in Okuryangava, and 7% in Otjomuise. Some preferred responses were planning to exit the community; 9% in both Hakahana and Otjomuise. These findings were similar to those of Xu et al. [87]. A study on urban resilience by Ningrum et al. [94] and Shen et al. [70] was conceptual and instead focused on COVID-19. In another survey of selected Asian countries by Chen et al. [71], the respondents were planners and researchers, not residents. Zuniga-Teran et al.'s [69] conceptual study focused on green infrastructure. Johannessen et al. [72] focused on water services.

A lack of community cooperation in managing such services can influence the sustainability of public services delivered by social enterprises. The problem of managing services can come from inadequate supplies, poor investment in health and safety, the community's behaviour, staff occupational hazards, working duration, and weak support from management [1]. Community participation has been identified as the focus of many studies in developing countries such as South Africa, Nigeria, Kenya, Tanzania, Namibia, and Indonesia. The study found community participation as a more dominant factor in Hakahana than in Okuryangava and Otjomuise. Fakere et al. [95] focused on socio-economic characteristics and community participation through self-help enterprises; Gbadegesin et al. [96] focused on the community decision-making of property-owner associations, whilst Ebekoziem [97] focused on community-based low-income housing. These have been studies on urban infrastructure from the authors' respective country's perspectives and not the management perspective. Moreover, Surya et al. [98] found community involvement in different entrepreneurial activities. This contrasts with the efforts towards such activities in the selected individual settlements in this study.

Concerning the literature dimension of co-production, this study was empirical and multi-faceted, while previous and recent studies on public services were conceptual and not centred on housing, such as those by Loeffler et al. [90], Sicilia et al. [99], Clifton et al. [100], Adewunmi et al. [21], and Pestoff et al. [101]. A study by Otsuki [102] focused on bio centres and not housing and other services. Bovaird et al. [103] and Loeffler et al. [90] explored the co-production of public services from the community participation perspective. Osborne et al. [104] presented a conceptualisation of co-production based on public management and service management theory.

A conceptual paper by Adewunmi et al. [21] reviewed the factors classified into two overarching categories: organisational factors, including organisational arrangements, professional roles, and managerial tools, and procedural factors, including participant recruitment, participant preparation, and process design. Khine et al. [105] explored the co-production of public services from the public administration perspective. Amann and Sleigh [106] focused on the co-production of services for vulnerable groups.

Similar to this study, Boyle et al. [107] focused on how management can drive sustainability in developing communities but did not focus on aspects of co-production and urban resilience in managing services. This implies tapping into the residents' willingness to engage in various elements of co-production activities. Other studies, such as that by Ngowi [108], explored CbFM in planning, designing, constructing, and managing infrastructure facilities such as road networks, water supply, and sewage disposal in Botswana but was not sustainability-driven. On the other hand, Hou et al. [109] examined community facilities in heritage building revitalisation. The study by Nijkamp et al. [110] proposed that FM should be introduced right from the conceptualisation stage and incorporated into the design stage of the community project, which is part of the proposal of this study.

## 6. Conclusions

From a low-income urban public service perspective, research examining people's living conditions might suggest new approaches or ways to enhance existing conditions. The research presented in this study is a co-design of ideas for improving development in low-income urban communities. The study's contribution produced a framework for improving public services in low-income housing. The interaction of the elements in the framework was framed based on a survey to decipher what matters to residents in Namibia and provides a generic guide to how low-income people can co-produce public service. This has specific policy and development consequences. The study also mapped out skills that can be deployed in home-based enterprises to produce public services.

A compulsory policy implication of the innovative approach is that it requires community visioning focused on public service improvement. It also calls for renewed trends in low-income people's participation in public services development processes. It also calls for institutionalising citizens' participation as a matter of culture.



The study found that most residents are unemployed in sports and construction. Since many are ready to participate in co-production and management, enterprises should train and employ them, and government policies should encourage enterprises to recruit them to deliver public services.

In Okuryangava and Otjomuise, most residents do not meet with the community to discuss community needs; therefore, community heads, who are the governance structures, should sensitise residents to the benefits of meeting regularly to discuss community needs. Residents should be trained for cohesion in providing housing. Community information support groups should be provided through WhatsApp, community leaders, and national facilitators who communicate with the community in other communities where they do not have support in place. Through the right governance structures, residents will be in a better position to trust the government.

The results show that a lack of access to fire safety, disaster prevention, recreation, green spaces, and tourist facilities are key gaps in service delivery. Policies should, therefore, encourage enterprises that would address these gaps in service delivery. Moreover, residents should be encouraged and trained to provide skills for the co-production and co-management of these services. Policies should also emphasise the following in the service delivery, appearance, health, and well-being of those in the community and community participation. Moreover, mechanisms should be put in place to evaluate the relationship with managers of community enterprises through the tender and tender renewal processes. Most of the responses to urban resilience were from personal protection. The government has policies to address urban resilience, but the policies should make it mandatory to train residents to adjust should there be uncertainty.

Although urban development is the main subject of this study, it also has implications for rural development. Rural locations in Namibia or elsewhere in Sub-Saharan Africa can use the same strategy developed in this research for urban areas. For instance, rural municipalities in Namibia's regions might use the exact same community visioning method to design their development agenda in the direction of better (co-)production of public services. The planning processes and sustainability practises utilised in urban settings can be transferred to rural settings. Currently, vision problems align with local needs, and rural communities can use the framework our research has established.

The limitations of the study are that the study is limited to three informal settlements in Windhoek and not the whole of Namibia or other geographical regions in Africa or globally. The framework was also prescriptive, while future frameworks may look at improving the co-production and management of services. The scope of the study was multi-disciplinary, and future research could focus on individual areas of service provision and fields. For example, future studies could focus on fire disasters and prevention in low-income communities.

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## Abbreviations

CbFM	Community-based Facilities Management
CLIFF	The Community-Led Infrastructure Finance Facility
CoW	City of Windhoek
FM	Facilities Management
HBEs	Home-based businesses
MURD	Ministry of Urban and Rural Development
OCTS	One-City-Two-System
SDF	Shack Dwellers Federation
UAE	United Arab Emirates
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organisation

## Appendix A

**Table A1.** Interview questions for the Shack Dwellers Association.

Questions	
1	What is your role in the production of services in low-income housing?
2	What are the problems that you encounter in the production of services?
3	What are the resources that you use for tackling the problems of service delivery?
4	What strategies do you use for planning and implementation of the problems?
5	What aspects of management are important in the management of public services?

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